22nd Century Group, Inc.
Form 10-K
February 06, 2015

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

x **Annual Report under Section 13 or 15(d) of the Securities**

Exchange Act of 1934

For the fiscal year ended December 31, 2014

or

¨ **Transitional Report under Section 13 or 15(d) of the**

Securities Exchange Act of 1934

Commission File Number: 001-36338

22nd Century Group, Inc.

(Exact name of registrant as specified in its charter)

Nevada	**98-0468420**
(State or other jurisdiction of incorporation)	(IRS Employer Identification No.)

9530 Main Street, Clarence, New York 14031

(Address of principal executive offices)

(716) 270-1523

Registrant's telephone number, including area code

Securities registered under Section 12(b) of the Act: None

Securities registered under Section 12(g) of the Act:

Common Stock (Par Value - $0.00001 per share)

Indicate by check mark if the registrant is a well-known seasoned issuer as defined in Rule 405 of the Securities Act

Yes ¨ No x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act.

Yes ¨ No x

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.

Yes x No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Date File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files)

Yes x No ¨

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or

information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer.

Large Accelerated Filer ¨ Accelerated Filer ¨ Non-Accelerated Filer ¨ Smaller Reporting Company x

Indicate by check mark whether the registrant is a shell company (as defined by Rule 12b-2 of the Act).Yes ¨ No x

As of June 30, 2014, the last business day of the registrant’s most recently completed second fiscal quarter, the aggregate value of the registrant’s common stock (excluding the 16,135,155 shares held by affiliates), based upon the $3.07 price at which such common stock was last sold on June 30, 2014, was approximately $133.4 million.

As of February 4, 2015, there were 64,335,042 shares of common stock issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for its 2015 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K. Such Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of December 31, 2014.

22nd Century Group, Inc.

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Cautionary Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements concerning our business, operations and financial performance and condition as well as our plans, objectives and expectations for our business operations and financial performance and condition that are subject to risks and uncertainties. All statements other than statements of historical fact included in this Annual Report on Form 10-K are forward-looking statements. You can identify these statements by words such as “aim,” “anticipate,” “assume,” “believe,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “objective,” “plan,” “potential,” “positioned,” “predict,” “should,” “target,” “will,” “would” and other similar expressions that predictions of or indicate future events and future trends. These forward-looking statements are based on current expectations, estimates, forecasts and projections about our business and the industry in which we operate and our management's beliefs and assumptions. These statements are not guarantees of future performance or development and involve known and unknown risks, uncertainties and other factors that are in some cases beyond our control. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that we expected, including:

- Our ability to manage our growth effectively;
- Our ability to comply with existing and new government regulations;
- Our ability to retain key personnel;
- Our ability to enter into additional licensing transactions;
- Our ability to achieve profitability and positive cash flows;
- The potential for our clinical trials to produce negative or inconclusive results;
- Our ability to obtain significant revenue for our tobacco products in the U.S.;
- Our ability to obtain U.S. Food and Drug Administration (“FDA”) clearance for our potentially modified risk tobacco products and FDA approval for our *X-22* smoking cessation aid;
- Our ability to gain market acceptance for our products;
- Our ability to raise additional capital;
- Any potential negative impact from entering the cannabis space;
- Our ability to comply with government regulations;
- Our ability to compete with competitors that may have greater resources than we have;
- The potential for our competitors to develop products that are less expensive, safer or more effective than ours;
- The potential exposure to product liability claims, product recalls and other claims; and
- Our ability to adequately protect our intellectual property and to avoid infringement on rights of third parties.

For the discussion of these risks and uncertainties and others that could cause actual results to differ materially from those contained in our forward-looking statements, please refer to “Risk Factors” in this Annual Report on Form 10-K. The forward-looking statements included in this Annual Report on Form 10-K are made only as of the date hereof. We undertake no obligation to publicly update or revise any forward-looking statement as a result of new information, future events or otherwise, except as otherwise required by law.

Unless the context otherwise requires, references to the “Company” “we” “us” and “our” refer to 22nd Century Group, Inc., a Nevada corporation, and its direct and indirect subsidiaries.

PART I

Item 1. Business.

Background

22nd Century Group, Inc. was incorporated under the laws of the State of Nevada on September 12, 2005 under the name Touchstone Mining Limited. On January 25, 2011, we entered into a reverse merger transaction with 22nd Century Limited, LLC, which we refer to herein as the merger. Upon the closing of the merger, 22nd Century Limited, LLC became our wholly-owned subsidiary. After the merger, we succeeded to the business of 22nd Century Limited, LLC as our sole line of business.

22nd Century Limited, LLC was originally formed as a New York limited liability company on February 20, 1998 as 21st Century Limited, LLC and subsequently merged with a newly-formed Delaware limited liability company, 22nd Century Limited, LLC, on November 29, 1999. Since inception, 22nd Century Limited, LLC has used biotechnology to regulate the nicotine content in tobacco plants.

Overview

We are a plant biotechnology company specializing in technology that allows for the level of nicotine and other nicotinic alkaloids (e.g., nornicotine, anatabine and anabasine) in tobacco plants to be decreased or increased through genetic engineering and plant breeding. We are focused on tobacco harm reduction and smoking cessation products produced from modifying the nicotine content in tobacco plants through genetic engineering and plant breeding. We own or exclusively control 128 issued patents plus an additional 52 pending patent applications. The patents owned by or exclusively licensed to us include patents issued in 96 countries.

We are in the process of transitioning from researching and developing our proprietary technology and tobaccos to commercializing our technology and products. Our long-term focus is on licensing, manufacturing and selling of our tobacco products to reduce the harm caused by smoking. Annual worldwide tobacco product sales, including cigarettes and smokeless products, are approximately $800 billion, most of which are cigarette sales, according to Euromonitor International.

We are primarily involved in the following activities:

- The international licensing of our technology, proprietary tobaccos, and trademarks;
- The international sale of our branded proprietary tobaccos;
- The manufacture, marketing and distribution of *RED SUN* and *MAGIC* proprietary cigarettes;
- The production of *SPECTRUM* research cigarettes for the National Institute on Drug Abuse ("NIDA"), a part of the National Institutes of Health ("NIH");
- The research and development of potentially less harmful or modified risk tobacco products and novel tobacco plant varieties;
- The development of *X-22*, a prescription-based smoking cessation aid consisting of very low nicotine ("VLN") cigarettes;
- The pursuit of necessary regulatory approvals and clearances from the FDA to market in the U.S *X-22* as a prescription smoking cessation aid and *BRAND A* and *BRAND B* as reduced-risk or modified risk cigarettes;
- The contract manufacturing of third-party branded tobacco products; and
- The research and development in Canada of unique plant varieties of hemp/cannabis, such as (i) plants with low to no amounts of delta-9-tetrahydrocannabinol, or THC, for the legal hemp industry, (ii) plants with high levels of THC for the legal recreational cannabis markets, and (iii) plants with high levels of cannabidiol, or CBD, and other non-THC cannabinoids for the legal medical marijuana markets.

Our prospects depend on our ability to generate and sustain revenues from (i) the international licensing and/or sale of our proprietary tobacco, technology and products; (ii) the domestic and international sales of our brands, including *RED SUN* and *MAGIC*; (iii) the further development of our potential modified risk tobacco products and our *X-22* smoking cessation aid; and (iv) the manufacture of the filtered cigar and cigarette brands of third-parties at our manufacturing facility in North Carolina. Our ability to generate meaningful revenue from our potential modified risk tobacco products in the United States depends on obtaining FDA authorization to market these products as modified risk; and our ability to generate meaningful revenue in the United States from *X-22* depends on FDA approval. If these products are authorized and approved by the FDA, we must still meet the challenges of successful marketing, distribution and consumer acceptance.

We believe our proprietary technology, tobaccos and products can generate multiple significant revenue streams from licensing of our technology and tobacco and from the sales of our products.

We also believe that our products address unmet needs of smokers; for those who desire to quit, an innovative smoking cessation aid, and for those who are unable or unwilling to quit smoking, cigarettes that may reduce the level of exposure to tobacco toxins.

Intellectual Property

Our proprietary technology enables us to decrease or increase the level of nicotine (and other nicotinic alkaloids such as nornicotine, anatabine and anabasine) in tobacco plants by decreasing or increasing the expression of gene(s) responsible for nicotine production in the tobacco plant using genetic engineering. The basic techniques include, but are not limited to, those that are used in the production of genetically modified ("GM") varieties of other crops, which are also known as "biotech crops."

We own or exclusively control 128 issued patents plus an additional 52 pending patent applications, The patents owned by us or exclusively licensed to us include patents issued in 96 countries. The patents and patent applications that we own include the intellectual property that we acquired from the National Research Council of Canada ("NRC") on December 23, 2014 that was previously licensed to us by NRC on an exclusive basis. A "patent family" is a set of patents granted in various countries to protect a single invention. Our patent coverage in the United States and China, two of the most valuable smoking cessation and cigarette markets in the world, consists of 19 issued patents and 19 pending applications and 6 issued patents and 4 pending patent applications, respectively. We have exclusive rights to all uses of the following genes responsible for nicotine content in tobacco plants: *NBB*, *QPT*, *A622*, *MPO* and several transcription factor genes. We have exclusive rights to plants with altered nicotine content produced from modifying expression of these genes and tobacco products produced from these plants. We also have the exclusive right to license and sublicense these patent rights.

In September 2014, we entered into a Sublicense Agreement with Anandia Laboratories, Inc. (the "Anandia Sublicense"). Under the terms of the Anandia Sublicense, we were granted an exclusive sublicense in the United States and a co-exclusive sublicense in the remainder of the world, excluding Canada, to 1 U.S. patent and 20 patent applications relating to four genes in the cannabis plant that are required for the production of cannabinoids, the active ingredients in the cannabis plant. The Anandia Sublicense continues through the life of the last-to-expire patent, which is expected to be in 2035. As a plant biotechnology company, our entry into the legal hemp/cannabis markets is a natural evolution of our activities in a plant that has important research and commercial value and applications. We intend to engage in research and development activities in Canada to create unique plant varieties of hemp/cannabis, such as (i) plants with low to no amounts of THC for the legal hemp industry, (ii) plants with high levels of THC for the legal recreational cannabis markets, and (iii) plants with high levels of CBD and other non-THC cannabinoids for the legal medical marijuana markets.

We own various registered trademarks in the United States. We also have exclusive plant variety rights in the United States (plant variety protection certificates are issued by the U.S. Department of Agriculture) and Canada. A PVP certificate prevents anyone other than the owner/licensee from planting, propagating, selling, importing and exporting a plant variety for twenty (20) years in the U.S. and generally for twenty (20) years in other member countries of the International Union for the Protection of New Varieties of Plants, known as UPOV, an international treaty concerning plant breeders' rights. There are currently more than 70 countries that are members of UPOV.

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Licensing our technology and tobacco

We have been in negotiations with various parties in the tobacco and pharmaceutical industries for licensing our technology and products. On October 1, 2013, our subsidiary, 22nd Century Limited, LLC ("22nd Century Ltd."), entered into a Research License and Commercial Option Agreement (the "BAT Research Agreement") with British American Tobacco (Investments) Limited ("BAT"), a subsidiary of British American Tobacco plc.

Under the terms of the BAT Research Agreement, BAT receives an exclusive worldwide license to certain patent rights (subject to worldwide rights retained by 22nd Century Ltd. for use in its own brands and products) and licensed intellectual property rights (as such terms are defined in the BAT Research Agreement) of 22nd Century Ltd. within the field of use (as defined in the BAT Research Agreement) for a period of up to four (4) years (the "Research Term"). During the Research Term, BAT also has an option, which can be exercised by BAT at any time during the Research Term, to obtain an exclusive worldwide license (subject to worldwide rights retained by 22nd Century Ltd. for use in its own products and brands) to commercialize certain products derived from utilizing the patent rights and licensed intellectual property rights under the terms of a commercial license agreement (the "Commercial License").

Simultaneous with the signing of the BAT Research Agreement, BAT paid 22nd Century Ltd. a non-refundable fee of $7.0 million. Further, 22nd Century Ltd. may receive payments from BAT of up to an additional $7.0 million during the Research Term in the event certain milestones are met by BAT with respect to its research and development of the patent rights and licensed intellectual property rights licensed by 22nd Century Ltd. to BAT. There are four separate milestones, two of which BAT would pay 22nd Century Ltd. $2.0 million for each milestone achieved, and two of which BAT would pay 22nd Century Ltd. $1.5 million for each milestone achieved. BAT may terminate the BAT Research Agreement at any time, subject to the requirements for certain payments to 22nd Century Ltd. by BAT upon termination as set forth therein. 22nd Century Ltd. may also terminate the BAT Research Agreement in the event of certain uncured breaches of the BAT Research Agreement as set forth therein.

BAT also granted to 22nd Century Ltd. a worldwide license to any and all registered research results (as such term is defined in the BAT Research Agreement) developed and owned by BAT which results or arises from any research, development or other activities of BAT under the BAT Research Agreement, with the terms of such license from BAT to 22nd Century Ltd. (i) to be on commercially reasonable terms to be negotiated in good faith between the parties, but in any event on terms which are no more onerous than the terms of the Commercial License, if any, and (ii) to be dependent on what, if any, research results the Company elects to license.

If BAT exercises the option for a worldwide Commercial License, BAT is required to pay 22nd Century Ltd. $3.0 million in aggregate annual license fees over a 2-year ramp-up period, and thereafter, a royalty of (i) $100 per metric ton of licensed tobacco that is supplied to, or grown and ready for shipment to, BAT and its affiliates (other than Reynolds American, Inc. and Reynolds' affiliates) and all other third parties; and (ii) $200 per metric ton of licensed tobacco supplied to, or grown and processed by, BAT's affiliate Reynolds American, Inc.

The minimum and maximum amount of annual royalties under the terms of the Commercial License, which commence after the two-year ramp-up period from the exercise of the commercial option, are $3.0 million and $15.0 million, respectively, for a period of three years. Thereafter, the minimum and maximum annual royalties increase to $5.0 million and $25 million, respectively, until September 28, 2028. Thereafter, no further minimum royalties are due and the maximum annual royalties due remain at $25 million until expiration of the Commercial License.

Beginning three years from the start of the Commercial License, both 22nd Century Ltd. and BAT may license/sublicense rights to any unaffiliated third party for use of the technology outside the United States and 22nd Century Ltd. and BAT will equally share all profit from all such licensees/sublicensees. Inside the United States, BAT may only sublicense BAT’s commercial rights to Reynolds American Inc. 22nd Century Ltd. may sublicense any party in the United States.

RED SUN and MAGIC Cigarettes

Our subsidiary, Goodrich Tobacco Company, LLC ("Goodrich Tobacco"), introduced in a limited capacity two super-premium priced cigarette brands, *RED SUN* and *MAGIC*, into the U.S. market in the first quarter 2011. There have been *de minimis* sales of these brands since we intentionally did not expand the marketing and distribution of these brands until after the Company became a subsequent participating manufacturer under the MSA, which occurred on August 29, 2014, when the 46 Settling States under the MSA approved the Company to acquire NASCO Products, LLC ("NASCO") and become a subsequent participating manufacturer under the MSA, as explained in greater detail below under "MSA Membership." Both of the *RED SUN* and *MAGIC* brands are available in regular and menthol and all brand styles are king size and packaged in hinge-lid hard packs. In 2015, we intend to focus marketing efforts for *RED SUN* on national and regional distributors, tobacconists, smokeshops and other tobacco outlets in the U.S. The ban in 2009 by the FDA of all cigarettes with characterizing flavors (with the exception of menthol) has resulted in a product void in these specialty tobacco channels for super-premium priced products. We believe that certain U.S. cigarette wholesalers and retailers will carry our brands, among other reasons, to increase their margins.

MSA Membership

In September 2013, the Company entered into a Membership Interest Purchase Agreement (the "Purchase Agreement") to purchase all of the issued and outstanding membership interests of NASCO, a federally licensed tobacco product manufacturer and subsequent participating manufacturer under the MSA (the "NASCO Acquisition"). The initial purchase price for the transaction was $1,000,000 (the "Purchase Price"), subject to potential closing date adjustments for any unpaid liabilities of NASCO. The Purchase Price was to be paid as follows: (i) a cash payment of $200,000 and (ii) the issuance of $800,000 in value of unregistered shares of common stock of the Company. The Purchase Agreement was subject to various conditions, including required consents and authorizations from the National Association of Attorneys General ("NAAG") and the 46 Settling States under the MSA.

On May 13, 2014, the Company and NASCO executed the First Amendment to the Purchase Agreement (the "Amendment"). The Amendment increased the Purchase Price of the NASCO Acquisition to $1,050,000 and increased the cash payment to $250,000. In addition, the amendment eliminated the Company's closing requirement to enter into a management agreement and sales representation agreement with an affiliate of NASCO.

On August 29, 2014, the Company entered into an Amended Adherence Agreement with the 46 Settling States under the MSA pursuant to which the Company was approved to acquire NASCO and become a subsequent participating manufacturer under the MSA. On that same date, the Company closed the NASCO Acquisition and became a subsequent participating manufacturer under the MSA. NASCO is now a wholly-owned subsidiary of the Company.

Manufacturing

In December 2013, Goodrich Tobacco purchased certain (i) cigarette manufacturing equipment, and (ii) equipment parts, factory items, office furniture and fixtures, vehicles and computers from the bankruptcy estate of PTM Technologies, Inc. ("PTM") for $3.22 million. In January 2014, Goodrich Tobacco purchased additional miscellaneous equipment, factory items, office furniture and fixtures, vehicles and computers from the bankruptcy estate of Renegade Tobacco Co. ("Renegade") for $210,000. PTM and Renegade were related companies located in North Carolina undergoing Chapter 7 liquidation proceedings in the United States Bankruptcy Court for the Middle District of North Carolina. Goodrich Tobacco subsequently received $631,484 in net proceeds from auctioning off certain cigarette manufacturing equipment and other items not required for operations at the Company's factory in Mocksville, North Carolina.

The warehouse and cigarette manufacturing facility were primarily in a pre-manufacturing stage during 2014 as we sought approval during that time for the Company and its factory to become a subsequent participating manufacturer under the MSA. During 2014, we incurred various expenses to prepare the facility for production. Expenses incurred during the year ended December 31, 2014 amounted to $1,168,876 and consisted primarily of expenses for salaries and benefits for employees, sub-contract labor, rent, utilities and other miscellaneous costs. We did manufacture a quantity of filtered cigars during 2014 resulting in revenue of $81,456. On August 29, 2014, the Company closed its acquisition of NASCO and became a subsequent participating manufacturer under the MSA. The Company is now manufacturing its cigarette brands in the United States through its wholly-owned subsidiary, NASCO, at the Company's factory in North Carolina.

Now that we have become a licensed tobacco products manufacturer and a subsequent participating manufacturer under the MSA, we believe that our ability to produce *RED SUN* and *MAGIC* at our factory in North Carolina has increased our distribution potential for our cigarette brands in the U.S.

International Sales

During 2014, Goodrich Tobacco signed a letter of intent with Orion, a cigarette manufacturer in Poland, to contract manufacture the Company's proprietary tobacco products for distribution in the European Union. In December 2014, the Company and Orion set out to finalize a manufacturing agreement to be entered into by the parties. Distribution of *MAGIC* brand cigarettes is expected to commence in Spain in the first quarter of 2015. Orion is a manufacturer and distributor of smoking tobaccos, cigarettes, filter tubes, and smoking accessories with distribution in more than 20 countries. In December 2014, the Company also finalized a new distribution agreement with a European partner to be entered into by the parties in January 2015 for the launch of sales of the Company's products in The Netherlands, Belgium and Luxemburg in 2015. The Company is also evaluating the sale and distribution of its products in other European countries and in Asia, including China.

The Tobacco Control Act and Our Potentially Modified Risk Cigarettes – BRAND A and BRAND B

In a 2005 analyst report, *The Third Innovation, Potentially Reduced Exposure Cigarettes*, JP Morgan examined the effects of regulation by the U.S. Food and Drug Administration ("FDA") of tobacco, including the market for safer cigarettes. JP Morgan's proprietary survey of over 600 smokers found that 90% of smokers are willing to try a safer cigarette. Among JP Morgan's other conclusions, it stated: "FDA oversight would imbue PREPS ['potential reduced exposure products' which essentially equate to potential modified risk tobacco products] with a regulatory 'stamp of approval' and allow for more explicit comparative health claims with conventional cigarettes. Consumers should trust the FDA more than industry health claims." Prior to the Family Smoking Prevention and Tobacco Control Act ("Tobacco Control Act") becoming law in 2009, no regulatory agency or body had the authority to assess potential modified risk tobacco products.

The Tobacco Control Act granted the FDA authority over the regulation of all tobacco products. While the Act prohibits the FDA from banning cigarettes outright, it allows the FDA to require the reduction of nicotine or any other compound in tobacco and cigarette smoke. The Tobacco Control Act also banned all sales in the U.S. of cigarettes with characterizing flavors (other than menthol). As of June 2010, all cigarette companies were required to cease the use of the terms "low tar," "light" and "ultra light" in describing cigarettes sold in the U.S. Besides numerous other regulations, including certain marketing restrictions, for the first time in history, a U.S. regulatory agency will scientifically evaluate cigarettes that may pose lower health risks as compared to conventional cigarettes.

The Tobacco Control Act establishes procedures for the FDA to regulate the labeling and marketing of modified risk tobacco products, which includes cigarettes that (i) reduce exposure to tobacco toxins and (ii) are reasonably likely to pose lower health risks, as compared to conventional cigarettes ("Modified Risk Cigarettes"). The Tobacco Control Act requires the FDA to issue specific regulations and guidance regarding applications submitted to the FDA for the authorization to label and market Modified Risk Cigarettes. On March 30, 2012, the FDA issued *Modified Risk Tobacco Product Applications Draft Guidance.* We believe that two types of our cigarettes in development, which we refer to as *BRAND A* and *BRAND B*, may qualify as Modified Risk Cigarettes. In addition, the Tobacco Control Act allows the FDA to mandate the use of reduced risk technologies in conventional tobacco products and cigarettes (e.g., Marlboro ®), which could create opportunities for us to license our proprietary technology and/or our tobaccos to larger competitors.

We intend to seek FDA authorization to market *BRAND A* and *BRAND B* as Modified Risk Cigarettes. The Company has continued to gather additional information since the FDA's draft guidance on the subject, including from the FDA, to submit complete applications for our two Modified Risk Cigarette candidates. Depending on how many exposure studies and other information the FDA will require, it is likely that we will require additional capital to complete the entire FDA authorization process for our Modified Risk Cigarettes. The amount of capital is currently unknown since it is uncertain how many exposure studies the FDA will require for *BRAND A* and *BRAND B*. We believe that our *BRAND A* and *BRAND B* cigarettes will benefit smokers who are unable or unwilling to quit smoking and who may be interested in cigarettes which reduce exposure to certain tobacco smoke toxins and/or pose a lower health risk than conventional cigarettes. This includes approximately one-half of the 42 million adult smokers in the United States

who do not attempt to quit in a given year. Compared to commercial cigarettes, the tobacco in *BRAND A* has approximately 95% less nicotine than tobacco in cigarettes previously marketed as "light" cigarettes and *BRAND B*'s smoke contains an extraordinary low amount of "tar" per milligram of nicotine. We believe that *BRAND A* and *BRAND B* will achieve market share in the global cigarette market among smokers who will not quit but are interested in reducing the harmful effects of smoking. We believe this new regulatory environment represents a paradigm shift for the tobacco industry. There is no guarantee, however, that we will (i) have sufficient capital to complete the FDA authorization process for our potential Modified Risk Cigarettes, (ii) obtain FDA authorization to market *BRAND A or BRAND B* as Modified Risk Cigarettes, or (iii) achieve significant share of the market even with FDA authorization to market our products as Modified Risk Cigarettes.

BRAND A Cigarettes

Compared to commercial tobacco cigarettes, *BRAND A* has the lowest nicotine content. The tobacco in *BRAND A* contains approximately 95% less nicotine than tobacco in leading "light" cigarette brands. Clinical studies have demonstrated that smokers who smoke very low nicotine ("VLN") cigarettes containing our proprietary tobacco smoke fewer cigarettes per day resulting in significant reductions in smoke exposure, including "tar," nicotine and carbon monoxide. Due to the very low nicotine levels, compensatory smoking does not occur with VLN cigarettes containing our proprietary tobacco (Hatsukami *et al*. 2010).

In a June 16, 2010 press release, Dr. David Kessler, the former FDA Commissioner, recommended that "[t]he FDA should quickly move to reduce nicotine levels in cigarettes to non-addictive levels. If we reduce the level of the stimulus, we reduce the craving. It is the ultimate harm reduction strategy." Shortly thereafter in a *Washington Post* newspaper article, Dr. Kessler said that the amount of nicotine in a cigarette should drop from about 10 milligrams to less than 1 milligram. *BRAND A* contains approximately 0.7 milligrams of nicotine per cigarette.

A Phase II smoking cessation clinical trial at the University of Minnesota Masonic Comprehensive Cancer Center (Hatsukami *et al*. 2010) also measured exposure of various smoke compounds in smokers from smoking a VLN cigarette containing our proprietary tobacco over a six (6)-week period. Smokers significantly reduced their smoking as compared to their usual brand of cigarettes. The number of VLN cigarettes smoked per day on average decreased from 19 (the baseline number of cigarettes of smokers' usual brand) to 12 by the end of the six (6)-week period, even though participants were instructed to smoke *ad libitum* (as many cigarettes as desired) during treatment. Furthermore, besides significant reductions in other biomarkers, carbon monoxide (CO) levels, an indicator of smoke exposure, significantly decreased from 20 parts per million (baseline) to 15 parts per million. Cotinine, a metabolite and biomarker of nicotine, significantly decreased from 4.2 micrograms/mL (baseline) to 0.2 micrograms/ml. All differences were statistically significant ($P<0.05$).

A recently completed study led by the University of Pittsburgh directly compared perceptions of and smoking behaviour with *SPECTRUM* research cigarettes of different nicotine content produced by us for NIDA in a total of 840 subjects (Clinicial Trials.gov Identifier: NCT01681875). The study included groups of 120 smokers that received VLN cigarettes with the same nicotine level as used in the initial X-22 Phase IIb study or the nicotine level used in the University of Minnesota and Queen Mary University trials as discussed below under the heading "X-22 Smoking

Cessation Aid.” Results from this study are expected to be available shortly.

Utilizing the results of these and other independent clinical trials, we intend to submit to the Center for Tobacco Products ("CTP") of the FDA an application for *BRAND A* as a Modified Risk Cigarette.

We believe these and other results and future exposure studies the FDA may require will result in a modified risk cigarette claim for *BRAND A*. We further believe smokers who desire to smoke fewer cigarettes per day while also satisfying cravings and reducing exposure to nicotine will find *BRAND A* beneficial. There is, however, no guarantee that *BRAND A* will be classified as a Modified Risk Cigarette by the FDA.

BRAND B Cigarettes

Using a proprietary high nicotine tobacco blend in conjunction with specialty cigarette components, *BRAND B* allows the smoker to achieve a satisfactory amount of nicotine per cigarette while inhaling less “tar” and carbon monoxide. At the same time, we do not expect exposure to nicotine from *BRAND B* to be significantly higher than some commercially available full flavor cigarette brands. We believe smokers who desire to reduce smoke exposure but are less concerned about nicotine will find *BRAND B* beneficial. *BRAND B* has a “tar” yield between typical “light” and “ultra-light” cigarettes, but a nicotine yield of typical full flavor cigarettes.

In a 2001 report, entitled *Clearing the Smoke, Assessing the Science Base for Tobacco Harm Reduction*, the Institute of Medicine notes that a low “tar”/moderate nicotine cigarette is a viable strategy for reducing the harm caused by smoking. The report states: “Retaining nicotine at pleasurable or addictive levels while reducing the more toxic components of tobacco is another general strategy for harm reduction.” We believe that evaluation of *BRAND B* in short-term human exposure studies will confirm that exposure to smoke, including certain tobacco smoke toxins and carbon monoxide, is significantly reduced when smoking *BRAND B* as compared to smoking the leading brands of cigarettes.

Our Company has engaged a major contract research organization (“CRO”) with extensive experience in tobacco exposure studies to assist us in certain regulatory activities at the CTP related to the Company’s research to support the development of potentially less harmful or modified risk cigarettes. The Company and the CRO met with the CTP on November 12, 2014 to discuss the development plan and proof of concept study for *BRAND B*, a cigarette that produces smoke containing an extraordinarily low amount of “tar” per milligram of nicotine.

We believe results from this and other exposure studies will warrant a modified risk claim for *BRAND B*. There is, however, no guarantee that *BRAND B* will be classified as a Modified Risk Cigarette by the FDA.

X-22 Smoking Cessation Aid

X-22 is a tobacco-based botanical medical product for use as an aid to smoking cessation. The *X-22* therapy protocol utilized in our sponsored Phase IIb clinical trial calls for the patient to smoke our VLN cigarettes over a six-week treatment period to facilitate the goal of the patient quitting smoking by the end of the treatment period. We believe this therapy protocol has been successful in independent clinical trials because VLN cigarettes made from our proprietary tobacco satisfy smokers’ cravings for cigarettes while (i) greatly reducing nicotine exposure and nicotine dependence and (ii) extinguishing the association between the act of smoking and the rapid delivery of nicotine. *X-22* involves the same smoking behavior as conventional cigarettes and because patients are simply switching to VLN cigarettes for 6 weeks, *X-22* does not expose the smoker to any new drugs or new side effects.

Annual manufacturer sales of smoking cessation aids in the U.S., all of which must be approved by the FDA, are approximately $1 billion. Outside the United States, the smoking cessation market is in its infancy and is approximately $3 billion.

Approximately 50% of U.S. smokers attempt to quit smoking each year, but only 2% to 5% actually quit smoking in a given year. It takes smokers an average of 8 to 11 “quit attempts” before achieving long-term success. Approximately 95% of “self-quitters” (i.e., those who attempt to quit smoking without any treatment) relapse and resume smoking. The Institute of Medicine, the health arm of the National Academy of Sciences, in a 2007 report concludes: “There is an enormous opportunity to increase population prevalence of smoking cessation by reaching and motivating the 57 percent of smokers who currently make no quit attempt per year.” We believe that our *X-22* smoking cessation aid will be attractive to smokers who have been frustrated in their previous attempts to quit smoking using other therapies.

Use of existing smoking cessation aids results in relapse rates that can be as high as 90% in the first year after a smoker initially “quits.” Smokers currently have the following limited choices of FDA-approved products to help them quit smoking:

- varenicline (Chantix® /Champix® outside the U.S.), manufactured by Pfizer, Inc.,
- bupropion (Zyban®), manufactured by GlaxoSmithKline plc, and
- nicotine replacement therapy, or “NRT,” which is available in the U.S. in several forms: gums, patches, nasal sprays, inhalers and lozenges.

Chantix® and Zyban® are pills and are nicotine free. Chantix®, Zyban® , the nicotine nasal spray and the nicotine inhaler are available by prescription only in the U.S. Nicotine gums, nicotine patches, and nicotine lozenges are available over-the-counter in the U.S.

Chantix® was introduced in the U.S. market in the fourth quarter 2006. Since 2007, Chantix® has been the best-selling smoking cessation aid in the United States, with sales, according to Pfizer Inc., of approximately $701 million in 2007, $489 million in 2008, $386 million in 2009, $330 million in 2010, $326 million in 2011, $313 million in 2012 and $343 million in 2013. In July 2009, the FDA required a “Boxed Warning,” the most serious type of warning in prescription drug labeling, for both Chantix® and Zyban® based on the potential side effects of these drugs. Despite this Boxed Warning, worldwide sales of Chantix® in 2009 to 2013 were approximately $700 million, $755 million, $720 million, $670 million and $648 million, respectively.

Other than Chantix® and Zyban®, the only FDA-approved smoking cessation therapy in the United States is nicotine replacement therapy (“NRT”). These products consist of gums, patches, nasal sprays, inhalers and lozenges. Nicotine gums and nicotine patches have been sold in the U.S. for approximately 30 years and 22 years, respectively, and millions of smokers have already tried NRT products and failed to stop smoking due to the limited effectiveness of these products. According to Perrigo Company plc, a pharmaceutical company that sells NRT products, retail sales of

NRT products in the United States were approximately $900 million in its fiscal year ended June 30, 2014.

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Research and Development

Since our inception, the majority of our research and development ("R&D") efforts have been outsourced to highly qualified groups in their respective fields. Since 1998, we have had multiple R&D agreements with North Carolina State University ("NCSU") resulting in exclusive worldwide licenses to various patented technologies. We have utilized the same model employed by many public-sector research organizations which entails obtaining an exclusive option or license agreement to any invention arising out of funded research. In all cases, we fund and control all patent filings as the exclusive licensee. This model of contracting with public-sector researchers has enabled the Company to control R&D costs while achieving our desired results, including obtaining exclusive intellectual property rights relating to our outsourced R&D.

Other R&D partners with the same arrangement have included the National Research Council of Canada, Plant Biotechnology Institute in Saskatoon, Canada ("NRC"), and the Nara Institute of Science and Technology in Nara, Japan ("NAIST"). The majority of this R&D has involved the biosynthesis of nicotine in plants. Our R&D agreements with NCSU, NRC and NAIST expired in 2009. In 2010, NAIST assigned to us all of their worldwide patents and patent applications that were previously licensed to us on an exclusive basis. These patents and patent applications were a result of our R&D at NAIST. On December 23, 2014, we purchased from NRC all the patents and patent applications that were previously licensed to us on an exclusive basis.

In November 2011, we entered into an R&D agreement with the University of Virginia ("UVA") relating to nicotine biosynthesis in tobacco plants with a total budget of $500,000 for the period from November 2011 through December 31, 2013. The term of the R&D agreement with UVA was subsequently extended to May 31, 2016, with a total budget of $972,727. In 2014, we incurred approximately $223,000 of expenses for the R&D agreement at UVA.

We have committed to an R&D agreement with NCSU relating to nicotine biosynthesis in tobacco plants with a total budget of approximately $163,000 for the period from February 2014 through January 2016. Upon identifying a suitable joint venture partner or licensee to fund further *X-22* clinical trials, we may also carry out additional *X-22* clinical trials.

During the years ended December 31, 2014, 2013 and 2012, we incurred total research and development expenses of approximately $1,249,007, $744,000 and $729,000, respectively.

Sources of Raw Materials

We obtain a large portion of our tobacco leaf requirements from farmers in multiple U.S. states that are under direct contracts with us. The contracts prohibit the transfer of our proprietary seedlings and plant materials to other parties. We purchase the balance of our tobacco requirements through third parties. As we expand our sales and distribution of our current commercial brands and proceed to market with our *X-22* smoking cessation aid and *BRAND A* and *BRAND B* cigarettes, we plan to increase the amount of tobacco leaf we obtain directly from farmers under contract, both in the United States and in foreign countries.

Products

RED SUN and MAGIC Cigarettes

Goodrich Tobacco introduced two super-premium priced cigarette brands, *RED SUN* and *MAGIC*, into the U.S. market in the first quarter 2011. Both brands are available in regular and menthol and all brand styles are king size and packaged in hinge-lid hard packs. In 2015, we intend to focus our marketing and sales efforts for *RED SUN* on independent retailers, tobacconists, smokeshops and other tobacco outlets in the U.S. The ban in 2009 by the FDA of all cigarettes with characterizing flavors (with the exception of menthol) has resulted in a product void in these tobacco channels for super-premium priced products. We believe that certain U.S. cigarette wholesalers and retailers will carry our brands, among other reasons, to increase their margins. To facilitate Goodrich Tobacco becoming a subsequent participating manufacturer under the MSA, we had previously curtailed the sales and marketing of these products in order to minimize the fines and penalties that we would be required to pay when we were approved to become a subsequent participating manufacturer under the MSA. When we were approved on August 29, 2014 by the 46 Settling States to become a subsequent participating manufacturer under the MSA, Goodrich Tobacco was required to pay an aggregate of $17,546 in fines for prior sales of *RED SUN* and *MAGIC* in the U.S. market when those brands were previously produced by a non-participating manufacturer. On a going-forward basis, *RED SUN* and *MAGIC* will be produced by our NASCO subsidiary at our factory in North Carolina, which is now a subsequent participating manufacturer under the MSA.

SPECTRUM Government Research Cigarettes

NIDA, a part of NIH, provides the scientific community with controlled and uncontrolled research chemicals and drug compounds in its Drug Supply Program. NIDA included an option to develop and produce research cigarettes with various levels of nicotine (from very low to high), or Research Cigarette Option, in its request for proposals for a five-year contract for Preparation and Distribution of Research and Drug Products. We agreed, as a subcontractor to RTI International (“RTI”) in RTI’s contract with NIDA for the Research Cigarette Option, to supply modified nicotine (from very low to high) cigarettes to NIDA. In August 2010, we met with officials from NIDA, FDA, RTI, the National Cancer Institute and the Centers for Disease Control and Prevention to finalize certain aspects of the design of these research cigarettes. These government research cigarettes produced by us under the mark *SPECTRUM* were distributed by NIDA to researchers free of charge. Goodrich Tobacco has thus far delivered approximately 17.5 million *SPECTRUM* research cigarettes. On July 7, 2014, Goodrich Tobacco entered into a Teaming Agreement with RTI to work together to respond to a new request from NIDA for the potential purchase by NIDA from RTI of additional *SPECTRUM* research cigarettes to be produced and sold by Goodrich Tobacco to RTI.

BRAND A and BRAND B

The Tobacco Control Act establishes procedures for the FDA to regulate the labeling and marketing of cigarettes that (i) reduce exposure to tobacco toxins and (ii) are reasonably likely to pose lower health risks as compared to conventional cigarettes ("Modified Risk Cigarettes"). The Tobacco Control Act requires the FDA to issue specific regulations and guidance regarding applications submitted to the FDA for the authorization to label and market modified risk tobacco products, including Modified Risk Cigarettes. On March 30, 2012, the FDA issued *Modified Risk Tobacco Product Applications Draft Guidance.* We have been continuing to gather additional information since the FDA's draft guidance on the subject, including from the FDA, to submit complete applications for our two Modified Risk Cigarette candidates. Depending on how many exposure studies and other information the FDA will require, it is likely that we will require additional capital to complete the entire FDA authorization process for our Modified Risk Cigarettes.

Compared to commercial tobacco cigarettes, *BRAND A* has the lowest nicotine content. The tobacco in *BRAND A* contains approximately 95% less nicotine than tobacco in leading "light" cigarette brands. Clinical studies have demonstrated that smokers who smoke VLN cigarettes containing our proprietary tobacco smoke fewer cigarettes per day resulting in significant reductions in smoke exposure, including "tar," nicotine and carbon monoxide. Due to the very low nicotine levels, compensatory smoking does not occur with VLN cigarettes containing our proprietary tobacco (Hatsukami *et al*. 2010).

Using a proprietary high nicotine tobacco blend in conjunction with specialty cigarette components, *BRAND B* allows the smoker to achieve a satisfactory amount of nicotine per cigarette while inhaling less "tar" and carbon monoxide. At the same time, we do not expect exposure to nicotine from *BRAND B* to be significantly higher than some commercially available full flavor cigarette brands. We believe smokers who desire to reduce smoke exposure but are less concerned about nicotine will find BRAND B beneficial. *BRAND B* has a "tar" yield between typical "light" and "ultra-light" cigarettes, but a nicotine yield of typical full flavor cigarettes.

Utilizing the results of previously conducted independent clinical trials (see below under "X-22 Smoking Cessation Aid"), we intend to submit to the Center for Tobacco Products ("CTP") of the FDA an application for *BRAND A* as a Modified Risk Cigarette.

Our Company has engaged a major contract research organization ("CRO") with extensive experience in tobacco exposure studies to assist us in certain regulatory activities at the CTP related to the Company's research to support the development of potentially less harmful or modified risk cigarettes. The Company and the CRO met with the CTP on November 12, 2014 to discuss the development plan and proof of concept study for *BRAND B*, a cigarette that produces smoke containing an extraordinarily low amount of "tar" per milligram of nicotine.

We believe that these two cigarette products in development, which we refer to as *BRAND A* and *BRAND B*, will qualify as Modified Risk Cigarettes. Compared to commercial cigarettes, the tobacco in *BRAND A* has approximately 95% less nicotine than tobacco in cigarettes previously marketed as "light" cigarettes, and *BRAND B*'s smoke contains an extraordinarily low amount of "tar" per milligram of nicotine. However, there can be no assurance that *BRAND A* or *BRAND B* will be approved as Modified Risk Cigarettes.

X-22 Smoking Cessation Aid

X-22 is a tobacco-based botanical medical product for use as an aid to smoking cessation. The *X-22* therapy protocol utilized in our sponsored Phase IIb clinical trial calls for the patient to smoke our VLN cigarettes over a six-week treatment period to facilitate the goal of the patient quitting smoking by the end of the treatment period. We believe this therapy protocol has been successful in independent clinical trials because VLN cigarettes made from our proprietary tobacco satisfy smokers' cravings for cigarettes while (i) greatly reducing nicotine exposure and nicotine dependence and (ii) extinguishing the association between the act of smoking and the rapid delivery of nicotine. *X-22* involves the same smoking behavior as conventional cigarettes and because patients are simply switching to VLN cigarettes for 6 weeks, *X-22* does not expose the smoker to any new drugs or new side effects. Our Investigational New Drug Application for *X-22*, a kit of VLN cigarettes, was cleared by the FDA in July 2011 and has been updated annually. Our *X-22* Phase IIb clinical trial was completed in the first quarter of 2012 and did not demonstrate a statistically significant difference in quitting between *X-22* and the active control, a cigarette containing conventional nicotine levels. However, the median number of *X-22* cigarettes smoked during the trial was significantly reduced compared to patients' baseline of usual brand of cigarettes. In evaluating the results of this trial, we believe we may have reduced the nicotine content of *X-22* by too great a percentage, to a level less than half the nicotine content of VLN cigarettes used in various independent smoking-cessation clinical trials that have demonstrated that use of VLN cigarettes increases quit rates. The recently completed study led by the University of Pittsburgh with *SPECTRUM* research cigarettes of different nicotine content produced by us for NIDA (ClinicalTrails.gov Identifier: NCT01681875) included 120 smokers that received VLN cigarettes with the same nicotine level as used in the initial *X-22* Phase IIb study and 120 smokers that received VLN cigarettes with the nicotine level used in the University of Minnesota and Queen Mary University trials, as described below in greater detailed under "Smoking Cessation Clinical Trials with VLN Cigarettes." Results from this study, which are expected to be available shortly, will provide a direct comparison of smoker perception of and behavior with cigarettes of these nicotine contents.

Due to the limited effectiveness and/or serious side effects of existing FDA-approved smoking cessation products (all of which have been on the market approximately between 8 and 30 years), we believe that if additional clinical trials demonstrate increased smoking cessation rates, then *X-22* can capture a share of this market by replacing sales and market share from existing smoking cessation aids and expanding the smoking cessation market by encouraging more smokers to attempt to quit smoking. In contrast to the results of our Phase IIb trial results, the following independent studies have demonstrated that VLN cigarettes increase quit rates, whether used alone, in conjunction with Chantix® (varenicline) or nicotine replacement therapy ("NRT") such as nicotine patches, gums or lozenges:

- Hatsukami DK, Kotlyar M, Hertsgaard LA, Zhang Y, Carmella SG, Jensen J, Allen SS, Shields PG, MurphySE, Stepanov I, Hecht SS. 2010. Reduced nicotine content cigarettes: effects on toxicant exposure, dependence and cessation. *Addiction* 105:343-355.
  - Phase II clinical trial

- Reduced nicotine content cigarettes and nicotine patch. Hatsukami DK, Hertsgaard LA, Vogel RI, Jensen JA, Murphy SE, Hecht SS, Carmella SG, al'Absi M, Joseph AM, Allen SS. 2013. Reduced nicotine content cigarettes and nicotine patch. *Cancer Epidemiol Biomarkers Prev*. 22(6):1015-24.
  - Phase II clinical trial

- Walker N, Howe C, Bullen C, Grigg M, Glover M, McRobbie H, Laugesen M, Parag V, Whittaker R. 2012. The combined effect of very low nicotine content cigarettes, used as an adjunct to usual Quitline care (nicotine replacement therapy and behavioural support), on smoking cessation: a randomized controlled trial. *Addiction*. 2012 Oct; 107(10):1857-67.
  - Phase III/IV clinical trial

- Becker KM, Rose JE, Albino AP. 2008. A randomized trial of nicotine replacement therapy in combination with reduced-nicotine cigarettes for smoking cessation. *Nicotine Tob Res* 10(7):1139-48.
  - Phase II clinical trial

- Rezaishiraz H, Hyland A, Mahoney MC, O'Connor RJ, Cummings KM. 2007. Treating smokers before the quit date: can nicotine patches and denicotinized cigarettes reduce cravings? *Nicotine Tob Res*. Nov; 9(11):1139-46.
  - Phase II clinical trial

A separate and yet unpublished clinical trial evaluated whether the use of our VLN cigarette in combination with Chantix® or in combination with NRT increases abstinence rates over the use of Chantix® or the use of NRT (NCT01250301). Certain results of this unpublished study were disclosed in a presentation at the 2013 Society for Research on Nicotine and Tobacco ("SRNT") annual meeting given by Hayden McRobbie, Ph.D. of Queen Mary University of London, Wolfson Institute of Preventative Medicine, who was the principal investigator of the study. Pfizer Inc. was also a collaborator of the study. The study included one hundred smokers who were prescribed varenicline (trademarked Chantix, or Champix outside the U.S.) and one hundred smokers who were prescribed NRT. Half the smokers of each of these groups were randomly selected to also use our VLN cigarettes for the first 2 weeks of treatment. All smokers received 9 weekly behavioral support sessions throughout the 12-week study period. The

group that used our VLN cigarettes had a 70% quit rate one week after stopping VLN cigarette use compared to a 53% quit rate of the group not using VLN cigarettes after week 1 (p=0.02). The group that used our VLN cigarettes had a 64% four-week continuous abstinence rate during weeks 3 to 6 compared to a 50% four-week continuous abstinence rate during weeks 1 to 4 (p=0.06). Quit rates at 12 weeks post treatment were not reported in the presentation.

FDA approval must be obtained, as has been the case for decades, before a product can be marketed for quitting smoking. The Tobacco Control Act provides that products for quitting smoking or smoking cessation, such as *X-22*, be considered for "Fast Track" designation by the FDA. The "Fast Track" programs of the FDA are intended to facilitate development and expedite review of drugs to treat serious and life-threatening conditions so that an approved product can reach the market expeditiously. We believe that upon completion of a company-sponsored clinical trial demonstrating efficacy, *X-22* will qualify for "Fast Track" designation by the FDA. However, there is no guarantee that the FDA will grant "Fast Track" designation to *X-22*.

We believe that our VLN cigarettes are an effective aid to smoking cessation. We are currently in the process of identifying potential joint venture partners or licensees to fund the remaining *X-22* clinical trials. Upon identifying a suitable joint venture partner or licensee, we will then request a meeting with the FDA, and thereafter we may resume our own sponsored *X-22* clinical trials. There is no guarantee that we will (ii) identify a joint venture partner or licensee to fund the remaining *X-22* clinical trials, (ii) obtain the funds necessary to complete additional clinical trials, (iii) obtain FDA approval, or (iv) capture significant share of the smoking cessation market upon FDA approval.

Government Regulation

Smoking Cessation Aids

Government authorities in the U.S. and foreign countries extensively regulate the research, development, testing, manufacture, labeling, promotion, advertising, distribution, sampling, marketing and import and export of pharmaceutical products. FDA approval must be obtained, as has been the case for decades, before a product can be marketed for quitting smoking or reducing withdrawal symptoms. In addition, as with all FDA-approved prescription drugs, the FDA must approve the brand name of our *X-22* smoking cessation aid. The FDA approval process for smoking cessation aids is similar to that required by the FDA for new drug approvals, although the cost to complete clinical trials for a smoking cessation aid such as *X-22* are generally far less than clinical trials for drugs. The primary endpoint of the clinical trial for smoking cessation aids is smoking abstinence, which is generally confirmed by inexpensive, noninvasive biomarker tests. Since potential quitters are already smokers, *X-22* will not expose participants in the clinical trials to any new compounds, unlike a new chemical entity, such as Chantix®.

The process of obtaining governmental approvals and complying with ongoing regulatory requirements requires the expenditure of substantial time and financial resources. In addition, statutes, rules, regulations and policies may change and new legislation or regulations may be issued that could delay such approvals. If we fail to comply with applicable regulatory requirements at any time during the product development process, approval process, or after approval, we may become subject to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, withdrawals of approvals, clinical holds, warning letters, product recalls, product seizures, total or partial suspension of our operations, injunctions, fines, civil penalties or criminal prosecution. Any agency enforcement action could have a material adverse effect on us.

The Affordable Care Act and other government and private sector initiatives targeted to potentially limit the growth of healthcare costs are continuing in the U.S. and many other countries where we intend to sell our products, including our *X-22* smoking cessation aid. These changes are causing the marketplace to put increased emphasis on the delivery of more cost-effective medical products.

Government healthcare programs in the United States, including Medicare and Medicaid, private healthcare insurance and managed-care plans have attempted to control costs by limiting the amount of reimbursement for which they will pay for particular procedures or treatments. This may create price sensitivity among potential customers for our *X-22* smoking cessation aid, even if we obtain FDA approval for it. Some third-party payers must also approve coverage for new or innovative devices or therapies before they will reimburse healthcare providers who use the medical devices or therapies. Even though a new medical product may have been cleared for commercial distribution, we may find limited demand for *X-22* until reimbursement approval has been obtained from governmental and private third-party payers.

Modified Risk Cigarettes

The Tobacco Control Act, which became law in June 2009, prohibits the FDA from banning cigarettes outright or mandating that nicotine levels be reduced to zero. However, among other things, it allows the FDA to require the reduction of nicotine or any other compound in cigarettes. In 2009, the Tobacco Control Act banned all sales in the United States of cigarettes with flavored tobacco (other than menthol). As of June 2010, all cigarette companies were required to cease using the terms “low tar,” “light” and “ultra light” in describing cigarettes sold in the United States. We believe this new regulatory environment represents a paradigm shift for the tobacco industry and will create opportunities for us in marketing *BRAND A* and *BRAND B* and in licensing our proprietary technology and/or tobaccos to larger competitors.

For the first time in history, a U.S. regulatory agency will scientifically evaluate cigarettes that may pose lower health risks as compared to conventional cigarettes. The Tobacco Control Act establishes procedures for the FDA to regulate the labeling and marketing of modified risk tobacco products, which includes cigarettes that (i) reduce exposure to tobacco smoke toxins and/or (ii) pose lower health risks, as compared to conventional cigarettes (“Modified Risk Cigarettes”). The Tobacco Control Act requires the FDA to issue specific regulations and guidance regarding applications that must be submitted to the FDA for the authorization to label and market Modified Risk Cigarettes. We believe that *BRAND A* and *BRAND B* will qualify as Modified Risk Cigarettes. We will need significant additional capital to complete the FDA authorization process for our Modified Risk Cigarettes. The amount of capital is currently unknown since it is uncertain how many exposure studies the FDA will require for *BRAND A* and *BRAND B*. In addition, the Tobacco Control Act allows the FDA to mandate the use of reduced risk technologies in conventional tobacco products and cigarettes (e.g., Marlboro®) which could create opportunities for us to license our proprietary technology and/or our tobaccos to larger competitors.

In addition to providing our *SPECTRUM* cigarettes to NIDA for researchers, we have been directly supplying our proprietary cigarettes to independent researchers so that additional studies can be conducted to obtain additional information on our products. We expect this information will assist us, along with our own funded studies, in obtaining the necessary FDA authorizations to market *BRAND A* and *BRAND B* as Modified Risk Cigarettes and to obtain FDA approval for *X-22* as a prescription smoking cessation aid.

Competition

In the market for FDA-approved smoking cessation aids, our principal competitors include Pfizer Inc., GlaxoSmithKline plc, Novartis International AG, and Perrigo Company plc. The industry consists of major domestic and international companies, most of which have existing relationships in the markets into which we plan to sell, as well as financial, technical, marketing, sales, manufacturing, scaling capacity, distribution and other resources, and name recognition substantially greater than ours.

Cigarette companies compete primarily on the basis of product quality, brand recognition, brand loyalty, taste, innovation, packaging, service, marketing, advertising, retail shelf space and price. Cigarette sales can be significantly influenced by weak economic conditions, erosion of consumer confidence, competitors' introduction of low-price products or innovative products, higher cigarette taxes, higher absolute prices and larger gaps between price categories, and product regulation that diminishes the ability to differentiate tobacco products. Domestic competitors include Philip Morris USA, Reynolds American Inc., Lorillard Inc., Commonwealth Brands, Inc., Liggett Group LLC and Vector Tobacco Inc. International competitors include Philip Morris International, Inc., Japan Tobacco Inc., Imperial Tobacco Group plc, and regional and local tobacco companies.

Biomass Products

Biomass products are products such as ethanol made from the organic material, usually plants densely grown over a given area. We have funded extensive biomass field trials conducted by NCSU and work on feedstock digestibility and bioconversion at the National Renewable Energy Lab. Bioconversion is the conversion of organic matter into a source of energy, such as ethanol in our own research, through the action of microorganisms. Tobacco has a number of advantages as a starting point for development of novel bioproduct crop systems. Because tobacco is a widely cultivated crop, grown in over 100 countries throughout the world, tobacco agronomy is highly understood. For decades tobacco has been used as a model system for plant biology, and recently the tobacco genome has been mapped. Tobacco plants rapidly sprout back after each harvest and produce large amounts of leaf and total biomass. Tobacco grown for cigarettes yields about 3,000 pounds of cured leaf per acre (~20% moisture) per year from 7,500 tobacco plants. In our field trials in North Carolina, nicotine-free tobacco grown for biomass yields about 100,000 pounds of fresh weight per acre (which equals 10,000 pounds of dry weight) per year with multiple machine harvests from about 80,000 tobacco plants. The results of our biomass studies have been summarized in a comprehensive feasibility study relating to our nicotine-free tobacco biomass crop (*Verfola*) to produce a variety of bioproducts. First, protein and other plant fractions are extracted, and then biofuels and other products are produced from the remaining cellulosic residue.

In 2009, we put our biomass development projects on hold so that our management could focus its attention and resources on our modified risk cigarette business and our *X-22* smoking cessation business. We do not plan to move

forward with potential biomass business activities until some period of time after FDA approval of *X-22* or FDA authorization to market *Brand A* or *Brand B* as a Modified Risk Cigarette. We currently are not spending any capital for such potential biomass business activities nor do we have any current plans to do so in the foreseeable future.

Cannabis Research in Canada

Botanical Genetics is a wholly-owned subsidiary of the Company and was incorporated to facilitate an equity investment in Anandia Laboratories, Inc. ("Anandia"), a plant biotechnology company based in Vancouver, Canada, that closed on April 14, 2014. On September 15, 2014, Botanical Genetics was granted a sublicense by Anandia to 23 patent applications relating to four genes in the cannabis plant that are required for the production of cannabinoids, the active ingredients in the cannabis plant, with such sublicense being exclusive in the United States and co-exclusive with Anandia everywhere else in the world, except Canada where Anandia has retained exclusive rights. The Anandia sublicense continues through the life of the last-to-expire patent, which is expected to be in 2035.

We do not conduct any activities related to cannabis in the United States. Our research facilities for cannabis are located exclusively in Canada. Through licenses granted by the Canadian government to Anandia, we will be conducting research and development in Canada with Anandia of unique plant varieties of hemp/cannabis, such as (i) plants with low to no amounts of delta-9-tetrahydrocannabinol, or THC, for the legal hemp industry, (ii) plants with high levels of THC for the legal recreational cannabis market, and (iii) plants with high levels of cannabidiol, or CBD, and other non-THC cannabinoids for the legal medical marijuana markets. In Canada, licenses to cultivate, possess and supply cannabis for medical research are granted by agencies of the Canadian federal government. In order to carry out research in other countries, similar licenses are required to be issued by the relevant authority in each country.

As of December 31, 2014, there are 23 states in the United States plus the District of Columbia that have laws and/or regulations that recognize, in one form or another, legitimate medical uses for cannabis and consumer use of cannabis in connection with medical treatment. Additionally, the states of Colorado and Washington have legalized cannabis for adult use. Furthermore, the states of Alaska and Oregon have approved legalized cannabis for adult use in laws that will become effective in 2015. Many other states are considering similar legislation. Conversely, under the federal Controlled Substance Act (the "CSA"), the policies and regulations of the federal government and its agencies are that cannabis has no medical benefit and a range of activities are prohibited, including cultivation, possession, personal use and interstate distribution of cannabis. In the event the U.S. Department of Justice (the "DOJ") begins strict enforcement of the CSA in states that have laws legalizing medical marijuana and recreational marijuana in small amounts, there may be a direct and adverse impact to any future business or prospects that we have in the cannabis business.

Employees

We currently employ twenty three (23) people and we consider our employee relations to be good.

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Item 1A. Risk Factors.

You should carefully consider the risk factors set forth below and in other reports that we file from time to time with the Securities and Exchange Commission and the other information in this Annual Report on Form 10-K. The matters discussed in the risk factors, and additional risks and uncertainties not currently known to us or that we currently deem immaterial, could have a material adverse effect on our business, financial condition, results of operation and future growth prospects and could cause the trading price of our common stock to decline.

Risks Related to Our Business and Operations

We have had a history of losses, and we may be unable to achieve and sustain profitability.

We have experienced net losses of approximately $15.6 million, $26.1 million and $6.7 million during the years ended December 31, 2014, 2013 and 2012, respectively. At December 31, 2014, we had current assets of $10,706,806, current liabilities of $2,673,407, and cash on hand of $6,402,687. We believe the cash balance is adequate to sustain operations and meet all current obligations as they come due for a period of approximately 12 months. Excluding contract growing of our proprietary tobacco with farmers, extraordinary expenses such as potential clinical trials, capital expenditures for our factory, and initial expenses associated with the launch of our RED SUN cigarette brand, our monthly cash expenditures are approximately $500,000. While our current cash balance is adequate to sustain operations for approximately 12 months, generating net income in the future will depend on our ability to successfully operate our cigarette manufacturing facility, sell and market our proprietary tobacco products and generate additional royalty revenue from the licensing our intellectual property. There is no guarantee that we will be able to achieve or sustain profitability in the future. An inability to successfully achieve profitability may decrease our long-term viability.

We have had a history of negative cash flow, and our ability to sustain positive cash flow is uncertain.

We have had a history of negative cash flow from operating activities, before cash used in investing activities and cash from financing activities, including approximately $6.6 million during the year ended December 31, 2014. As indicated above, we believe our cash on hand is adequate to sustain operations and meet all current obligations as they come due for a period in excess of 12 months. Continued generation of positive cash flow from operations will depend on our ability to successfully implement the net income generating activities discussed in the previous risk factor discussion. An inability to successfully implement our net income producing initiatives may decrease our long-term viability.

Our limited operating history makes it difficult to evaluate our current business and future prospects.

We have been in existence since 1998, but our activities have been previously limited primarily to licensing and funding research and development activities. Our limited operating history may make it difficult to evaluate our current business and our future prospects. We have encountered and will continue to encounter risks and difficulties frequently experienced by growing companies in rapidly changing industries, including increasing expenses as we continue to grow our business. If we do not manage these risks successfully, our business will be harmed.

We will mainly depend on third parties to market, sell and distribute our products, and we currently have no commercial arrangements for the marketing, sale or distribution of our X-22 smoking cessation aid.

We expect to depend on third parties to a great extent to market, sell and distribute our products and we currently have no arrangements with third parties in place to provide such services for our *X-22* smoking cessation aid. We cannot be sure that we will be able to enter into such arrangements on acceptable terms, or at all. If we are unable to enter into marketing, sales and distribution arrangements with third parties for our *X-22* smoking cessation aid, we would need to incur significant sales, marketing and distribution expenses in connection with the commercialization of *X-22* and any future potential products. We do not currently have a dedicated sales force, and we have no experience in the sales, marketing and distribution of pharmaceutical products. Developing a sales force is expensive and time-consuming, and we may not be able to develop this capacity. If we are unable to establish adequate sales, marketing and distribution capabilities, independently or with others, we may not be able to generate significant revenue and may not become profitable.

We have no experience in managing growth. If we fail to manage our growth effectively, we may be unable to execute our business plan or address competitive challenges adequately.

During 2014, we grew from nine (9) to twenty three (23) employees. Any growth in our business will place a significant strain on our managerial, administrative, operational, financial, information technology and other resources. We intend to further expand our overall business, customer base, employees and operations, which will require substantial management effort and significant additional investment in our infrastructure. We will be required to continue to improve our operational, financial and management controls and our reporting procedures and we may not be able to do so effectively. As such, we may be unable to manage our growth effectively.

Our working capital requirements involve estimates based on demand expectations and may increase beyond those currently anticipated, which could harm our operating results and financial condition.

We have no experience in selling Modified Risk Cigarettes or smoking cessation products on a commercial basis. As a result, we intend to base our funding and inventory decisions on estimates of future demand. If demand for our

products does not increase as quickly as we have estimated, our inventory and expenses could rise, and our business and operating results could suffer. Alternatively, if we experience sales in excess of our estimates, our working capital needs may be higher than those currently anticipated. Our ability to meet any demand for our products may depend on our ability to arrange for additional financing for any ongoing working capital shortages, since it is likely that cash flow from sales will lag behind our investment requirements.

We have limited experience in operating and managing a manufacturing facility.

We have limited experience operating and managing a manufacturing facility. The manufacture of products are subject to strict quality control, testing and record keeping requirements, and continuing obligations regarding the submission of safety reports and other post-market information. In addition, the manufacturing of our own products will be expensive to operate without sufficient production volume. If we are unable to successfully manufacture or sell our products, we will still be liable for the costs associated with operating a manufacturing facility. Accordingly, the operation of such manufacturing facility could have a material adverse effect on our results of operations.

Our manufacturing facility is subject to FDA regulations.

Manufacturers of tobacco and pharmaceutical products must comply with FDA regulations which require, among other things, compliance with the FDA's evolving regulations on Current Good Manufacturing Practices ("cGMP(s)"), which are enforced by the FDA through its facilities inspection program. The manufacture of products are subject to strict quality control, testing and record keeping requirements, and continuing obligations regarding the submission of safety reports and other post-market information. We cannot guarantee that our current manufacturing facility will pass FDA and/or similar inspections in foreign countries to produce our tobacco products or the final version of our *X-22* smoking cessation aid, or that future changes to cGMP manufacturing standards will not also negatively affect the cost or sustainability of our manufacturing facility.

We will likely require additional capital before we can complete the FDA authorization process for our X-22 smoking cessation aid and our Modified Risk Cigarettes.

We are currently seeking a suitable joint venture partner or licensee willing to fund further clinical trials for FDA approval of our *X-22* smoking cessation aid. At that time we will resume our own sponsored *X-22* clinical trials. There is no guarantee that we will identify a joint venture partner or licensee willing to fund further *X-22* clinical trials on terms that are acceptable to us. We estimate the cost of completing two Phase III trials to be approximately $20 million. We will also likely require additional capital in the future before we can complete the FDA authorization process for our Modified Risk Cigarettes. The cost of completing the FDA authorization process for each of our two potential Modified Risk Cigarettes is difficult to estimate since it is currently unknown exactly what the FDA will require, including the number and size of exposure studies. If we raise additional funds through the issuance of equity securities to complete the FDA authorization process for our Modified Risk Cigarettes, our stockholders may experience substantial dilution, or the equity securities may have rights, preferences or privileges senior to those of existing stockholders. If we raise additional funds through debt financings, these financings may involve significant cash payment obligations and covenants that restrict our ability to operate our business and make distributions to our stockholders. We could also wait for our own revenues and profits to be sufficient for us to provide such funding, which could delay our completion of the FDA authorization process for our Modified Risk Cigarettes. We also could elect to seek funds through arrangements with collaborators or licensees. To the extent that we raise additional funds

through collaboration and licensing arrangements, it may be necessary to relinquish some rights to our technologies or our potential products or grant licenses on terms that are not favorable to us.

If we choose to resume and fund our own clinical trials for FDA approval of our *X-22* smoking cessation product and we cannot raise additional capital on acceptable terms, we may not be able to, among other things:

• complete clinical trials of our *X-22* smoking cessation aid;

• undertake the steps necessary to seek FDA authorization of our Modified Risk Cigarettes;

• develop or enhance our potential products or introduce new products;

• expand our development, sales and marketing and general and administrative activities;

• attract tobacco growers, customers or manufacturing and distribution partners;

• acquire complementary technologies, products or businesses;

• expand our operations in the United States or internationally;

• hire, train and retain employees; or

• respond to competitive pressures or unanticipated working capital requirements.

If our X-22 smoking cessation aid does not gain market acceptance among physicians, patients, third-party payers and the medical community, we may be unable to generate significant revenue.

Our *X-22* smoking cessation aid may not achieve market acceptance among physicians, patients, third-party payers and others in the medical community. If we receive FDA approval for the marketing of *X-22* as a smoking cessation aid in the U.S., the degree of market acceptance could depend upon a number of factors, including:

- limitations on the indications for use for which *X-22* may be marketed;
- the establishment and demonstration in the medical community of the clinical efficacy and safety of our potential products and their potential advantages over existing products;
- the prevalence and severity of any side effects;
- the strength of marketing and distribution support; and
- sufficient third-party coverage or reimbursement.

The market may not accept our *X-22* smoking cessation aid, based on any number of the above factors. Even if the FDA approves the marketing of *X-22* as a smoking cessation aid, there are other FDA-approved products available and there will also be future competitive products which directly compete with *X-22*. The market may prefer such existing or future competitive products for any number of reasons, including familiarity with or pricing of such products. The failure of any of our potential products to gain market acceptance could impair our ability to generate revenue, which could have a material adverse effect on our future business, financial condition, results of operations and cash flows.

Our principal competitors in the smoking cessation market have, and any future competitors may have, greater financial and marketing resources than we do, and they may therefore develop products or other technologies similar or superior to ours or otherwise compete more successfully than we do.

We have no experience in selling smoking cessation products. Competition in the smoking cessation aid products industry is intense, and we may not be able to successfully compete in the market. In the market for FDA-approved smoking cessation aids, our principal competitors include Pfizer Inc., GlaxoSmithKline plc, Perrigo Company plc and Novartis International AG. The industry consists of major domestic and international companies, most of which have existing relationships in the markets which we plan to sell, as well as financial, technical, marketing, sales, manufacturing, scaling capacity, distribution and other resources and name recognition substantially greater than ours. In addition, we expect new competitors will enter the markets for our products in the future. Potential customers may choose to do business with our more established competitors, because of their perception that our competitors are more stable, are more likely to complete various projects, can scale operations more quickly, have greater manufacturing capacity, are more likely to continue as a going concern and lend greater credibility to any joint venture. If we are unable to compete successfully against manufacturers of other smoking cessation products, our business could suffer, and we could lose or be unable to obtain market share.

We face intense competition in the market for our RED SUN and MAGIC cigarettes and our BRAND A and BRAND B cigarettes, and our failure to compete effectively could have a material adverse effect on our profitability and results of operations.

Cigarette companies compete primarily on the basis of product quality, brand recognition, brand loyalty, taste, innovation, packaging, service, marketing, advertising, retail shelf space and price. We are subject to highly competitive conditions in all aspects of our business and we may not be able to effectively market and sell our *RED SUN and MAGIC* cigarettes or other cigarettes we may introduce to the market such as our *BRAND A* and *BRAND B* cigarettes as Modified Risk Cigarettes, upon FDA authorization. The competitive environment and our competitive position can be significantly influenced by weak economic conditions, erosion of consumer confidence, competitors' introduction of low-price products or innovative products, higher cigarette taxes, higher absolute prices and larger gaps between price categories, and product regulation that diminishes the ability to differentiate tobacco products. Domestic competitors include Philip Morris USA Inc., Reynolds American Inc., Lorillard Inc., Commonwealth Brands, Inc., Liggett Group LLC, and Vector Tobacco Inc. International competitors include Philip Morris International Inc., JT International SA, Imperial Tobacco Group plc and regional and local tobacco companies.

Our competitors may develop products that are less expensive, safer or more effective, which may diminish or eliminate the commercial success of any potential product that we may commercialize.

If our competitors market products that are less expensive, safer or more effective than our potential products, or that reach the market before our potential products, we may not achieve commercial success. The market may choose to continue utilizing existing products for any number of reasons, including familiarity with or pricing of these existing products. The failure of our *X* -22 smoking cessation aid or our cigarette brands to compete with products marketed by our competitors would impair our ability to generate revenue, which would have a material adverse effect on our future business, financial condition, results of operations and cash flows. Our competitors may:

- develop and market products that are less expensive or more effective than our products;
- commercialize competing products before we or our partners can launch our products; and
- initiate or withstand substantial price competition more successfully than we can.

If we fail to stay at the forefront of technological change, we may be unable to compete effectively.

Our competitors may render our technologies obsolete by advances in existing technological approaches or the development of new or different approaches, potentially eliminating the advantages that we believe we derive from our research approach and proprietary technologies. Our competitors may:

- operate larger research and development programs or have substantially greater financial resources than we do;
- have greater success in recruiting skilled technical and scientific workers from the limited pool of available talent;
- more effectively negotiate third-party licenses and strategic relationships; and
- take advantage of acquisition or other opportunities more readily than we can.

Government mandated prices, production control programs, shifts in crops driven by economic conditions and adverse weather patterns may increase the cost or reduce the quality of the tobacco and other agricultural products used to manufacture our products.

We depend upon independent tobacco farmers to grow our specialty proprietary tobaccos with specific nicotine contents for our products. As with other agricultural commodities, the price of tobacco leaf can be influenced by imbalances in supply and demand, and crop quality can be influenced by variations in weather patterns, diseases and pests. We must also compete with other tobacco companies for contract production with independent tobacco farmers. Tobacco production in certain countries is subject to a variety of controls, including government mandated prices and production control programs. Changes in the patterns of demand for agricultural products could cause farmers to plant less tobacco. Any significant change in tobacco leaf prices, quality and quantity could affect our profitability and our business.

Our future success depends on our ability to retain key personnel.

Our success will depend to a significant extent on the continued services of our senior management team, and in particular Henry Sicignano III, our President and Chief Operating Officer, John Brodfuehrer, our Chief Financial Officer, Michael Moynihan, Ph.D., our Vice President of R&D, and Thomas James, Esq., our Vice President, General Counsel and Secretary. The loss or unavailability of any of these individuals may significantly delay or prevent the development of our potential products and other business objectives by diverting management's attention to transition matters. While each of these individuals is party to employment agreements with us, they could terminate their relationships with us at any time, and we may be unable to enforce any applicable employment or non-compete agreements.

We also rely on consultants and advisors to assist us in formulating our research and development, manufacturing, distribution, marketing and sales strategies. All of our consultants and advisors are either self-employed or employed by other organizations, and they may have conflicts of interest or other commitments, such as consulting or advisory contracts with other organizations, that may affect their ability to contribute to us.

Product liability claims, product recalls or other claims could cause us to incur losses or damage our reputation.

The risk of product liability claims or product recalls, and associated adverse publicity, is inherent in the development, manufacturing, marketing and sale of tobacco and smoking cessation products. We do not currently have product liability insurance for our products or our potential products and do not expect to be able to obtain product liability insurance at reasonable commercial rates for these products. Any product recall or lawsuit seeking significant

monetary damages may have a material adverse effect on our business and financial condition. A successful product liability claim against us could require us to pay a substantial monetary award. We cannot assure you that such claims will not be made in the future.

Negative press from entering the cannabis space could have a material adverse effect on our business, financial condition and results of operations.

Despite growing support for the cannabis industry and legalization of cannabis in certain U.S. states, many individuals and businesses remain opposed to the cannabis industry. Any negative press resulting from our recent entry into the cannabis space could result in a loss of current or future business. It could also adversely affect the public's perception of us and lead to reluctance by new parties to do business with us or to own our common stock. We cannot assure you that additional business partners, including but not limited to financial institutions and customers, will not attempt to end or curtail their relationships with us. Any such negative press or cessation of business could have a material adverse effect on our business, financial condition and results of operations.

Any business related cannabinoid production is dependent on laws pertaining to the cannabis industry.

As of December 31, 2014, 23 states and the District of Columbia allow their citizens to use medical marijuana. Additionally, the states of Colorado and Washington have legalized cannabis for adult use. Furthermore, the states of Alaska and Oregon have approved legalized cannabis for adult use in laws that will become effective in 2015. The state laws are in conflict with the federal Controlled Substances Act, or CSA, which makes marijuana use, possession and interstate distribution illegal on a federal level.

We do not currently conduct any activities related to cannabis in the United States. Our research facilities for cannabis are located exclusively in Canada. In Canada, licenses to cultivate, possess and supply cannabis for medical research are granted by agencies of the federal government in Canada. In order to carry out research in other countries, similar licenses are required to be issued by the relevant authority in each country.

Local, state, federal and international medical marijuana laws and regulations are broad in scope and subject to evolving interpretations, which could require us to incur substantial costs associated with compliance requirements. In addition, violations of these laws, or allegations of such violations, could disrupt our business and result in a material adverse effect on our operations. In addition, it is possible that regulations may be enacted in the future that will be directly applicable to our proposed business regarding cannabinoid production. We cannot predict the nature of any future laws, regulations, interpretations or applications, nor can we determine what effect additional governmental regulations or administrative policies and procedures, when and if promulgated, could have on our proposed business.

Risks Related to Regulatory Approvals and Insurance Reimbursement

If we fail to obtain FDA and foreign regulatory approvals of X-22 as a smoking cessation aid and FDA authorization to market BRAND A and BRAND B as Modified Risk Cigarettes, we will be unable to commercialize these potential products in and outside the U.S., other than the sale of our BRAND A and BRAND B cigarettes as conventional cigarettes.

There can be no assurance that our *X-22* smoking cessation aid will be approved by the FDA, European Medicines Agency ("EMA"), or any other governmental body. In addition, there can be no assurance that all necessary approvals will be granted for our potential products or that review or actions will not involve delays caused by requests for additional information or testing that could adversely affect the time to market for and sale of our potential products. Our ability to complete the FDA-approval process in a timely manner is dependent, in part, on our ability to obtain "Fast Track" designation for *X-22* by the FDA.

We submitted a request for Fast Track designation for *X-22*, and on August 18, 2011, the FDA informed us that it would not grant the designation of *X-22* as a Fast Track product at that time because we had not yet demonstrated that *X-22* showed potential to address an unmet medical need. Except for our Phase IIb clinical trial, all smoking cessation studies with VLN cigarettes containing our proprietary tobacco were independent studies and were not sponsored by us under our own IND application. We plan to reapply for Fast Track designation, but not until results of a clinical trial conducted by us demonstrates an advantage (over currently approved smoking cessation products) in one of the following areas: efficacy, safety or improvement in some other factor such as compliance (a patient using a product as directed) or convenience. There is no guarantee that the FDA will grant Fast Track designation to *X-22*. We may also not obtain Priority Review of our *X-22* New Drug Application ("NDA"), which would further delay FDA approval of *X-22*. The length of the FDA's review of a NDA without a Priority Review designation is normally ten months from the date of filing of the NDA, although it is possible in certain cases for such review time to be longer. However, the

FDA’s goal for reviewing a product with Priority Review status is normally six months from the date of the filing of a NDA. If we do not obtain Priority Review of our NDA, we would then expect the timing of FDA approval of *X-22* to be extended several additional months. Even if *X-22* is approved by the FDA, the FDA may require the product to only be prescribed to patients who have already failed to quit smoking with another approved therapy. Further, failure to comply with applicable regulatory requirements can, among other things, result in the suspension of regulatory approval as well as possible civil and criminal sanctions.

The development, testing, manufacturing and marketing of our potential products are subject to extensive regulation by governmental authorities in the United States and throughout the world. In particular, the process of obtaining approvals by the FDA, the EMA and other international FDA equivalent agencies in targeted countries is costly and time consuming, and the time required for such approval is uncertain. Our *X-22* smoking cessation aid must undergo rigorous clinical testing and an extensive regulatory approval process mandated by the FDA or EMA. Such regulatory review includes the determination of manufacturing capability and product performance. Generally, only a small percentage of pharmaceutical products are ultimately approved for commercial sale.

The scope of review, including product testing and exposure studies, to be required by the FDA under the Tobacco Control Act in order for cigarettes such as *BRAND A* and *BRAND B* to be marketed as Modified Risk Cigarettes has not yet been fully established, even though the FDA issued *Modified Risk Tobacco Product Applications Draft Guidance* on March 30, 2012. We may be unsuccessful in establishing that *BRAND A* or *BRAND B* are Modified Risk Cigarettes, and we may fail to demonstrate that either *BRAND A* or *BRAND B* significantly reduces exposure to certain tobacco smoke toxins. Even upon demonstrating significant reduced exposure to certain tobacco smoke toxins, the FDA may decide that allowing a modified risk claim is not in the best interest of the public health, and the FDA may not allow us to market our *BRAND A* and/or *BRAND B* cigarettes as Modified Risk Cigarettes.

The FDA could force the removal of our products from the U.S. market.

The FDA could force us to remove from the U.S. market our tobacco products such as *RED SUN* or *MAGIC* since these are not grandfathered products under the Tobacco Control Act, and the FDA could force us to remove from the U.S. market *BRAND A* and/or *BRAND B* even after FDA authorization to market *BRAND A* and *BRAND B* as Modified Risk Cigarettes.

We intend to distribute and sell our potential products outside of the United States, which will subject us to other regulatory risks.

In addition to seeking approval from the FDA for our *X-22* smoking cessation aid in the United States, we intend to seek governmental approvals required to market *X-22* and our other potential products in other countries. Marketing of our *X-22* smoking cessation aid is not permitted in certain countries until we have obtained required approvals or exemptions in the individual country. The regulatory review process varies from country to country, and approval by foreign governmental authorities is unpredictable, uncertain and generally expensive. Our ability to market our potential products could be substantially limited due to delays in receipt of, or failure to receive, the necessary approvals or clearances. We anticipate commencing the applications required in some or all of these countries following approval by the FDA; however, we may decide to file applications in advance of the FDA approval if we determine such filings to be both time and cost effective. If we export any of our potential products or products that have not yet been cleared for commercial distribution in the United States, such products may be subject to FDA

export restrictions. Failure to obtain necessary regulatory approvals could impair our ability to generate revenue from international sources.

Market acceptance of our X-22 smoking cessation aid could be limited if users are unable to obtain adequate reimbursement from third-party payers.

Government health administration authorities, private health insurers and other organizations generally provide reimbursement for FDA-approved smoking cessation products, and our commercial success could depend in part on these third-party payers agreeing to reimburse patients for the costs of our *X-22* smoking cessation aid. Even if we succeed in bringing our *X-22* smoking cessation aid to market, there is no assurance that third-party payers will consider *X-22* cost effective or provide reimbursement in whole or in part for its use.

Significant uncertainty exists as to the reimbursement status of newly approved health care products. Our *X-22* smoking cessation aid is intended to replace or alter existing therapies or procedures. These third-party payers may conclude that our *X-22* smoking cessation aid is less safe, effective or cost-effective than these existing therapies or procedures. Therefore, third-party payers may not approve *X-22* for reimbursement.

If third-party payers do not approve *X-22* or our potential products for reimbursement or fail to reimburse for them adequately, sales could suffer as some physicians or their patients could opt for a competing product that is approved for reimbursement or is adequately reimbursed. Even if third-party payers make reimbursement available, these payers' reimbursement policies may adversely affect our ability and the ability of our potential collaborators to sell our potential products on a profitable basis.

The trend toward managed healthcare in the United States, such as the Affordable Care Act enacted on March 23, 2010, and legislative proposals to reform healthcare and government insurance programs could significantly influence the purchase of healthcare services and products, resulting in lower prices and reduced demand for our potential products which could adversely affect our business, financial condition, results of operations and cash flows.

In addition, legislation and regulations affecting the pricing of our potential products may change in ways adverse to us before or after the FDA or other regulatory agencies approve any of our potential products for marketing. While we cannot predict the likelihood of any of these legislative or regulatory proposals, if any government or regulatory agency adopts these proposals, they could materially adversely affect our business, financial condition, results of operations and cash flows.

Our clinical trials for any of our potential products may produce negative or inconclusive results and we may decide, or regulators may require us, to conduct additional clinical and/or preclinical testing for these potential products or cease our trials.

We do not know whether clinical trials of our potential products will demonstrate safety and efficacy sufficiently to result in marketable products. Because our clinical trials for our *X-22* smoking cessation aid and any other potential products may produce negative or inconclusive results, we may decide, or regulators may require us, to conduct additional clinical and/or preclinical testing for these potential products or cease our clinical trials. If this occurs, we may not be able to obtain approval or marketing authorization for these potential products or our anticipated time of bringing these potential products to the market may be substantially delayed and we may also experience significant additional development costs. We may also be required to undertake additional clinical testing if we change or expand the indications for our potential products.

Risks Related to the Tobacco Industry

Our business faces significant governmental action aimed at increasing regulatory requirements with the goal of preventing the use of tobacco products.

Cigarette companies face significant governmental action, especially in the United States pursuant to the Tobacco Control Act, including efforts aimed at reducing the incidence of tobacco use, restricting marketing and advertising, imposing regulations on packaging, warnings and disclosure of flavors or other ingredients, prohibiting the sale of tobacco products with certain flavors or other characteristics, limiting or prohibiting the sale of tobacco products by certain retail establishments and the sale of tobacco products in certain packaging sizes, and seeking to hold retailers and distributors responsible for the adverse health effects associated with both smoking and exposure to environmental tobacco smoke. Governmental actions, combined with the diminishing social acceptance of smoking and private actions to restrict smoking, have resulted in reduced industry volume in the United States and certain other countries, and we expect that these factors will continue to reduce consumption levels in these countries.

Certain of such actions may have a favorable impact on our *X-22* smoking cessation aid, or on our *BRAND A* and *BRAND B* cigarettes if we are able to market them as Modified Risk Cigarettes. However, there is no assurance of such favorable impact and such actions may have a negative impact on our ability to market *RED SUN* and *MAGIC*.

Significant regulatory developments will take place over the next few years in many markets, driven principally by the World Health Organization's Framework Convention on Tobacco Control ("FCTC"). The FCTC is the first international public health treaty on tobacco, and its objective is to establish a global agenda for tobacco regulation with the purpose of reducing initiation of tobacco use and encouraging cessation. In addition, the FCTC has led to increased efforts by tobacco control advocates and public health organizations to reduce the appeal of tobacco products. Partly because of some or a combination of these efforts, unit sales of tobacco products in certain markets, principally Western Europe and Japan, have been in general decline and we expect this trend to continue. Our operating results could be significantly affected by any significant decrease in demand for cigarettes, any significant increase in the cost of complying with new regulatory requirements and requirements that lead to a commoditization of tobacco products such as the implementation of plain packaging in Australia.

If implemented in the future, the FDA requirement regarding graphic health warnings on cigarette packaging and in cigarette advertising is likely to have a negative impact on sales of our products.

In November 2010, as required by the Tobacco Control Act, the FDA issued a proposed rule to modify the required warnings that appear on cigarette packages and in cigarette advertisements. These warning were finalized on June 21, 2011 and consist of nine new textual warning statements accompanied by color graphics depicting the negative health consequences of smoking. The FDA selected nine images from the originally proposed 36 images after reviewing the relevant scientific literature, analyzing the results from an 18,000 person study and considering more than 1,700 comments from a variety of groups. The graphic health warnings were to be located beneath the cellophane wrapping on cigarette packages, and will comprise the top 50 percent of the front and rear panels of cigarette packages. The graphic health warnings will occupy 20 percent of a cigarette advertisement and will be located at the top of the advertisement. Each warning is accompanied by a smoking cessation phone number, 1-800-QUIT-NOW. Although these graphic health warnings were supposed to be implemented in September 2012, a federal judge ruled that these warnings are unconstitutional. If and when these graphic health warnings are implemented, all cigarettes manufactured for sale or distribution in the United States will need to include these new graphic health warnings on their packages. Any reduction in the number of smokers will probably reduce the demand for *MAGIC* and *RED SUN*, as well as *X-22*, *BRAND A* and *BRAND B*, if and when implemented by the FDA. *MAGIC*, *RED SUN*, *BRAND A* and *BRAND B* will be subject to these new packaging and advertising regulations. It is unclear at this time whether the FDA may require *X-22 and SPECTRUM* to be subject to these new packaging and advertising regulations.

We may become subject to litigation related to cigarette smoking and exposure to environmental tobacco smoke, or ETS, which could severely impair our results of operations and liquidity.

Although we are not currently subject to legal proceedings, we may become subject to litigation related to the sale of our *RED SUN* and *MAGIC* cigarettes and, upon FDA authorization, our *BRAND A* and *BRAND B* cigarettes. Legal proceedings covering a wide range of matters related to tobacco use are pending or threatened in various U.S. and foreign jurisdictions. Various types of claims are raised in these proceedings, including product liability, consumer protection, antitrust, tax, contraband shipments, patent infringement, employment matters, claims for contribution and claims of competitors and distributors.

Litigation is subject to uncertainty and it is possible that there could be adverse developments in pending cases. An unfavorable outcome or settlement of pending tobacco related litigation could encourage the commencement of additional litigation. The variability in pleadings, together with the actual experience of management in litigating claims, demonstrates that the monetary relief that may be specified in a lawsuit bears little relevance to the ultimate outcome.

Damages claimed in some tobacco-related litigation are significant and, in certain cases range into the billions of dollars. We anticipate that new cases will continue to be filed. The FCTC encourages litigation against tobacco product manufacturers. It is possible that our results of operations, cash flows or financial position could be materially affected by an unfavorable outcome or settlement of litigation.

Cigarettes are subject to substantial taxes. Significant increases in cigarette-related taxes have been proposed or enacted and are likely to continue to be proposed or enacted in numerous jurisdictions. These tax increases may affect our sales and profitability and make us less competitive versus certain of our competitors.

Tax regimes, including excise taxes, sales taxes and import duties, can disproportionately affect the retail price of manufactured cigarettes versus other tobacco products, or disproportionately affect the relative retail price of our *RED SUN* and *MAGIC* cigarettes and, upon FDA authorization, our *BRAND A* and *BRAND B* cigarettes versus lower-priced cigarette brands manufactured by our competitors. Increases in cigarette taxes are expected to continue to have an adverse impact on sales of cigarettes resulting in (i) lower consumption levels, (ii) a shift in sales from manufactured cigarettes to other tobacco products or to lower-price cigarette categories, (iii) a shift from local sales to legal cross-border purchases of lower price products, and (iv) illicit products such as contraband and counterfeit.

We may become subject to governmental investigations on a range of matters.

Tobacco companies are often subject to investigations, including allegations of contraband shipments of cigarettes, allegations of unlawful pricing activities within certain markets, allegations of underpayment of custom duties and/or excise taxes, and allegations of false and misleading usage of descriptors such as “lights” and “ultra-lights.” We cannot predict the outcome of any to which we may become subject, and we may be materially affected by an unfavorable outcome of future investigations.

Risks Related to Intellectual Property

Our proprietary rights may not adequately protect our intellectual property, products and potential products, and if we cannot obtain adequate protection of our intellectual property, products and potential products, we may not be able to successfully market our products and potential products.

Our commercial success will depend in part on obtaining and maintaining intellectual property protection for our technologies, products and potential products. We will only be able to protect our technologies, products and potential products from unauthorized use by third parties to the extent that valid and enforceable patents cover them, or other market exclusionary rights apply.

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The patent positions of life sciences companies, like ours, can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in such companies' patents has emerged to date in the United States. The general patent environment outside the United States also involves significant uncertainty. Accordingly, we cannot predict the breadth of claims that may be allowed or that the scope of these patent rights could provide a sufficient degree of future protection that could permit us to gain or keep our competitive advantage with respect to these products and technology. Additionally, life science companies like ours are often dependent on creating a pipeline of products. We may not be able to develop additional potential products or proprietary technologies that produce commercially viable products or that are themselves patentable.

Although there are currently no challenges to any portion of our intellectual property, our issued patents may be subject to challenge and possibly invalidated by third parties. Changes in either the patent laws or in the interpretations of patent laws in the United States or other countries may diminish the value of our intellectual property. In addition, others may independently develop similar or alternative products and technologies that may be outside the scope of our intellectual property. Should third parties obtain patent rights to similar products or technology, this may have an adverse effect on our business.

We also rely on trade secrets to protect our technology, products and potential products, especially where we do not believe patent protection is appropriate or obtainable. Trade secrets, however, are difficult to protect. While we believe that we use reasonable efforts to protect our trade secrets, our own, our licensees' or our strategic partners' employees, consultants, contractors or advisors may unintentionally or willfully disclose our information to competitors. We seek to protect this information, in part, through the use of non-disclosure and confidentiality agreements with employees, consultants, advisors and others. These agreements may be breached, and we may not have adequate remedies for a breach. In addition, we cannot ensure that those agreements will provide adequate protection for our trade secrets, know-how or other proprietary information or prevent their unauthorized use or disclosure.

To the extent that consultants or key employees apply technological information independently developed by them or by others to our products and potential products, disputes may arise as to the proprietary rights of the information, which may not be resolved in our favor. Key employees are required to assign all intellectual property rights in their discoveries to us. However, these key employees may terminate their relationship with us, and we cannot preclude them indefinitely from dealing with our competitors. If our trade secrets become known to competitors with greater experience and financial resources, the competitors may copy or use our trade secrets and other proprietary information in the advancement of their products, methods or technologies. If we were to prosecute a claim that a third party had illegally obtained and was using our trade secrets, it could be expensive and time consuming and the outcome could be unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets than courts in the United States. Moreover, if our competitors independently develop equivalent knowledge, we would lack any contractual claim to this information, and our business could be harmed.

The ability to commercialize our potential products will depend on our ability to sell such products without infringing the patent or proprietary rights of third parties. If we are sued for infringing intellectual property rights of third parties, such litigation could be costly and time consuming and an unfavorable outcome could have a significant adverse effect on our business.

The ability to commercialize our potential products will depend on our ability to sell such products without infringing the patents or other proprietary rights of third parties. Third-party intellectual property rights in our field are complicated, and third-party intellectual property rights in these fields are continuously evolving. While we have conducted searches for such third-party intellectual property rights, we have not performed specific searches for third-party intellectual property rights that may raise freedom-to-operate issues, and we have not obtained legal opinions regarding commercialization of our potential products. As such, there may be existing patents that may affect our ability to commercialize our potential products.

In addition, because patent applications are published up to 18 months after their filing, and because patent applications can take several years to issue, there may be currently pending third-party patent applications and freedom-to-operate issues that are unknown to us, which may later result in issued patents.

If a third-party claims that we infringe on its patents or other proprietary rights, we could face a number of issues that could seriously harm our competitive position, including:

- infringement claims that, with or without merit, can be costly and time consuming to litigate, can delay the regulatory approval process and can divert management’s attention from our core business strategy;
- substantial damages for past infringement which we may have to pay if a court determines that our products or technologies infringe upon a competitor’s patent or other proprietary rights;

- a court order prohibiting us from commercializing our potential products or technologies unless the holder licenses the patent or other proprietary rights to us, which such holder is not required to do;
- if a license is available from a holder, we may have to pay substantial royalties or grant cross licenses to our patents or other proprietary rights; and
- redesigning our process so that it does not infringe the third-party intellectual property, which may not be possible, or which may require substantial time and expense including delays in bringing our potential products to market.

Such actions could harm our competitive position and our ability to generate revenue and could result in increased costs.

Our patent applications may not result in issued patents, which may have a material adverse effect on our ability to prevent others from commercially exploiting products similar to ours.

We own or exclusively control 128 issued patents plus and additional 52 pending patent application. The patents owned by or exclusively licensed to us include patents issued in 96 countries. We cannot assure you these patent applications will issue, in whole or in part, as patents. Patent applications in the United States are maintained in secrecy until the patents are published or are issued. Since publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months, we cannot be certain that we are the first creator of inventions covered by pending patent applications or the first to file patent applications on these inventions. We also cannot be certain that our pending patent applications will result in issued patents or that any of our issued patents will afford protection against a competitor. In addition, patent applications filed in foreign countries are subject to laws, rules and procedures that differ from those of the United States, and thus we cannot be certain that foreign patent applications related to U.S. patents will be issued. Furthermore, if these patent applications issue, some foreign countries provide significantly less effective patent enforcement than in the United States.

The status of patents involves complex legal and factual questions and the breadth of claims allowed is uncertain. Accordingly, we cannot be certain that the patent applications that we or our licensors file will result in patents being issued, or that our patents and any patents that may be issued to us in the near future will afford protection against competitors with similar technology. In addition, patents issued to us may be infringed upon or designed around by others and others may obtain patents that we need to license or design around, either of which would increase costs and may adversely affect our operations.

We license certain patent rights from third-party owners. If such owners do not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects could be harmed.

We license rights to third-party intellectual property that is necessary or useful for our business, and we may enter into additional licensing agreements in the future. Our success could depend in part on the ability of some of our licensors to obtain, maintain and enforce patent protection for their intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications to which we are licensed. Even if patents are issued with respect to these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we could. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could adversely affect our competitive business position and harm our business prospects.

Our two worldwide exclusive licenses relating to tobacco, one from NCSU and the other from National Research Council of Canada, Plant Biotechnology Institute ("NRC"), each involve multiple patent families. The exclusive rights under the NCSU agreement expires on the date on which the last patent or registered plant variety covered by the subject license expires in the country or countries where such patents or registered plant varieties are in effect. The NCSU license relates predominately to issued patents, and our exclusive rights in the NCSU license will expire in 2023. The exclusive rights granted to us under the NRC agreement would have expired on the date on which the last patent covered by the subject license expires in the country or countries where such patents are in effect. The NRC license related to issued patents and patent applications, and our exclusive rights in the NRC license was previously scheduled to expire in 2028. On December 23, 2014, we purchased from NRC all the issued patents and patent applications that were exclusively licensed to us by NRC.

Our worldwide sublicense from Anandia, a plant biotechnology company based in Vancouver, Canada, grants us exclusive rights in the United States and co-exclusive rights with Anandia everywhere else in the world (except not in Canada where Anandia retains exclusive rights) to 23 patent applications relating to four genes in the cannabis plant that are required for the production of cannabinoids, the active ingredients in the cannabis plant. The Anandia sublicense continues through the life of the last-to-expire patent, which is expected to be in 2035.

Risks Related to Ownership of Our Common Stock

An active trading market for our common stock may not be sustained, and you may not be able to resell your shares at or above the price at which you purchased them.

An active trading market for our shares may not be sustained. In the absence of an active trading market for our common stock, shares of common stock may not be able to be resold at or above the purchase price of such shares. Although there can be no assurances, we expect that our common stock will continue to be quoted on the New York Stock Exchange MKT (NYSE MKT) on which the shares of our common stock are currently quoted. However, even if our common stock continues to be quoted on the NYSE MKT, there is no assurance that an active market for our common stock will continue in the foreseeable future. There also can be no assurance that we can maintain such listing on the NYSE MKT. It may be more difficult to dispose of shares or obtain accurate quotations as to the market value of our common stock compared to securities of companies whose shares are traded on national stock exchanges.

Our stock price may be highly volatile and could decline in value.

Our common stock is currently traded on the NYSE MKT and the market prices for our common stock have been volatile. Further, the market prices for securities in general have been highly volatile and may continue to be highly volatile in the future. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

• results from and any delays in any clinical trials programs;

• failure or delays in entering potential products into clinical trials;

• failure or discontinuation of any of our research programs;

• delays in establishing new strategic relationships;

• delays in the development of our potential products and commercialization of our potential products;

• market conditions in our sector and issuance of new or changed securities analysts' reports or recommendations;

• general economic conditions, including recent adverse changes in the global financial markets;

• actual and anticipated fluctuations in our quarterly financial and operating results;

• developments or disputes concerning our intellectual property or other proprietary rights;

• introduction of technological innovations or new commercial products by us or our competitors;

• issues in manufacturing or distributing our products or potential products;

• market acceptance of our products or potential products;

• third-party healthcare reimbursement policies;

• FDA or other United States or foreign regulatory actions affecting us or our industry;

• litigation or public concern about the safety of our products or potential products;

• additions or departures of key personnel;

• third-party sales of large blocks of our common stock;

• sales of our common stock by our executive officers, directors or significant stockholders; and

• equity sales by us of our common stock or securities convertible into common stock to fund our operations.

These and other external factors may cause the market price and demand for our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock and may otherwise negatively affect the liquidity of our common stock. In addition, in the past, when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. Such a lawsuit could also divert the time and attention of our management.

Future sales of our common stock will result in dilution to our common stockholders.

Sales of a substantial number of shares of our common stock in the public market may depress the prevailing market price for our common stock and could impair our ability to raise capital through the future sale of our equity securities. Additionally, if the holders of outstanding options or warrants exercise or convert those shares, as applicable, our common stockholders will incur dilution in their relative percentage ownership. The prospect of this possible dilution may also impact the price of our common stock.

We are controlled by our current officers and directors.

As of February 3, 2015, our directors and executive officers as a group beneficially owned approximately 24.6% of our common stock. Accordingly, our directors and executive officers will have substantial influence over, and may have the ability to control, the election of our board of directors and the outcome of issues submitted to a vote of our stockholders.

We do not expect to declare any dividends on our common stock in the foreseeable future.

We have not paid cash dividends to date on our common stock. We currently intend to retain our future earnings, if any, to fund the development and growth of our business, and we do not anticipate paying any cash dividends on our common stock for the foreseeable future. Additionally, the terms of any future debt facilities may preclude us from paying dividends on the common stock. As a result, capital appreciation, if any, of our common stock could be the sole source of gain for the foreseeable future.

Anti-takeover provisions contained in our articles of incorporation and bylaws, as well as provisions of Nevada law, could impair a takeover attempt.

Our amended and restated articles of incorporation and bylaws currently contain provisions that, together with Nevada law, could have the effect of rendering more difficult or discouraging an acquisition deemed undesirable by our board of directors. Our corporate governance documents presently include the following provisions:

- providing for a “staggered” board of directors in which only one-third (1/3) of the directors can be elected in any year;
- authorizing blank check preferred stock, which could be issued with voting, liquidation, dividend and other rights superior to our common stock; and
- limiting the liability of, and providing indemnifications to, our directors and officers.

These provisions, alone or together, could delay hostile takeovers and changes in control of us or changes in our management.

As a Nevada corporation, we also may become subject to the provisions of Nevada Revised Statutes Sections 78.378 through 78.3793, which prohibit an acquirer, under certain circumstances, from voting shares of a corporation’s stock

after crossing specific threshold ownership percentages, unless the acquirer obtains the approval of the stockholders of the issuer corporation. The first such threshold is the acquisition of at least one-fifth, but less than one-third of the outstanding voting power of the issuer. We may become subject to the above referenced Statutes if we have 200 or more stockholders of record, at least 100 of whom are residents of the State of Nevada, and do business in the State of Nevada directly or through an affiliated corporation.

As a Nevada corporation, we are subject to the provisions of Nevada Revised Statutes Sections 78.411 through 78.444, which prohibit an “interested stockholder” from entering into a combination with the corporation, unless certain conditions are met. An “interested stockholder” is a person who, together with affiliates and associates, beneficially owns (or within the prior two years did own) 10 percent or more of the corporation’s voting stock.

Any provision of our amended and restated articles of incorporation, our bylaws or Nevada law that has the effect of delaying or deterring a change in control of our Company could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Item 1B Unresolved Staff Comments.

None.

Item 2. Properties.

Our principal administrative offices are located in Clarence, New York. We currently lease 3,800 square feet of office space. The lease expires August 31, 2015, after which we have two (2) additional lease renewal option periods of one (1) year each. Scheduled rent remaining as of December 31, 2014 is $28,840 for 2015.

We have a lease for our warehouse and cigarette manufacturing facility located in North Carolina. The lease commenced on January 14, 2014, and has an initial term of twelve (12) months (the "Initial Term"). The lease contains four (4) additional extensions; one for an additional one (1) year and three for an additional two (2) years in duration, exercisable at the option of NASCO. The lease calls for minimum lease payments of $96,000 during the Initial Term, $123,000 for the one (1) year optional extension, $144,525 and $153,750 for each year of the first two (2) year optional extensions, and $169,125 for each year of the final two (2) year optional extensions.

Item 3. Legal Proceedings.

From time to time we may be involved in claims arising in the ordinary course of business. To our knowledge, no legal proceedings, governmental actions, investigations or claims are currently pending against us or involve us that, in the opinion of our management, could reasonably be expected to have a material adverse effect on our business and financial condition.

Item 4. Mine Safety Disclosures.

Not applicable

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Our common stock is quoted on the NYSE MKT under the symbol “XXII.” As of February 4, 2015, there were 89 holders of record of shares of our common stock. The following table sets forth, for the quarters indicated, the high and low bid prices per share of our common stock, as derived from quotations provided by (i) the OTC Bulletin Board Information Center for the period prior to March 11, 2014, when our common stock was quoted on the OTC Bulletin Board, and (ii) the NYSE MKT for the period beginning on March 11, 2014, when our common stock commenced being listed and quoted on the NYSE MKT.

Quarter Ended	High Bid	Low Bid
December 31, 2014	$ 2.67	$ 1.50
September 30, 2014	$ 3.35	$ 1.90
June 30, 2014	$ 3.87	$ 2.14
March 31, 2014	$ 6.36	$ 1.75
December 31, 2013	$ 2.19	$ 0.87
September 30, 2013	$ 1.74	$ 0.70
June 30, 2013	$ 0.90	$ 0.46
March 31, 2013	$ 1.07	$ 0.51

Dividend Policy

We have not previously and do not plan to declare or pay any dividends on our common stock. Our current policy is to retain all funds and any earnings for use in the operation and expansion of our business. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including current financial condition, operating results and current and anticipated cash needs.

Recent issuances of Unregistered Securities

None.

Shares authorized for issuance under equity compensation plans

On October 21, 2010, the Company established the 2010 Equity Incentive Plan, or EIP, for officers, employees, directors, consultants and advisors to the Company and its affiliates, consisting of 4,250,000 shares of common stock. The EIP authorized the grant of incentive stock options, nonqualified stock options, stock appreciation rights, restricted stock, restricted stock units, performance shares, restricted stock and restricted stock units. There are no awards remaining to be issued from the EIP at December 31, 2014.

On April 12, 2014, the stockholders of the Company approved the 22nd Century Group, Inc. 2014 Omnibus Incentive Plan (the "OIP"). The OIP allows for the granting of equity and cash incentive awards to eligible individuals over the life of the OIP, including the issuance of up to 5,000,000 shares of the Company's common stock pursuant to awards under the OIP. The OIP has a term of ten years and is administered by the Compensation Committee of our Board of Directors to determine the various types of incentive awards that may be granted to recipients under this plan and the number of shares of common stock to underlie each such award under the OIP.

The following table summarizes the number of stock options and shares of restricted stock granted, net of forfeitures and sales, the weighted-average exercise price of such stock options and the number of securities remaining to be issued under all outstanding equity compensation plans as of December 31, 2014:

	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	1,804,000 (1)	$ 1.38 (2)	4,852,444
Equity compensation plans not approved by security holders	0	N/A	0
Total	1,804,000		4,852,444

(1) Includes 911,000 restricted stock awards that are issued but not vested as of December 31, 2014.

(2)

Weighted average exercise price only applies to the 890,000 shares issuable upon exercise of outstanding stock options.

Item 6. Selected Financial Data.

This item is not applicable to us as a smaller reporting company.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

This discussion should be read in conjunction with the other sections of this Form 10-K, including "Risk Factors," and the Financial Statements. The various sections of this discussion contain a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risk factors described throughout this Annual Report on Form 10-K. See "Forward-Looking Statements." Our actual results may differ materially. For purposes of this Management's Discussion and Analysis of Financial Condition and Results of Operations, references to the "Company," "we," us" or "our" refer to the operations of 22nd Century Group, Inc. and its direct and indirect subsidiaries for the periods described herein.

Business Overview

We are a plant biotechnology company specializing in technology that allows for the level of nicotine and other nicotinic alkaloids (e.g., nornicotine, anatabine and anabasine) in tobacco plants to be decreased or increased through genetic engineering and plant breeding. We focused on tobacco harm reduction and smoking cessation products. We own or exclusively control 128 issued patents plus an additional 52 pending patent applications. The patents owned by or exclusively licensed to us include patents issued in 96 countries.

Our long-term focus is the research, development, licensing, manufacturing, and selling of our products to reduce the harm caused by smoking. Annual worldwide tobacco product sales, cigarettes and smokeless products, are approximately $800 billion and most of which are cigarette sales according to Euromonitor International.

- The international licensing of our technology, proprietary tobaccos, trademarks;
- The international sale of our branded proprietary tobaccos;
- The manufacture, marketing and distribution of *RED SUN* and *MAGIC* proprietary cigarettes;
- The production of *SPECTRUM* research cigarettes for NIDA, a part of NIH;
- The research and development of potentially less harmful or modified risk tobacco products and novel tobacco plant varieties;
- The development of *X-22*, a prescription-based smoking cessation aid consisting of VLN cigarettes;
- The pursuit of necessary regulatory approvals and clearances from the FDA to market in the U.S. *X-22* as a prescription smoking cessation aid and *BRAND A* and *BRAND B* as reduced-risk or Modified Risk Cigarettes;
- The contract manufacturing of third-party branded tobacco products; and
- The research and development in Canada of unique plant varieties of hemp/cannabis, such as (i) plants with low to no amounts of delta-9-tetrahydrocannabinol, or THC, for the legal hemp industry, (ii) plants with high levels of THC for the legal recreational cannabis market, and (iii) plants with high levels of cannabidiol, or CBD, and other non-THC cannabinoids for the legal medical marijuana markets.

We believe our proprietary technology, tobaccos and products can generate multiple significant revenue streams from licensing of our technology and tobacco and from the sales of our products.

As previously reported, on October 25, 2014, our Board of Directors terminated the employment of Joseph Pandolfino, our former Chief Executive Officer, pursuant to Section 4.2 (Termination Without Cause) of Mr. Pandolfino's Employment Agreement and formed an Executive Committee of the Board, consisting of the existing independent directors, to assist our management until the Board completes its search for and selection of a new Chief Executive Officer. Although Mr. Pandolfino will not be re-joining us as an employee or officer, he remains a member of the Board of Directors.

Since October 2014, the Executive Committee has been primarily working with management to assist it with forming the proper strategic direction of our business and to streamline and organize our business in light of the termination of Mr. Pandolfino. The Executive Committee expects to hire a third party advisory firm during the first quarter of 2015 in order to assist with the search for and selection of a new Chief Executive Officer.

Please refer to the “Business” section in this Annual Report on Form 10-K for additional information regarding our business and operations.

Results of Operations

Year Ended December 31, 2014 Compared to Year Ended December 31, 2013

Revenue - Royalties from licensing.

In the year ended December 31, 2014, we realized no licensing revenue. During the year ended December 31, 2013 we realized royalty revenue of $7.0 million from the worldwide Research License and Commercial Option Agreement entered into with BAT.

Revenue - Sale of products.

We realized revenue of $528,991 from the sale of products during the year ended December 31, 2014, as compared to revenue of $278,383 during the year ended December 31, 2013, an increase of $250,608 or 90%. The revenue of $528,991 for the year ended December 31, 2014, consisted of $447,535 in revenue derived from the sale of 5.5 million *SPECTRUM* research cigarettes during January 2014 and from the production of filtered cigars in our North Carolina manufacturing facility in the amount of $81,456. The revenue for the year ended December 31, 2013, was derived from the sale of our proprietary VLN tobacco to a customer in the Netherlands in the amount of $52,500 and from the sale of our VLN tobacco to the FDA as a subcontractor under a government contract between RTI and the FDA in the amount of $225,883.

Costs of goods sold - Royalties for licensing.

During the year ended December 31, 2014, we revised the estimate of the royalty fee due to NRC in connection with the $7,000,000 fee received from BAT in the fourth quarter of 2013. The new amount due to NRC of $660,000 exceeded the estimate of $413,566, originally recorded in the year ended December 31, 2013, by $246,434.

Costs of goods sold - Products.

In the year ended December 31, 2014, costs of goods sold were $252,002 or 47.6% of revenue. The cost of goods sold consists of $177,696 relating to the production of the *SPECTRUM* research cigarettes and $74,306 relating to the manufacture of the filtered cigars. In the year ended December 31, 2013, the cost of goods sold were $48,105 or 17.3% of revenue.

Research and development expense.

Research and development expense was $1,249,007 for the year ended December 31, 2014, an increase of $504,777, or 67.8%, from $744,230 for the year ended December 31, 2013. This increase was primarily the result of increases in stock based compensation of approximately $220,000, research and development payroll and related benefits of approximately $104,000, royalty and license fees of approximately $187,000, and $15,000 of costs associated with an FDA modified-risk application, partially offset by a decrease in contractual research and development costs of approximately $39,000 during the year ended December 31, 2014 as compared to the year ended December 31, 2013.

General and administrative expense.

General and administrative expense was $8,793,151 in the year ended December 31, 2014, an increase of $4,686,457, or 114.1%, from $4,106,694 in the year ended December 31, 2013. The increase was primarily due to increases in employee stock based compensation of approximately $1,047,000, employee related costs of approximately $693,000, legal and professional fees of approximately $986,000, costs relating to press releases of approximately $78,000, the write off of an uncollectible advance in the approximate amount of $43,000, NYSE MKT related costs of approximately $176,000, costs associated with severance liability of approximately $637,000, director fee costs of approximately $157,000, the expense associated with the Crede consulting agreement in the approximate amount of $2,091,000, and other administrative costs of approximately $171,000, partially offset by decreases in stock based compensation and cash payments to third-party service providers of approximately $1,318,000 and $75,000, respectively, during the year ended December 31, 2014 as compared to the year ended December 31, 2013.

Pre-manufacturing facility costs.

On August 29, 2014, we completed the transaction to purchase all of the issued and outstanding membership interests of NASCO. The purchase transaction was subject to various conditions, including the required consents of the 46 Settling States of the MSA to an amendment of NASCO's existing adherence agreement to the MSA, with the Company becoming a signatory to such amended adherence agreement as part of our acquisition of NASCO. On August 29, 2014, the Company became a signatory to the amended adherence agreement. NASCO operates our cigarette manufacturing facility in North Carolina. Prior to the closing of our acquisition of NASCO, the factory was primarily in a pre-manufacturing stage, incurring various expenses relating to preparing and upgrading the warehouse and manufacturing facility for production. Those expenses included salaries and benefits for employees, sub-contract labor, rent, utilities and other miscellaneous costs and amounted to $1,176,676 during the year ended December 31, 2014. There were no expenses relating to the cigarette manufacturing facility during the year ended December 31, 2013. We manufactured a modest quantity of filtered cigars during the year ended December 31, 2014 generating revenue in the amount of $81,456. We also commenced manufacturing our proprietary cigarette brands and an MSA brand for a chain of independent smokeshops during the fourth quarter of 2014. Sales of these brands commenced during the first quarter of 2015. NASCO will also continue to manufacture non-MSA filtered cigars.

Sales and marketing costs.

Sales and marketing costs were $85,930 for the year ended December 31, 2014, an increase of $76,878, or 849.3%, from $9,052 for the year ended December 31, 2013. The increase is primarily the result of costs associated with participation in tobacco industry trade shows, *RED SUN* packaging design costs, and materials used for marketing trips to Europe and Asia.

Amortization and depreciation expense.

Amortization and depreciation expense for the year ended December 31, 2014 amounted to $462,772, an increase of $318,483 or 220.7% from $144,289 for the year ended December 31, 2013. Amortization expense relates to amortization taken on capitalized patent costs. Amortization expense for the year ended December 31, 2014 was $232,760 an increase of $91,499 or 64.8% from $141,261 for the year ended December 31, 2013. The increase is primarily due to an adjustment to the 2013 amortization that was recorded in the first quarter of 2014 and by amortization on additional investments in patents during the years ended December 31, 2014 and 2013 in the amount of $641,866 and $332,826, respectively, partially offset by a change in the estimated useful lives of one of the patent families during the year ended December 31, 2013. Depreciation expense for the year ended December 31, 2014 was $230,012, an increase of $226,984 from $3,028 for the year ended December 31, 2013. This increase is mainly due to approximately $2.9 million of cigarette manufacturing equipment placed in service during the second quarter of 2014.

Warrant liability loss - net.

The warrant liability loss of $3,676,691 for the year ended December 31, 2014 was due to an increase in the warrants liability recorded in the first quarter of 2014 in the amount of $3,841,943 in conjunction with the Warrant Amendment program offset by a decrease in the estimated fair value of the warrants during the year in the amount of $165,252, primarily attributable to the decrease in the Company's underlying stock price from $2.14 per share at December 31, 2013, as compared to $1.65 per share at December 31, 2014.

In a private placement in the first quarter of 2013, we issued warrants which were accounted for as derivatives and upon issuance a liability at the estimated fair value was recorded. At the date of issuance of these warrants, the value exceeded that total consideration received by an aggregate of $3,987,655 resulting in an immediate charge to expense for this amount. In connection with the exercise of 1,101,034 Series B Warrants in July 2013, we issued a like number of Series C Warrants which were accounted for as derivatives and upon issuance a liability at the estimated fair value was recorded. At the date of issuance of these warrants, the value was estimated to be $1,622,069 which exceeded the sum of the net proceeds received in the exercise and the reclassification of warrant liability to capital by $343,079 resulting in an immediate charge to expense for this amount. These two charges added to the loss on warrant liability of $19,271,977, resulting from an increase in the fair value during the year ended December 31, 2013 for all warrants we have issued, resulting in a total loss on warrant liability-derivative for the year of $23,602,711. The loss on warrant liability of $19,271,977 was primarily the result of an increase in the Company's underlying stock price from $0.75 per share at December 31, 2012, as compared to $2.14 per share at December 31, 2013.

Future periods will reflect a gain or loss based on the change in the fair value of the derivatives, which is based on a number of factors including the Company's stock price.

Loss on equity investment.

The loss on equity investment of $101,165 for the year ended December 31, 2014, consists of (i) our 25% share of Anandia's net loss from our initial April 11, 2014 investment in Anandia through December 31, 2014 in the amount of $84,350, plus (ii) amortization of the intangible asset represented by the difference between our equity investment in Anandia and our portion of the book value of the net assets of Anandia in the amount of $16,815.

Interest expense and amortization of debt discount and expense.

Interest expense and amortization of debt discount and debt issuance costs decreased during the year ended December 31, 2014 to $7,094 from $748,605 during the year ended December 31, 2013. This decrease of $741,511 or 99.1% was primarily the result of a decrease in the amortization of debt discount and debt issuance costs relating to convertible notes issued on August 9, 2012 that were converted into common stock in August of 2013, payment of the majority of the Company's interest bearing debt in the fourth quarter of 2013, and the recording as interest expense the excess of the fair value of warrants issued during the year ended December 31, 2013 over the proceeds realized in the amount of approximately $509,000. The Company's demand bank loan is the only remaining interest bearing debt outstanding at December 31, 2014.

Net loss.

We had a net loss for the year ended December 31, 2014 of $15,595,358 as compared to a net loss of $26,153,158 for the year ended December 31, 2013. The decrease in the net loss of $10,557,800 or 40.4%, was primarily the result of a decrease in the warrant liability loss - net in the amount of $19,926,020, a decrease in interest expense and amortization of debt discount in the amount of $741,511, a decrease in the warrant amendment inducement expense of $3,591,765 and an increase in the gain on the sale of machinery and equipment of $71,121, offset by a decrease in gross profit of $6,786,157, an increase in operating expenses of $6,763,271, and a decrease in other income of $206,374.

Liquidity and Capital Resources

Working Capital

As of December 31, 2014, we had working capital of approximately $8.0 million, as compared to working capital of approximately $6.8 million at December 31, 2013, an increase of approximately $1.2 million. The $1.2 million increase in working capital was primarily the result of net working capital remaining from the net proceeds of the $9.3 million raised in the September 2014 common stock private placement after operating and investing activities during the year ended December 31, 2014.

We must successfully execute our business plan to increase revenue in order to achieve positive cash flows to sustain adequate liquidity without requiring additional funds from external sources to meet minimum operating requirements. The Company's Form S-3 universal shelf registration statement was filed with the U.S. Securities and Exchange Commission ("SEC") on April 18, 2014, and became effective on June 5, 2014. The universal shelf registration statement will allow, but not compel, the Company to raise up to $45 million of capital over a three-year period through a wide array of securities at times and in amounts to be determined by the Company. There can be no assurance that additional capital, if required, will be available on acceptable terms or at all.

Cash demands on operations

In 2014, we had an operating loss of approximately $11.7 million and used cash in operations of approximately $6.6 million during the year ended December 31, 2014. Excluding contract growing of our proprietary tobacco with farmers, extraordinary expenses such as potential clinical trials, capital expenses for our factory, and initial expenses associated with the launch of our *RED SUN* cigarette brand, our monthly cash expenditures are approximately $500,000. We believe that cash on hand at December 31, 2014 of $6,402,687 is adequate to sustain operations and meet all current obligations as they come due for a period of approximately 12 months.

Net Cash (used in) provided by Operating Activities

In the year ended December 31, 2014, $6,582,730 of cash was used operating activities compared to $3,855,834 of cash provided by operating activities in the year ended December 31, 2013, a decrease of $10,438,564. This decrease in cash provided by operations was mainly due to the license revenue received from BAT under the Research License and Commercial Option Agreement in the amount of $7,000,000 in 2013 as compared to no revenue from licensing in 2014. In addition, approximately $3,400,000 in additional cash was consumed in operating activities.

Net Cash used in Investing Activities

In the year ended December 31, 2014, we used $2,707,992, as compared to $3,742,789 of cash used in investing activities during the year ended December 31, 2013, a decrease of $984,797. The decrease in cash used in investing activities is primarily due to a decrease in the acquisition of machinery and equipment in the amount of $3,239,966, and an increase in proceeds received on the sale of machinery and equipment in the amount of $631,484, offset by increases in the acquisition of patents and trademarks of $436,653, license fees of $1,450,000, the cash portion of the equity investment in Anandia of $700,000, and the cash portion of the NASCO transaction of $250,000.

Net Cash from Financing Activities

During the year ended December 31, 2014, we generated $9,862,810 from our financing activities, as compared to $5,717,366 of cash generated from financing activities during the year ended December 31, 2013, an increase of $4,145,444. The $9,862,810 generated during the year ended December 31, 2014 was mainly the a result of net cash proceeds received from a common stock private placement in September 2014, in the amount of $9,324,088, and net cash proceeds from the exercise of stock warrants and stock options in the amount of $535,251. The $5,717,366 of cash generated during the year ended December 31, 2013 was primarily the result of the net proceeds from the Series A-1 Preferred stock placement in the amount of $2,034,664, net cash proceeds received from the exercise of warrants in the amount of $2,254,999, proceeds received from the issuance of notes payable in the amount of $150,000, proceeds received from the exercise of stock options in the amount of $5,200, and net cash proceeds received from the Warrant Exchange Program in the amount of $3,239,385. These proceeds raised were partially offset by payments on notes payable, convertible notes payable and net payments to related parties and officers in the amount of $1,620,299, $339,250 and $8,993, respectively.

Critical Accounting Policies and Estimates

Accounting principles generally accepted in the United States of America, or U.S. GAAP, require estimates and assumptions to be made that affect the reported amounts in our consolidated financial statements and accompanying notes. Some of these estimates require difficult, subjective and/or complex judgments about matters that are inherently uncertain and, as a result, actual results could differ from those estimates. Due to the estimation processes involved, the following summarized accounting policies and their application are considered to be critical to understanding our business operations, financial condition and results of operations.

Revenue Recognition

We recognize revenue at the point the product is shipped to a customer and title has transferred. Revenue from the sale of our products is recognized net of cash discounts, sales returns and allowances. Federal cigarette excise taxes are included in net sales and accounts receivable billed to customers, except on sales of *SPECTRUM* and exported cigarettes in which such taxes do not apply.

We were chosen to be a subcontractor for a government contract between RTI International ("RTI") and NIDA to supply research cigarettes to NIDA. These government research cigarettes are distributed under the Company's mark *SPECTRUM*. Future revenue under this arrangement is expected to be related to the delivery of *SPECTRUM* and will be recognized at the point the product is shipped and title has transferred. In September 2013, we received a purchase order for an additional 5.5 million *SPECTRUM* research cigarettes that were manufactured and shipped in January 2014. Total revenue from this order was approximately $447,535 and a down payment on the order was received in the fourth quarter of 2013 in the amount of $179,014. The down payment has been recorded as deferred revenue on the Company's balance sheet at December 31, 2013. There were no *SPECTRUM* cigarettes delivered during the year ended December 31, 2013.

As described above, we license our patented technology to third parties. Revenue is recognized from licensing arrangements as contractually defined in licensing agreements. We account for milestone elements contained in licensing agreements in accordance with ASC 605. Simultaneous with the signing of the Research License and Commercial Option Agreement, BAT paid us a non-refundable $7,000,000. Revenue was recognized for this amount since delivery of the patented technology took place, we had no further performance obligations, and the fee was fixed. We will be entitled to receive additional payments from BAT, up to an additional $7,000,000, during the Research Term in the event certain milestones are met by BAT with respect to BAT's research and development of our patent rights licensed by the Company to BAT. There are four separate milestones, two of which BAT would pay us $2 million for each milestone achieved, and two of which BAT would pay us $1.5 million for each milestone achieved. In addition, the Company could earn additional future royalties if BAT elects to exercise the Commercial Option Agreement during the Research Term.

No amount related to the research milestones was recognized during 2014 or 2013. A portion of the patented technology sublicensed to BAT was exclusively licensed to 22nd Century Ltd. by NRC. Pursuant to the terms of the license agreement with NRC, 22nd Century Ltd. was obligated to make a royalty payment to NRC from the monies received from BAT. During the quarter ended September 30, 2014, 22nd Century Ltd. and NRC mutually agreed on a payment of $660,000 that was paid in December 2014. 22nd Century Ltd. had previously estimated the payment to be $413,566. The difference in the amount of $246,434 has been recorded as Royalty for licensing in the Cost of goods sold section of the Company's Consolidated Statements of Operations for the year ended December 31, 2014.

Impairment of Long-Lived Assets

We review the carrying value of amortizing long-lived assets whenever events or changes in circumstances indicate that the historical cost-carrying value of an asset may no longer be appropriate. We also assess recoverability of the asset by estimating the future undiscounted net cash flows expected to result from the asset, including eventual disposition. If the estimated future undiscounted net cash flows are less than the carrying value of the asset, an impairment loss is recorded equal to the difference between the asset's carrying value and its fair value. Non-amortizing intangibles (e.g., patents and trademarks) are reviewed annually for impairment. We have not recognized any impairment losses during the two year period ended December 31, 2014.

Amortization Estimates of Intangible Assets

We generally determine amortization based on the estimated useful lives of the assets and record amortization expense on a straight-line method over such lives. The remaining life of the primary patent in each patent family is generally used to determine the estimated useful life of the related patent costs.

Valuation of our Equity Securities

We use a fair-value based method to determine compensation for all arrangements under which Company employees and others receive shares, options or warrants to purchase common shares of 22nd Century Group. Stock based compensation expense is recorded over the requisite service period based on estimates of probability and time of achieving milestones and vesting. For accounting purposes, the shares will be considered issued and outstanding upon vesting.

Income taxes

The Company recognizes deferred tax assets and liabilities for any basis differences in its assets and liabilities between tax and GAAP reporting, and for operating loss and credit carry-forwards. In light of the Company's history of cumulative net operating losses and the uncertainty of their future utilization, the Company has established a valuation allowance to fully offset its net deferred tax assets as of December 31, 2014 and 2013.

Derivative Financial Instruments

We do not use derivative instruments to hedge exposures to cash flow, market or foreign currency risks. We evaluate all of our financial instruments to determine if such instruments are derivatives or contain features that qualify as embedded derivatives. For derivative financial instruments that are accounted for as liabilities, the derivative instrument is initially recorded at its fair market value and then is revalued at each reporting date, with changes in fair value reported in the consolidated statement of operations. The methodology for valuing our outstanding warrants classified as derivative instruments utilizes a lattice model approach which includes probability weighted estimates of future events including volatility of our common stock. A financial asset or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement. The warrant liability is measured at fair value using certain estimated factors such as volatility and probability which are classified within Level 3 of the valuation hierarchy. Significant unobservable inputs are used in the fair value measurement of the Company's derivative warrant liabilities include volatility. Significant increases (decreases) in the volatility input would result in a significantly higher (lower) fair value measurement. A 10% increase or decrease in the volatility factor used as of December 31, 2014 would have the impact of increasing or decreasing the liability by approximately $22,000.

The classification of derivative instruments, including whether such instruments should be recorded as liabilities or equity, is evaluated at the end of each reporting period. Derivative instrument liabilities are classified in the balance sheet as current or non-current based on whether or not net-cash settlement of the derivative instrument could be required within twelve months of the balance sheet date.

Inflation

Inflation did not have a material effect on our operating results for the years ended December 31, 2014 and 2013.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements as defined by Item 303(a)(4) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

As a smaller reporting company, we are not required to present the information required by this item.

Item 8. Financial Statements and Supplementary Data.

The required financial statements and the notes thereto are contained in a separate section of this Form 10-K Information section beginning with the page following Item 15 (Exhibits and Financial Statement Schedules).

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed in its Exchange Act (defined below) reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to the Company's management, including the Company's president and chief financial officer, as appropriate, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Our president and chief financial officer, after evaluating the effectiveness of the Company's "disclosure controls and procedures" (as defined in the Securities Exchange Act of 1934 ("Exchange Act") Rules 13a-15(e) or 15d-15(e)) as of the end of the period covered by this annual report, has concluded that our disclosure controls and procedures were not effective and that material weaknesses described below exist in our internal control over financial reporting based on his evaluation of these controls and procedures as required by paragraph (b) of Exchange Act Rules 13a-15 or 15d-15.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, the president and the chief financial officer and effected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Our evaluation of internal control over financial reporting includes using the COSO framework, an integrated framework for the evaluation of internal controls issued by the Committee of Sponsoring Organizations of the Treadway Commission in 1992, to identify the risks and control objectives related to the evaluation of our control environment.

Based on our evaluation under the frameworks described above, our management concluded that as of December 31, 2014, that our internal controls over financial reporting were not effective and that material weaknesses exist in our internal control over financial reporting. The material weakness consists of controls associated with segregation of duties and controls associated with accounting for complex and non-routine transactions relating to certain equity and

derivative instruments. To address the material weakness we performed additional analyses and other post-closing procedures to ensure that our consolidated financial statements were prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). Notwithstanding this material weakness, management believes that the financial statements included in this Annual Report on Form 10-K fairly present, in all material respects, our financial condition, result of operations and cash flows for the periods presented.

Freed Maxick CPA's, P.C., the Company's independent registered public accounting firm, has audited the consolidated financial statements as of and for the year ended December 31, 2014, and the effectiveness of the Company's internal control over financial reporting as of December 31, 2014, as stated in their reports, which are included herein.

Changes in Internal Control over Financial Reporting

There was no change in the Company's internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) during the quarter ended December 31, 2014 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders

22nd Century Group, Inc.

We have audited 22nd Century Group, Inc. and Subsidiaries (the "Company") internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 1992. The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying "Management's Annual Report on Internal Controls Over Financial Reporting". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that *(a)* pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; *(b)* provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and *(c)* provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

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A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. The following material weaknesses have been identified and included in management's assessment.

Material weaknesses related to financial closing and reporting process.

The Company did not maintain a sufficient complement of qualified accounting staff resulting in ineffective controls due to a lack of segregation of duties and a lack of secondary review. Additionally, the Company did not maintain sufficient technical resources to ensure that the financial statements and notes to the financial statements were presented fully in accordance with GAAP and with all required disclosures. The Company’s corporate accounting and financial reporting function is currently performed by one person on staff. That person performs nearly all aspects of the financial reporting process, including but not limited to access to the underlying accounting records and systems, the ability to post and record journal entries, the responsibility to perform reconciliations of account balances, as well as the responsibility for the preparation of the financial statements.

These material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2014 financial statements, and this report does not affect our report dated February 5, 2015 on those financial statements.

In our opinion, because of the effect of the material weaknesses described above on the achievement of the objectives of the control criteria, the Company has not maintained effective internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 1992.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets as of December 31, 2014 and 2013 and the related consolidated statements of operations, shareholders’ equity and cash flows of the Company for the years then ended and our report dated February 5, 2015 expressed an unqualified opinion.

/s/ FREED MAXICK CPAs, P.C.

Buffalo, New York
February 5, 2015

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Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information concerning our executive officers, directors and corporate governance is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2015 Annual Meeting of Stockholders.

Set forth below is information regarding our directors, executive officers and key personnel.

Name	Age	Position
Henry Sicignano, III	47	President, Chief Operating Officer and Director
John T. Brodfuehrer	57	Chief Financial Officer and Treasurer
Michael R. Moynihan, Ph.D.	62	Vice President of R&D
Thomas L. James, Esq.	56	Vice President, General Counsel and Secretary
Joseph Alexander Dunn, Ph.D.	61	Director*
James W. Cornell	58	Director**
Richard M. Sanders	61	Director***
Joseph Pandolfino	46	Director****

* Dr. Dunn is currently Associate Dean for Research and Professor of Pharmaceutical Sciences at D'Youville College of Pharmacy in Buffalo, New York and has served in this capacity since April 1, 2010.

** Mr. Cornell is currently the President and Chief Executive Officer of Praxiis, LLC, an enterprise that provides support for clients in organizational change, leadership development and transactional advisory services. Mr. Cornell is also the current Manager of Larkin Center Management, LLC, a real estate development company, and has served in this capacity since October 2010.

*** Since August 2009, Mr. Sanders has served as a General Partner of Phase One Ventures, LLC, a venture capital firm which focuses on nanotechnology and biotechnology start-up opportunities in New Mexico and surrounding states.

**** Since October 25, 2014, Mr. Pandolfino ceased serving as an employee of 22nd Century Group, Inc. and its affiliates.

Code of Ethics

In 2006, we adopted a Code of Ethics that applies to all of our employees. A copy of our Code of Ethics is available on our website at xxiicentury.com and will be provided to any person requesting same without charge. To request a copy of our Code of Ethics, please make a written request to our President c/o 22nd Century Group, Inc., 9530 Main Street, Clarence, New York 14031. Future material amendments or waivers relating to the Code of Ethics will be disclosed on our website referenced in this paragraph within four business days following the date of such amendment or waiver.

Item 11. Executive Compensation.

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2015 Annual Meeting of Stockholders .

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2015 Annual Meeting of Stockholders .

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2015 Annual Meeting of Stockholders.

Item 14. Principal Accounting Fees and Services.

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2015 Annual Meeting of Stockholders .

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) Financial Statements

22nd CENTURY GROUP, INC. AND SUBSIDIARIES

INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders

22nd Century Group, Inc.

We have audited the accompanying consolidated balance sheets of 22nd Century Group, Inc. and Subsidiaries as of December 31, 2014 and 2013, and the related consolidated statements of operations, shareholders' equity, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of 22nd Century Group, Inc. and Subsidiaries as of December 31, 2014 and 2013, and the results of its operations and cash flows for the years then ended, in conformity with U.S. generally accepted accounting principles.

We have also audited, in accordance with the standards of the Public Accounting Oversight Board (United States), 22nd Century Group, Inc. and Subsidiaries internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control - Integrated Framework* issued by Committee of Sponsoring Organizations of the Treadway Commission in 1992. Our report dated February 5, 2015 expressed an opinion that 22nd Century Group, Inc. had not maintained effective internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 1992.

/s/ FREED MAXICK CPAs, P.C.

Buffalo, New York

February 5, 2015

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22nd CENTURY GROUP INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
December 31,

	2014	2013
ASSETS		
Current assets:		
Cash	$6,402,687	$5,830,599
Due from related party	46,069	42,069
Due from officers	-	7,471
Inventory, net	2,064,796	1,406,280
Prepaid consulting fees	1,978,785	-
Prepaid expenses and other assets	214,469	-
Machinery and equipment held for resale	-	457,696
Total current assets	10,706,806	7,744,115
Machinery and equipment, net	2,850,615	2,997,760
Other assets:		
Intangible assets, net	7,077,759	1,544,869
Equity investment	1,318,335	-
Total other assets	8,396,094	1,544,869
Total assets	$21,953,515	$12,286,744
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Demand bank loan	$174,925	$174,925
Current portion of note payable	320,513	-
Accounts payable	884,412	54,665
Accrued expenses	1,081,545	575,730
Accrued severance	212,012	-
Deferred revenue	-	179,014
Total current liabilities	2,673,407	984,334
Long-term portion of note payable	605,217	-
Long-term portion of accrued severance	412,308	-
Warrant liability	3,042,846	3,779,522
Total liabilities	6,733,778	4,763,856
Commitments and contingencies (Note 17)	-	-
Shareholders' equity		
Capital stock authorized:		
10,000,000 preferred shares, $.00001 par value		
300,000,000 common shares, $.00001 par value		

Capital stock issued and outstanding:		
64,085,042 common shares (56,902,770 at December 31, 2013)	641	569
Capital in excess of par value	70,744,190	47,452,055
Accumulated deficit	(55,525,094)	(39,929,736)
Total shareholders' equity	15,219,737	7,522,888
Total liabilities and shareholders' equity	$21,953,515	$12,286,744

See accompany notes to consolidated financial statements.

22nd CENTURY GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
Years Ended December 31,

	2014	2013
Revenue:		
Royalties from licensing	$-	$7,000,000
Sale of products	528,991	278,383
	528,991	7,278,383
Cost of goods sold:		
Royalties for licensing	246,434	413,566
Products	252,002	48,105
	498,436	461,671
Gross profit	30,555	6,816,712
Operating expenses:		
Research and development (including stock based compensation of $331,467 and $111,563, respectively)	1,249,007	744,230
General and administrative (including stock based compensation of $4,165,078 and $2,250,399, respectively)	8,793,151	4,106,694
Pre-manufacturing facility costs (including stock based compensation of $27,923 and $0, respectively)	1,176,676	-
Sales and marketing costs	85,930	9,052
Amortization and depreciation	462,772	144,289
	11,767,536	5,004,265
Operating (loss) income	(11,736,981)	1,812,447
Other income (expense):		
Warrant liability loss - net	(3,676,691)	(23,602,711)
Warrant amendment inducement expense	(144,548)	(3,736,313)
Gain on the sale of machinery and equipment	71,121	-
Loss on equity investment	(101,165)	-
Income tax credit refund	-	122,024
Interest expense and amortization of debt discount and expense:		
Related parties	-	(17,889)
Other	(7,094)	(730,716)
	(3,858,377)	(27,965,605)
Net loss	$(15,595,358)	$(26,153,158)
Loss per common share - basic and diluted	$(0.26)	$(0.60)
Common shares used in basic earnings per share calculation	59,993,413	43,635,182

See accompany notes to consolidated financial statements.

22nd CENTURY GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF SHAREHOLDERS' EQUITY
Years Ended December 31, 2014 and 2013

	Preferred Shares Outstanding	Common Shares Outstanding	Par value of Preferred Shares	Par value of Common Shares	Contributed Capital	Accumulated Deficit	Shareholders' Equity (Deficit)
Balance at December 31, 2012	-	34,286,979	$ -	$ 344	$7,645,017	$(13,776,578)	$(6,131,217)
Common stock issued upon exercise of Convertible Notes	-	2,406,720	-	24	(24)	-	-
Preferred stock issued in January 2013 private placement	2,500	416,666	-	4	(4)	-	-
Conversion of preferred stock to common stock	(2,500)	4,166,666	-	42	(42)	-	-
Exercise of warrants	-	6,820,218	-	68	14,097,526	-	14,097,594
Exercise of options	-	20,000	-	-	5,200	-	5,200
Stock based compensation	-	2,820,000	-	28	2,361,934	-	2,361,962
Other contributed capital	-	-	-	-	1,660	-	1,660
Warrant exchange program	-	5,804,368	-	58	23,340,789	-	23,340,847
Common stock issued in payment of accrued dividends	-	161,153	-	1	(1)	-	-
Net loss	-	-	-	-	-	(26,153,158)	(26,153,158)
Balance at December 31, 2013	-	56,902,770	$ -	$ 569	$47,452,055	$(39,929,736)	$7,522,888
Stock based compensation	-	1,282,768	-	13	2,433,240	-	2,433,253
Warrants issued as compensation for services	-	-	-	-	1,260,000	-	1,260,000
Exercise of warrants	-	1,167,737	-	12	486,939	-	486,951
Exercise of options	-	70,000	-	1	48,299	-	48,300

Common stock issued in September 2014 private placement	-	3,871,767	-	39	9,324,049	-	9,324,088
Stock issued in connection with acquisition of NASCO Products, LLC	-	640,000	-	6	1,951,994	-	1,952,000
Stock issued in connection with equity investment	-	150,000	-	1	394,499	-	394,500
Other capital contribution	-	-	-	-	25,200	-	25,200
Warrant amendments	-	-	-	-	7,367,915	-	7,367,915
Net loss	-	-	-	-	-	(15,595,358)	(15,595,358)
Balance at December 31, 2014	-	64,085,042	$ -	$ 641	$70,744,190	$(55,525,094)	15,219,737

See accompany notes to consolidated financial statements.

22nd CENTURY GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 31,

	2014	2013
Cash flows from operating activities:		
Net loss	$(15,595,358)	$(26,153,158)
Adjustments to reconcile net loss to cash (used in) provided by operating activities:		
Amortization and depreciation	462,772	144,289
Amortization of license fees	32,524	-
Amortization of debt issuance costs	-	4,232
Amortization of debt discount	-	134,296
Loss on equity investment	101,165	-
Gain on the sale of machinery and equipment	(71,121)	-
Interest due to debt conversion	-	526,448
Warrant liability loss	3,676,691	23,602,711
Warrant amendment inducement expense	144,548	3,736,313
Equity based employee compensation expense	2,293,083	980,162
Equity based payments for outside services	2,231,385	1,381,800
Severance expense	624,320	
(Increase) decrease in current assets:		
Inventory	(620,660)	(175,754)
Prepaid expenses and other assets	(214,469)	10,044
Increase (decrease) in current liabilities:		
Accounts payable	625,389	(629,101)
Accrued interest payable to related parties	-	(3,567)
Accrued expenses	(93,985)	118,105
Deferred revenue	(179,014)	179,014
Net cash (used in) provided by operating activities	(6,582,730)	3,855,834
Cash flows from investing activities:		
Acquisition of patents and trademarks	(726,989)	(290,336)
Acquisition machinery and equipment	(212,487)	(2,994,757)
Purchase of machinery and equipment held for resale	-	(457,696)
Payment of license fees	(1,450,000)	-
Acquisition of NASCO Products, LLC	(250,000)	-
Proceeds from the sale of machinery and equipment	631,484	-
Equity investment and advance	(700,000)	-
Net cash used in investing activities	(2,707,992)	(3,742,789)
Cash flows from financing activities:		
Net proceeds from exercise of warrants	486,951	2,254,999
Net proceeds from exercise of options	48,300	5,200
Net proceeds from warrant exchange program	-	3,239,385
Proceeds from issuance of notes	-	150,000
Payments on borrowings - notes payable	-	(1,620,299)
Payments on borrowings - convertible notes	-	(339,250)
Net proceeds from September 2014 common stock private placement	9,324,088	-
Net proceeds from January 2013 preferred stock private placement	-	2,034,664

Other capital contribution	-	1,660
Net payments to related party	(4,000)	(5,100)
Net advances from (to) officers	7,471	(3,893)
Net cash provided by financing activities	9,862,810	5,717,366
Net increase in cash	572,088	5,830,411
Cash - beginning of period	5,830,599	188
Cash - end of period	$6,402,687	$5,830,599
Cash paid during the period for interest	$7,094	$135,247
Cash paid during the period for income taxes	$-	$-

22nd CENTURY GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (continued)
Years Ended December 31,

	2014	2013
Supplemental disclosure of investing and financing activities		
Reclassification of derivative liability to equity due to warrant amendments	$7,367,915	$14,433,178
Patent and trademark additions included in accounts payable	$193,454	$42,490
Machinery and equipment additions included in accounts payable	$10,904	$-
License fee included in accrued expenses	$300,000	$-
Equity investment included in accrued expenses	$325,000	$-
Issuance of common stock for equity investment	$394,500	$-
Issuance of common stock for acquisition of NASCO Products, LLC	$1,952,000	$-
Issuance of warrants as a derivative liability issued under a consulting agreement and included in prepaid consulting fees	$2,810,000	$-
Warrants issued under a consulting agreement resulting in an increase in capital and included in prepaid consulting fees	$1,260,000	$-
Reclassification of machinery and equipment purchases to inventory	$37,856	$-
Other capital contribution	$25,200	$-
Patent additions acquired with note payable	$925,730	$-
Accounts payable converted to promissory notes	$-	$769,377
Accrued interest converted to promissory notes	$-	$26,422
Notes payable and accrued interest converted to common shares	$-	$1,650,305
Common stock issued in payment of preferred stock dividend payable	$-	$93,361
Common stock issued for fees relating to January 2013 preferred stock private placement	$-	$416,666
Refinance of convertible note to note payable	$-	$57,500
Issuance of warrants as derivative liability instruments and reduction of capital	$-	$5,675,634
	$-	$626,328

Increase in warrant liability and reduction in capital as a result of lowering the exercise price on certain warrants		
Reclassification of derivative liability to equity due to warrant exchange program	$-	$19,639,465
Common stock issued for fees relating to December 2013 warrant exchange program	$-	$462,000

See accompanying notes to consolidated financial statements.

22nd CENTURY GROUP, INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS DECEMBER 31, 2014

NOTE 1. - NATURE OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation - The accompanying consolidated financial statements include the accounts of 22nd Century Group, Inc. ("22nd Century Group"), its three wholly-owned subsidiaries, 22nd Century Limited, LLC ("22nd Century Ltd"), NASCO Products, LLC ("NASCO"), and Botanical Genetics, LLC ("Botanical Genetics"), and a 51% owned subsidiary, 22nd Century Asia Ltd. ("22nd Century Asia"), and two wholly-owned subsidiaries of 22nd Century Ltd, Goodrich Tobacco Company, LLC ("Goodrich Tobacco") and Hercules Pharmaceuticals, LLC ("Hercules Pharma") (collectively, "the Company"). All intercompany accounts and transactions have been eliminated.

Nature of Business - 22nd Century Ltd, is a plant biotechnology company specializing in technology that allows for the level of nicotine and other nicotinic alkaloids (e.g., nornicotine, anatabine and anabasine) in tobacco plants to be decreased or increased through genetic engineering and plant breeding. The Company owns or exclusively controls 128 issued patents plus an additional 52 pending patent applications. The patents owned by or exclusively licensed to us include patents issued in 96 countries. Goodrich Tobacco and Hercules Pharma are business units for the Company's (i) premium cigarettes and potential modified risk tobacco products and (ii) smoking cessation product, respectively. The Company acquired the membership interests of NASCO on August 29, 2014. NASCO is a federally licensed tobacco products manufacturer, a participating member of the tobacco Master Settlement Agreement ("MSA") between the tobacco industry and the Settling States under the MSA, and operates the Company's cigarette manufacturing business in North Carolina. Botanical Genetics is a wholly-owned subsidiary of 22nd Century Group, and was incorporated to facilitate an equity investment more fully described in Note 10. 22nd Century Asia was newly-formed during the third quarter of 2014 in connection with the Company's efforts to sell its proprietary tobacco products in Asia, more fully described in Note 6.

Preferred Stock Authorized - The Company is authorized to issue "blank check" preferred stock, which could be issued with voting, liquidation, dividend and other rights superior to our common stock. On January 11, 2013, the Company designated the rights of and issued 2,500 shares of Series A-1 Preferred Stock. As of June 7, 2013, all 2,500 outstanding shares of Series A-1 Preferred Stock were converted into an aggregate of 4,166,666 shares of common stock of the Company and no shares of preferred stock remain outstanding.

Concentration of Credit Risk - Financial instruments that potentially subject the Company to concentration of credit risk consist of cash accounts in financial institutions. Although the cash accounts exceed the federally insured deposit amount, management does not anticipate nonperformance by the financial institutions. Management reviews the financial viability of these institutions on a periodic basis.

Inventory - Inventories are valued at the lower of cost or market. Cost is determined using an average cost method for tobacco leaf inventory and the first-in, first-out (FIFO) method on all other inventories. Inventories are evaluated to determine whether any amounts are not recoverable based on slow moving or obsolete condition and are written off or reserved as appropriate. Inventories at December 31, 2014 and 2013 consist of the following:

	December 31, 2014	December 31, 2013
Inventory - tobacco leaf	$ 1,537,521	$ 1,398,747
Less: inventory reserve	50,623	50,623
Inventory - tobacco leaf, net	1,486,898	1,348,124
Inventory - finished goods		
Cigarettes and filtered cigars	154,568	13,206
Inventory - raw materials		
Cigarette and filtered cigar components	423,330	44,950
	$ 2,064,796	$ 1,406,280

Fixed assets – Fixed assets are recorded at their acquisition cost and depreciated on a straight line basis over their estimated useful lives ranging from 3 to 10 years. Depreciation commences when the asset is placed in service.

Intangible Assets - Intangible assets are recorded at cost and consist primarily of (1) expenditures incurred with third parties related to the processing of patent claims and trademarks with government authorities, as well as costs to acquire patent rights from third parties, (2) license fees paid for third-party intellectual property, (3) costs to become a signatory under the tobacco Master Settlement Agreement ("MSA"), and (4) license fees paid to acquire a predicate cigarette brand. The amounts capitalized relate to intellectual property that the Company owns or to which it has exclusive rights. The Company's intellectual property capitalized costs are amortized using the straight-line method over the remaining statutory life of the primary patent in each of the Company's two primary patent families, which expire in 2019 and 2028 (the assets' estimated lives, respectively). Periodic maintenance or renewal fees are expensed as incurred. Annual minimum license fees are charged to expense. License fees paid for third-party intellectual property are amortized on a straight-line basis over the last to expire patents, which patent expiration dates range from 2028 through 2035. The Company believes costs associated with becoming a signatory to the MSA and acquiring the predicate cigarette brand have an indefinite life and as such, no amortization is taken. Total intangible assets at December 31, 2014 and December 31, 2013 consist of the following:

	December 31, 2014	December 31, 2013
Intangible assets, net		
Patent and trademark costs	$ 4,405,586	$ 2,559,412
Less: accumulated amortization	1,247,303	1,014,543
Patent and trademark costs, net	3,158,283	1,544,869
License fees, net (see Note 17)	1,450,000	-
Less: accumulated amortization	32,524	-
License fees, net	1,417,476	-
MSA signatory costs (see Note 7)	2,202,000	-
License fee for predicate cigarette brand	300,000	-
	$ 7,077,759	$ 1,544,869

Amortization expense relating to the above intangible assets for the years ended December 31, 2014 and 2013 amounted to $265,284 and $141,261, respectively.

During the year ended December 31, 2013, the Company changed the estimated useful life of one of the patent families. The change did not have a material impact on the financial statements.

The estimated annual average amortization expense for the next five years is approximately $310,000 for patent costs and $98,000 for license fees.

Impairment of Long-Lived Assets **-** The Company reviews the carrying value of its amortizing long-lived assets whenever events or changes in circumstances indicate that the historical cost-carrying value of an asset may no longer be recoverable. The Company assesses recoverability of the asset by estimating the future undiscounted net cash flows expected to result from the asset, including eventual disposition. If the estimated future undiscounted net cash flows are less than the carrying value of the asset, an impairment loss is recorded equal to the difference between the asset's carrying value and its fair value. There was no impairment loss recorded during the years ended December 31, 2014 or 2013.

Income Taxes **-** The Company recognizes deferred tax assets and liabilities for any basis differences in its assets and liabilities between tax and GAAP reporting, and for operating loss and credit carry-forwards.

In light of the Company's history of cumulative net operating losses and the uncertainty of their future utilization, the Company has established a valuation allowance to fully offset its net deferred tax assets as of December 31, 2014 and 2013.

The Company's federal and state tax returns for the years ended September 30, 2011 to December 31, 2013 are currently open to audit under the statutes of limitations. There are no pending audits as of December 31, 2014.

Refundable taxes and tax credits – The Company accounts for income tax refunds or tax refundable tax credits as discrete items and recognized the amount in the period in which the funds are received. During the year ended December 31, 2013, the Company received notice from the New York State Department of Taxation and Finance of a no change audit with respect to its income tax return filed for the period ending September 30, 2011. The subject return contained a refundable credit in the amount of $122,024. The refund was recorded as Other income in the Company's Consolidated Statement of Operations for the year ended December 31, 2013. There were no such transactions during the year ended December 31, 2014.

Stock Based Compensation - The Company uses a fair-value based method to determine compensation for all arrangements under which Company employees and others receive shares, options or warrants to purchase common shares of 22nd Century Group. Stock based compensation expense is recorded over the requisite service period based on estimates of probability and time of achieving milestones and vesting. For accounting purposes, the shares will be considered issued and outstanding upon vesting.

Revenue Recognition – The Company recognizes revenue from product sales at the point the product is shipped to a customer and title has transferred. Revenue from the sale of the Company's products is recognized net of cash discounts, sales returns and allowances. Cigarette federal excise taxes are included in net sales and accounts receivable billed to customers, except on sales of *SPECTRUM* research cigarettes and exported cigarettes, to which such taxes do not apply.

The Company was chosen to be a subcontractor for a 5-year government contract between RTI International ("RTI") and the National Institute on Drug Abuse ("NIDA") to supply NIDA with research cigarettes. These government research cigarettes are distributed under the Company's mark, *SPECTRUM*. In September 2013, the Company received a purchase order for 5.5 million *SPECTRUM* research cigarettes that were shipped in January 2014. Total revenue from this order was approximately $448,000 for the year ended December 31, 2014. A down payment of $179,014 was received in the fourth quarter of 2013 and was recorded as deferred revenue on the Company's balance sheet at December 31, 2013. There were no *SPECTRUM* cigarettes delivered during the year ended December 31, 2013.

The Company licenses its patented technology to third parties. Revenue is recognized from licensing arrangements as contractually defined in licensing agreements. The Company accounts for milestones elements contained in licensing agreements in accordance with ASC 605. On October 1, 2013, 22nd Century Ltd entered into a worldwide Research License and Commercial Option Agreement (the "Agreement") with British American Tobacco (Investments) Limited ("BAT"), a subsidiary of British American Tobacco plc, that grants BAT access to 22nd Century Ltd's patented technology which alters levels of nicotinic alkaloids in tobacco plants. Simultaneous with the signing of the Agreement, BAT paid the Company a non-refundable $7,000,000. The Company will be entitled to receive additional

payments from BAT of up to an additional $7,000,000 during the term of the Research License in the event certain milestones are met with respect to the ongoing research and development of the Company's licensed technology to BAT. No amount related to the additional research milestones was recognized during the year ended December 31, 2014. During the term of the Research License, BAT will have the option to enter into a Commercial License agreement which will provide for future annual payments, royalty payments and minimum annual royalties. A portion of the patented technology sublicensed to BAT was exclusively licensed to 22nd Century Ltd by a third party licensor proir to the acquisition by 22nd Century Ltd of such patented technology from such licensor on December 23, 2014 (see Note 12 for the more detailed discussion). Pursuant to the terms of the license agreement with such licensor, 22nd Century Ltd was obligated to make a royalty payment to the licensor with respect to a portion of the non-refundable $7,000,000 paid by BAT to the Company on October 1, 2013. From October 2013 to September 2014, 22nd Century Ltd and the third party licensor were in discussions as to the amount of royalty due to the licensor from 22nd Century Ltd. During the quarter ended September 30, 2014, 22nd Century Ltd and the third party licensor mutually agreed on a payment of $660,000 that was paid in December 2014. 22nd Century Ltd had previously estimated the payment to be $413,566. The difference in the amount of $246,434 has been recorded as Royalty for licensing in the Cost of goods sold section of the Company's Consolidated Statements of Operations for the year ended December 31, 2014.

Derivatives – The Company does use derivative instruments to hedge exposures to cash flow, market or foreign currency risks. The Company evaluates all of its financial instruments to determine if such instruments are derivatives or contain features that qualify as embedded derivatives. For derivative financial instruments that are accounted for as liabilities, the derivative instrument is initially recorded at its fair market value and then is revalued at each reporting date, with changes in fair value reported in the consolidated statement of operations. The methodology for valuing outstanding warrants classified as derivative instruments utilizes a lattice model approach which includes probability weighted estimates of future events including volatility of our common stock. The classification of derivative instruments, including whether such instruments should be recorded as liabilities or equity, is evaluated at the end of each reporting period. Derivative instrument liabilities are classified on the balance sheet as current or non-current based on whether or not net-cash settlement of the derivative instrument could be required within twelve months of the balance sheet date.

Research and Development - Research and development costs are expensed as incurred.

Loss Per Common Share - Basic loss per common share is computed using the weighted-average number of common shares outstanding. Diluted loss per share is computed assuming conversion of all potentially dilutive securities. Potential common shares outstanding are excluded from the computation if their effect is anti-dilutive.

Commitment and Contingency Accounting - The Company evaluates each commitment and/or contingency in accordance with the accounting standards, which state that if the item is more likely than not to become a direct liability, then the Company will record the liability in the financial statements. If not, the Company will disclose any material commitments or contingencies that may arise.

Use of Estimates - The preparation of financial statements in conformity with accounting principles generally accepted in the United States ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates.

Fair Value of Financial Instruments - Financial instruments include cash, receivables, accounts payable, accrued expenses, demand bank loan, and warrant liability. Other than warrant liability, fair value is assumed to approximate carrying values for these financial instruments, since they are short term in nature, they are receivable or payable on demand, or had stated interest rates that approximate the interest rates available to the Company as of the reporting date. The determination of the fair value of the warrant liability includes unobservable inputs and is therefore categorized as a Level 3 measurement, as further discussed in Note 15.

Equity Investments – The Company accounts for investments in equity securities of other entities under the equity method of accounting if the Company's investment in the voting stock is greater than or equal to 20% and less than a majority, and the Company has the ability to have significant influence over the operating and financial policies of the investee.

Accounting Pronouncements - In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers", which supersedes nearly all existing revenue recognition guidance under U.S. GAAP. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration to which an entity expects to be entitled for those goods or services. ASU 2014-09 defines a five step process to achieve this core principle and, in doing so, more judgment and estimates may be required within the revenue recognition process than are required under existing U.S. GAAP. The standard is effective for annual periods beginning after December 15, 2016, and interim periods therein, using either of the following transition methods: (i) a full retrospective approach reflecting the application of the standard in each prior reporting period with the option to elect certain practical expedients, or (ii) a retrospective approach with the cumulative effect of initially adopting ASU 2014-09 recognized at the date of adoption (which includes additional footnote disclosures). The Company is currently evaluating the impact of the pending adoption of ASU 2014-09 on its consolidated financial statements and have not yet determined the method by which it will adopt the standard in 2017.

NOTE 2. – NYSE MKT EXCHANGE

On March 11, 2014, the Company's common stock began trading on the NYSE MKT exchange under the ticker symbol XXII. The Company's common stock had been previously quoted on the OTC Bulletin Board under the ticker symbol of XXII.OB.

NOTE 3. – FINANCIAL CONDITION

At December 31, 2014, the Company had current assets of $10,706,806 and current liabilities of $2,673,407 resulting in positive working capital of $8,033,399. Cash on hand at December 31, 2014 was $6,402,687. The Company believes it will have adequate cash reserves to sustain operations and meet all current obligations as they come due for a period of approximately 12 months.

The Company's Form S-3 universal shelf registration statement was filed with the U.S. Securities and Exchange Commission ("SEC") on April 18, 2014, and became effective on June 5, 2014. The universal shelf registration statement will allow, but not compel, the Company to raise up to $45 million of capital over a three-year period through a wide array of securities at times and in amounts to be determined by the Company.

NOTE 4. – SEPTEMBER 2014 COMMON STOCK PRIVATE PLACEMENT

On September 17, 2014, the Company issued 3,871,767 shares of its common stock for $10,000,000. Net cash proceeds from the issuance were $9,324,088 after deducting expenses associated with the common stock issuance.

As a condition of the private placement, the parties executed a Registration of Rights Agreement pursuant to which the Company agreed to provide certain registration rights with respect to certain of the issued securities under the Securities Act of 1933. Accordingly, on October 10, 2014, the Company filed a Form S-3 Registration Statement with the SEC. On October 23, 2014, the SEC declared the Registration Statement effective.

NOTE 5. - JANUARY 2013 PREFERRED STOCK PRIVATE PLACEMENT

On January 11, 2013, the Company sold 2,500 shares of newly created Series A-1 10 % Convertible Preferred Stock (the "Series A-1 Preferred Stock") and warrants for $2.5 million. Net proceeds from this issuance were $2.035 million. During 2013, all Series A-1 Preferred Stock was converted into shares of the Company's common stock and all related warrants to purchase shares of the Company's common stock were exercised. Net proceeds from the exercise of warrants to purchase shares of the Company's common stock were $2.090 million.

NOTE 6. – CONSULTING AGREEMENT AND JOINT VENTURE

In connection with a joint venture arrangement entered into on September 29, 2014 by the Company's newly-formed and 51% owned subsidiary, 22nd Century Asia, the Company entered into a six-month Consulting Agreement (the "Consulting Agreement") with Crede CG III, Ltd. ("Crede"). Crede will provide consulting services to 22nd Century Asia with respect to the Company's efforts to sell its proprietary tobacco products into the Asian market. In connection with the Company's entry into such a joint venture and the Consulting Agreement, the Company issued Crede 1,250,000 Tranche 1A Warrants (the "Tranche 1A Warrants") and 1,000,000 Tranche 1B Warrants (the "Tranche 1B Warrants"). The Tranche 1A Warrants have an exercise price of $3.36 per share and the Tranche 1B Warrants have an exercise price of $2.5951 per share. The Tranche 1A Warrants and the Tranche 1B Warrants each have a term of two years and are exercisable at any time. In addition, the Company issued 1,000,000 Tranche 2 Warrants (the "Tranche 2 Warrants") and 1,000,000 Tranche 3 Warrants (the "Tranche 3 Warrants"). The Tranche 2 Warrants and the Tranche 3 Warrants each have a term of 5 years and an exercise price of $3.3736 per share. The Tranche 2 Warrants and Tranche 3 Warrants only become exercisable if certain revenue milestones are met by 22nd Century Asia subsequent to a certain commencement date, such commencement date likely to occur between January 1, 2016 and January 1, 2017, and the Company is cash flow positive from its investment in 22nd Century Asia. The Tranche 1A Warrants, the Tranche 1B Warrants, the Tranche 2 Warrants and the Tranche 3 Warrants all contain a traditional cashless exercise provision.

In addition to the traditional cashless exercise provision, the Tranche 1A Warrants contain an Exchange Rights clause (the "Exchange Rights") that provides that the Tranche 1A Warrants may be exercised on cashless basis by exchanging such warrants for shares of the Company's common stock using a negotiated Black-Scholes pricing formula beginning on the day that is sixty one days after September 17, 2014, subject to certain conditions in the Exchange Rights. The number of shares issuable pursuant to the Exchange Rights is determined by dividing (a) the product of the number of Tranche 1A Warrants to be exchanged and the per share price resulting from the negotiated Black-Scholes pricing formula, by (b) the Exchange Price, defined as the closing bid price of the Company's common stock two days prior to the date of the exchange. The maximum number shares issuable under the Exchange Rights is limited to 5,000,000 shares.

The Company valued the Tranche 1A Warrants and Tranche 1B Warrants using the Black-Scholes pricing model as of the date of issuance. The resulting fair value of the Tranche 1A Warrants and Tranche 1B Warrants amounted to $2,810,000 and $1,260,000, respectively, and have been recorded as Prepaid consulting fees on the Company's Consolidated Balance Sheets and are being amortized over the six month term of the Consulting Agreement. During the year ended December 31, 2014, $2,091,215 of the Prepaid consulting fees were amortized and are included in General and administrative costs on the Company's Consolidated Statements of Operations. The Exchange Rights contained in the Tranche 1A Warrants cause the financial instrument to be considered a liability in accordance with FASB Accounting Standards Codification Topic 480 – "Distinguishing Liabilities from Equity" ("ASC 480"). More specifically, ASC 480 requires a financial instrument to be classified as a liability if such financial instrument contains a conditional obligation that the issuer must or may settle by issuing a variable number of its equity securities if, at inception, the monetary value of the obligation is based on a known fixed monetary amount. As such, the fair value of the Tranche 1A Warrants are included in the Warrant liability on the Company's Consolidated Balance Sheets at December 31, 2014. The Tranche 1B Warrants do not contain such Exchange Rights and accordingly the fair value has been recorded as an increase in capital. No value has been assigned to the Tranche 2 Warrants and the Tranche 3 Warrants as they are not exercisable until certain revenue milestones are attained, as described above.

NOTE 7. – BUSINESS COMBINATION

On September 17, 2013, the Company entered into a Membership Interest Purchase Agreement, which was subsequently amended on May 13, 2014, to purchase all of the issued and outstanding membership interests of NASCO Products, LLC ("NASCO"), a North Carolina limited liability company (the "Transaction"). NASCO is a federally licensed tobacco product manufacturer and a participating member of the tobacco Master Settlement Agreement known as the MSA, an agreement among 46 U.S. states and the tobacco industry administered by the National Association of Attorneys General ("NAAG"). The Transaction was subject to various conditions, including the required consents of the Settling States of the MSA to an amendment of NASCO's existing adherence agreement to the MSA, with the Company becoming a signatory to such amended adherence agreement as part of the Company's acquisition of NASCO. On August 29, 2014, the Company became a signatory to the amended adherence agreement under the MSA, and accordingly, the Transaction closed on August 29, 2014.

The purchase price for the Transaction (the “Purchase Price”) consisted of (i) a cash payment of $250,000 and (ii) the issuance of 640,000 unregistered shares of the Company’s common stock. The common stock issued on August 29, 2014 had a market value of $1,952,000, resulting in a total Purchase Price of $2,202,000. The Purchase Price has been recorded as an Intangible asset in the Other assets section of the Company’s Consolidated Balance Sheets. The Company believes the intangible asset has an indefinite life and as such, no amortization is recorded. The Company also acquired cash of approximately $105,000 and a like amount of accrued expenses.

In connection with the initial recording of the acquisition the Company recorded a deferred tax liability associated with the excess of the book value over the tax basis of assets acquired during the third quarter of 2014. During the final accounting for the acquisition it was determined that the book and tax basis were equal and the need for the deferred tax liability was no longer necessary. As a result, the initial recording of the deferred tax liability and associated goodwill from August 2014 was reversed.

NOTE 8. – MANUFACTURING FACILITY

On December 11, 2013, the Company closed on a $3,220,000 purchase of certain cigarette manufacturing equipment from the bankruptcy estate of a company located in North Carolina that was liquidating under Chapter 7 of the U.S. Bankruptcy Code. Additionally, on January 13, 2014, the Company closed on a $210,000 purchase of various cigarette manufacturing equipment parts, office furniture and fixtures, vehicles and computer software and equipment from a second bankruptcy estate of a company located in North Carolina that was liquidating under Chapter 7 of the U.S. Bankruptcy Code. A portion of the equipment from these two transactions was not required for the Company's manufacturing operations and was subsequently sold at auction during the first quarter of 2014.

The Company's warehouse and cigarette manufacturing facility was primarily in a pre-manufacturing stage during the year ended December 31, 2014. During this time period, the Company incurred various expenses to prepare the facility for production. Expenses incurred during the year ended December 31, 2014 amounted to $1,176,676 and consisted primarily of expenses for salaries and benefits for employees, sub-contract labor, rent, utilities and other miscellaneous costs and are reported as Pre-manufacturing facility costs on the Company's Consolidated Statements of Operations. During the second quarter of 2014, the Company placed $2,997,140 of cigarette manufacturing equipment in service. Depreciation taken on the equipment during the year ended December 31, 2014 amounted to $224,519 and is included in Amortization and depreciation on the Company's Consolidated Statements of Operations. The Company did manufacture a quantity of filtered cigars during the year ended December 31, 2014 resulting in revenue of $81,456. As discussed in Note 7, on August 29, 2014, the Company closed on the acquisition of NASCO. Accordingly, the Company and NASCO are now signatories under the MSA. NASCO commenced manufacturing the Company's proprietary cigarette brands and an MSA brand for an independent chain of retail smoke shops during the fourth quarter of 2014 at its manufacturing facility. Sales of these MSA brands commenced during the first quarter of 2015. NASCO will also continue to manufacture non-MSA filtered cigars.

NOTE 9. – MACHINERY AND EQUIPMENT

Machinery and equipment at December 31, 2014 and 2013 consists of the following:

	December 31, 2014	December 31, 2013
Cigarette manufacturing equipment	$ 3,031,375	$ 3,220,000
Office furniture, fixtures and equipment	55,355	17,059
Leasehold improvements	-	14,500
Deposit for purchase of machine parts and other assets	-	210,000
	3,086,730	3,461,559
Less: cigarette manufacturing equipment held for resale	-	457,696
	3,086,730	3,003,863

Less: accumulated depreciation	236,115	6,103
Machinery and equipment, net	$ 2,850,615	$ 2,997,760

On December 11, 2013 and January 13, 2014, the Company acquired machinery and equipment in the amount of $3,220,000 and $210,000, respectively, as described in Note 8. A portion of the equipment from these two transactions was not required for the Company's manufacturing operations and was subsequently sold at auction during the first quarter of 2014. The Company allocated $457,696 and $88,167 of the purchase price of these sold assets from the two transactions, respectively. The Company realized net proceeds from the auction sale of $631,484, resulting in a gain on the sale of assets of $85,621. The remaining cigarette manufacturing equipment was placed in service during the second quarter of 2014. Depreciation expense was $230,012 and $3,027 for the years ended December 31, 2014 and 2013, respectively.

NOTE 10. – EQUITY INVESTMENT AND ADVANCE

On April 11, 2014, the Company, through a newly formed wholly-owned subsidiary, Botanical Genetics, LLC, entered into an investment agreement (the "Agreement") with Anandia Laboratories, Inc., a Canadian plant biotechnology company ("Anandia"). The Agreement provided for the Company to make an initial investment of $250,000 in Anandia in return for (i) a ten percent (10%) equity interest in Anandia, and (ii) certain rights granted to the Company for four patent families (the "Intellectual Property"). The $250,000 investment was made on April 14, 2014. On September 15, 2014, certain milestones were achieved triggering an additional cash investment in Anandia in the amount of $450,000 in return for (i) an additional fifteen percent (15%) equity interest in Anandia, and (ii) a worldwide sublicense agreement to the Intellectual Property, including an exclusive sublicense agreement within the U.S. In addition, the Company issued 150,000 unregistered shares of the Company's common stock to Anandia with a value on the day of issuance in the amount of $394,500, and on March 31, 2015, the Company will issue to Anandia unregistered shares of the Company's common stock with an aggregate market value of $325,000 at the time of the issuance. The additional $325,000 payable in shares of common stock is included in the Equity investment and in Accrued expenses on the Company's Consolidated Balance Sheets at December 31, 2014.

In January 2014, the Company made a non-interest bearing advance to Anandia in the amount of $92,894. $50,000 of this amount was applied to a sublicense fee paid to Anandia, under a certain sublicense more fully described in Note 17. The balance of $42,894 has been written off and is included in General and administrative expense on the Company's Consolidated Statements of Operations.

The Company uses the equity method of accounting to record its 25% ownership interest in Anandia. As of December 31, 2014, the Company's equity investment balance in Anandia was $1,318,335 and is classified within Other assets on the accompanying Consolidated Balance Sheets. As of December 31, 2014, the carrying value of our investment in Anandia was approximately $1,199,000 in excess of our share of the book value of the net assets of Anandia, with such difference attributable to intangible assets. This intangible asset is being amortized over the expected benefit period and this amortization expense of $16,815 has been included in the Loss on equity investment in the accompanying Consolidated Statements of Operations. In addition, the Company has recorded an equity loss of $84,350, representing 25% of Anandia's net loss covering the period beginning with the Company's initial investment through December 31, 2014, resulting in a total loss on equity investment of $101,165.

NOTE 11. - DEMAND BANK LOAN

The demand loan is among the Company's short term liabilities and is payable to a commercial bank under a revolving credit agreement and is guaranteed by a former officer and current director of the Company. This loan had a balance of $174,925 at December 31, 2014 and 2013. The Company is required to pay interest monthly at an annual rate of 0.75% above the prime rate, or 4.00% at December 31, 2014 and 2013. The Company is current in meeting this interest payment obligation. The terms of the demand loan include an annual "clean-up" provision, which requires the

Company to repay all principal amounts outstanding for a period of 30 consecutive days every year. The Company has not complied with this requirement; however, the bank has not demanded payment. The bank has a lien on all of the Company's assets.

NOTE 12. - NOTES PAYABLE AND PATENT ACQUISITION

On December 22, 2014, the Company entered into a Purchase Agreement (the "Agreement") with the National Research Council of Canada ("NRC") to acquire certain patent rights that the Company had previously licensed from NRC under a license agreement between the parties. The Purchase Agreement provided for the payment by the Company to NRC of the total amount of $1,873,000, of which (i) $660,000 was required to be paid at the closing under the Purchase Agreement for the payment due in 2013 from the Company to NRC as a result of the monies received by the Company from BAT in October 2013, and (ii) the remaining balance of $1,213,000 being for the purchase of the NRC patent rights, of which $213,000 was paid in cash at the closing on December 23, 2014, and with the remaining $1,000,000 balance to be paid in three equal installments of approximately $333,333 in December of 2015, 2016 and 2017, respectively, with no interest on the installment payments unless the Company defaults in any such installment payment. As such, the Company computed the present value of the note payable using the Company's incremental borrowing rate. The resulting present value of the note payable amounted to $925,730; with $320,513 and $605,217 recorded as the current and long-term portion of the note payable, respectively. The cost of the acquired patents in the amount of $1,138,730 (cash of $213,000 plus the discounted notes payable in the amount of $925,730) are included in Intangible assets, net on the Company's Consolidated Balance Sheets. All previous license agreements between NRC and the Company were terminated as a condition of the Purchase Agreement. NRC has a security interest in these patent rights acquired by the Company from NRC until the note payable has been satisfied.

NOTE 13. – SEVERANCE LIABILITY

As of December 31, 2014, the Company has recorded an accrual for service in the amount of $624,320 in accordance with FASB ASC 712. The severance accrual relates to the October 25, 2014 termination of Joseph Pandolfino, the Company's former Chairman of the Board and Chief Executive Officer, pursuant to Section 4.2 (Termination by the Company Without Cause) of Mr. Pandolfino's Employment Agreement, dated as of January 25, 2011. The Employment Agreement stipulates that Mr. Pandolfino shall receive severance payments in the gross amount of $18,750 per month, subject to customary withholdings, over a term of 36 months. Amounts owed Mr. Pandolfino have been discounted using the Company's incremental borrowing rate, resulting in current and long-term liabilities of $212,012 and $412,308, respectively. In addition, 320,000 unvested equity awards vested upon termination. The additional equity based compensation of approximately $60,000 associated with the vesting of these equity awards was recorded as expense during the fourth quarter of 2014.

NOTE 14. - DUE FROM RELATED PARTY

The Company has conducted transactions with a related party, Alternative Cigarettes, Inc. ("AC"). AC is entirely owned by certain shareholders of the Company, including the Company's former CEO and current director. During the years ended December 31, 2014 and 2013, transactions with AC consisted mainly of advances and repayments. The net amount due from AC amounted to $46,069 and $42,069 as of December 31, 2014 and 2013, respectively. No interest has been accrued or paid on amount due from or to AC and there are no repayment terms.

NOTE 15. - WARRANT EXCHANGE PROGRAM AND WARRANTS FOR COMMON STOCK

During the fourth quarter of 2013, the Company initiated a warrant exchange program (the "Warrant Exchange Program") with existing warrant holders. As a result of the Warrant Exchange Program, the Company had 10,653,469 outstanding warrants remaining at December 31, 2013, a reduction from 19,616,308, as of September 30, 2013. Of the remaining outstanding warrants at December 31, 2013, 3,921,381 warrants contained anti-dilution features that provide for adjustments to the exercise price and number of warrants outstanding if the Company issues shares of common stock of 22nd Century Group at a price that is less than the respective warrant exercise prices. These provisions require that such warrants be classified as derivatives for accounting purposes, which means they are reported as a liability and adjusted to fair value at each balance sheet date.

In March 2014, the Company entered into warrant amendments with existing warrant holders (the "Warrant Amendments") with the goal of further reducing the Company's warrant liability. To that end, the Company offered financial inducements to certain non-management warrant holders to (i) exercise their warrants on a cash basis, (ii) exercise their warrants on a cashless basis, or (iii) agree to have the anti-dilution feature removed from their warrants

in exchange for a reduction in the exercise price contained in their respective warrants. The warrant holders also had the option to maintain the terms and conditions of their original warrant. Management elected to have the anti-dilution feature removed from their warrants without inducement. As a result of the Warrant Amendments, subsequent warrant exercises during the year ended December 31, 2014, and additional warrants issued during the third quarter of 2014, there are 13,544,600 warrants outstanding at December 31, 2014 that do not contain the anti-dilution features. A total of 129,809 warrants containing anti-dilution features remain outstanding at December 31, 2014. The Company calculated the cost of inducement as the difference between the fair value of the warrants immediately after the Warrant Amendments closed, less the fair value of the warrants immediately prior to the completion of the Warrant Amendments. The Company estimated the total cost of inducement to be $144,548. This expense has been recorded as an Other expense on the Company’s Consolidated Statements of Operations, and as an increase to the derivative warrant liability that was subsequently reversed into capital.

As discussed in Note 6, the Company issued warrants to Crede on September 29, 2014, in connection with a joint venture and Consulting Agreement, whereby Crede will provide consulting services to 22nd Century Asia with respect to the Company's efforts to sell its proprietary tobacco products into the Asian market. The terms and conditions relating to the issued warrants are discussed in detail in Note 6.

Outstanding warrants at December 31, 2014 consist of the following:

Warrant Description	Number of Warrants	Exercise Price	Expiration
January 2011 PPO $3.00 warrants	2,817,952	$2.2029	January 25, 2016
January 2011 PPO $3.00 warrants	653,869	$2.0000	January 25, 2016
January 2011 PPO $3.00 warrants	3,062,665	$1.9600	January 25, 2016
January 2011 PPO $1.50 warrants	292,965	$1.2672	January 25, 2016
January 2011 PPO $1.50 warrants (1)	37,177	$1.2018	January 25, 2016
January 2011 PPO $1.50 warrants	62,329	$1.2018	January 25, 2016
January 2011 PPO $1.50 warrants	10,831	$1.1718	January 25, 2016
December 2011 convertible NP warrants	172,730	$1.1984	February 8, 2017
December 2011 convertible NP warrants	802,215	$1.3816	February 6, 2018
May 2012 PPO warrants	401,700	$0.6000	May 15, 2017
November 2012 PPO warrants	925,100	$0.6000	November 9, 2017
August 2012 convertible NP warrants(1)	92,632	$0.9520	August 8, 2018
August 2012 convertible NP warrants	92,244	$0.9060	August 8, 2018
Crede Tranche 1A Warrants (2)	1,250,000	$3.3600	September 29, 2016
Crede Tranche 1B Warrants	1,000,000	$2.5951	September 29, 2016
Crede Tranche 2 Warrants (3)	1,000,000	$3.3736	September 29, 2019
Crede Tranche 3 Warrants (3)	1,000,000	$3.3736	September 29, 2019
Total warrants outstanding (4)	13,674,409		

(1) Includes anti-dilution features.

(2) Include Exchange Rights (see Note 6 for detailed discussion).

(3) Exercisable upon attainment of certain revenue milestones (see Note 6 for detailed discussion).

(4) Includes 3,725,962 warrants (27.3%) held by officers and directors that have had the anti-dilution feature removed.

The Company estimates the value of warrant liability upon issuance of the warrants and at each balance sheet date using the binomial lattice model to allocate total enterprise value to the warrants and other securities in the Company's capital structure. Volatility was estimated based on historical observed equity volatilities and implied (forward) or expected volatilities for a sample group of guideline companies and consideration of recent market trends.

As a result of the Exchange Rights contained in the Tranche 1A Warrants, the financial instrument is considered a liability in accordance with FASB Accounting Standards Codification Topic 480 – "Distinguishing Liabilities from Equity" ("ASC 480"). More specifically, ASC 480 requires a financial instrument to be classified as a liability if such financial instrument contains a conditional obligation that the issuer must or may settle by issuing a variable number of its equity securities if, at inception, the monetary value of the obligation is based on a known fixed monetary amount.

The following table is a roll-forward summary of the warrant liability:

Fair value at December 31, 2012	$4,173,140
Fair value of warrant liability upon conversion of remaining December 14, 2011 Notes – Q1 2013	1,445,091
Fair value of warrant liability upon issuance - Q1 2013	6,022,319
Fair value of warrant liability upon issuance - Q2 2013	711,675
Fair value of warrant liability upon issuance - Q3 2013	1,622,069
Fair value of warrant liability upon conversion of August 9, 2012 Notes - Q3 2013	731,662
Fair value of warrant liability upon reduction of exercise price of Series A and Series C warrants – Q3 2013	626,328
Reclassification of warrant liability to equity upon exercise of warrants - Q2 2013	(204,513)
Reclassification of warrant liability to equity upon exercise of warrants - Q3 2013	(6,542,904)
Reclassification of warrant liability to equity upon exercise of warrants - Q4 2013	(7,712,170)
Cost of inducement from Warrant Exchange Program - Q4 2013	3,274,313
Reclassification of warrant liability to equity resulting from Warrant Exchange Program - Q4 2013	(19,639,465)
Loss as a result of change in fair value	19,271,977
Fair value at December 31, 2013	$3,779,522
Reclassification of warrant liability to equity resulting from Warrant Amendments - Q1 2014	(7,367,915)
Cost of inducement from Warrant Amendments - Q1 2014	144,548
Fair value of warrant liability resulting from issuance of Crede Tranche 1A Warrants – Q3 2014	2,810,000
Loss as a result of change in fair value	3,676,691
Fair value at December 31, 2014	$3,042,846

The aggregate net loss as a result of the Company’s warrant liability for the years ended December 31, 2014 and 2013 amounted to $3,676,691 and $19,271,977, respectively, which is included in Other income (expense) as part of Warrant liability loss – net in the accompanying Consolidated Statements of Operations. The loss for the year ended December 31, 2013, also includes a charge to Other income (expense) in the amount of $4,330,734 as a result of (i) warrant liabilities issued in connection with the Series A-1 Preferred Stock in excess of net proceeds raised in the amount of $3,987,655 in January 2013, and (ii) warrant liabilities issued in connection with the July 2013 issuance of 1,101,034 Series C Warrants in excess of the sum of the net process received upon exercise and the reclassification of the warrant liability to capital, in the amount of $343,079. Warrant liabilities issued during the year ended December 31, 2013, in connection with the December 14, 2011 convertible notes and the August 9, 2012 convertible notes converted to common stock in excess of the conversion amount by $17,386 and $509,062, respectively, were recorded as additional interest expense.

FASB ASC 820 - “Fair Value Measurements and Disclosures” establishes a valuation hierarchy for disclosure of the inputs to valuation used to measure fair value. This hierarchy prioritizes the inputs into three broad levels as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the

financial instrument; and

- Level 3 inputs are unobservable inputs based on the Company's own assumptions used to measure assets and liabilities at fair value.

A financial asset's or a financial liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement. The warrant liability is measured at fair value using certain estimated factors such as volatility and probability which are classified within Level 3 of the valuation hierarchy. Significant unobservable inputs that are used in the fair value measurement of the Company's derivative warrant liabilities include volatility. Significant increases (decreases) in the volatility input would result in a significantly higher (lower) fair value measurement.

The following table summarizes the Company's warrant activity since December 31, 2012:

	Number of Warrants	
Warrants outstanding at December 31, 2012	12,972,664	
Warrants issued	11,570,274	
Warrants issued as part of Warrant Exchange Program	138,666	
Additional warrants due to anti-dilution provisions	1,665,400	
Warrants exercised during 2013	(9,831,414	)
Warrants exercised as part of Warrant Exchange Program	(5,862,121	)
Warrants outstanding at December 31, 2013	10,653,469	
Warrants issued in conjunction with consulting agreement (see Note 6)	4,250,000	
Warrants exercised during 2014	(1,247,443	)
Additional warrants due to anti-dilution provisions	18,383	
Warrants outstanding at December 31, 2014	13,674,409	
Composition of outstanding warrants:		
Warrants containing anti-dilution feature	129,809	
Warrants without anti-dilution feature	13,544,600	(1)
	13,674,409	

(1) Include 1,250,000 warrants containing Exchange Rights (see Note 6 for detailed discussion).

NOTE 16. - RETIREMENT PLAN

The Company sponsors a defined contribution plan under IRC Section 401(k). The plan covers all employees who meet the minimum eligibility requirements. Under the 401(k) plan eligible employees are allowed to make voluntary deferred salary contribution to the plan, subject to statutory limits. The Company has elected to make Safe Harbor Non-elective Contributions to the plan for eligible employees in the amount of three percent (3%) of the employee's compensation. Total employer contributions to the plan for the years ended December 31, 2014 and 2013 amounted to $27,485 and $34,873, respectively. The contribution for the year ended December 31, 2013 includes a contribution made for 2012 in the first quarter of 2013.

NOTE 17. – COMMITMENTS AND CONTINGENCIES

License Agreements - Under its exclusive worldwide license agreement with North Carolina State University ("NCSU"), the Company is required to pay minimum annual royalty payments, which are credited against running royalties on sales of licensed products. The minimum annual royalty for each of 2014 and 2015 is $75,000, and in 2016 the minimum annual royalty increases to $225,000. The license agreement continues through the life of the last-to-expire patent, which is expected to be 2022. The license agreement also requires a milestone payment of $150,000 upon FDA approval or clearance of a product that uses the NCSU licensed technology. The Company is also responsible for reimbursing NCSU for actual third-party patent costs incurred. These costs vary from year to year and the Company has certain rights to direct the activities that result in these costs. During the years ended December 31, 2014 and 2013, the costs incurred related to capitalized patent costs and patent maintenance expense amounted to $123,968 and $101,902 respectively.

In addition, on February 10, 2014, the Company entered into a sponsored research and development agreement (the "Agreement") with NCSU. Under the terms of the Agreement, the Company is required to pay NCSU $162,408 over the two-year term of the Agreement, which grants certain licensing rights to the Company. A payment of $81,204 was made in February 2014 and a final payment of $81,204 is due and payable on February 1, 2015.

The Company has two other exclusive license agreements which require aggregate annual license fees of approximately $75,000, which are credited against running royalties on sales of licensed products. Each license agreement continues through the life of the last-to-expire patents. On December 22, 2014, the Company entered into a Purchase Agreement (see Note 12 for details) with one of these licensors to acquire certain patent rights the Company had previously licensed from such licensor. The Company has no future commitment to that licensor.

All payments made under the above referenced license agreements and the sponsored research and development agreement are initially recorded as a Prepaid expense on the Company's Consolidated Balance Sheets and subsequently expensed on a straight-line basis over the applicable period and included in Research and development costs on the Company's Consolidated Statements of Operations.

On August 22, 2014, the Company entered into a Commercial License Agreement with Precision PlantSciences, Inc. (the "Precision License"). The Precision License grants the Company a non-exclusive, but fully paid up right and license to use technology and materials owned by Precision PlantSciences for a license fee of $1,250,000. An initial cash payment of $725,000 was made upon execution of the Precision License with an unconditional obligation to pay the remaining $525,000 in $25,000 increments as materials are provided to the Company. The remaining $525,000 was paid during December 2014. The Precision License continues through the life of the last-to-expire patent, which is expected to be in 2028.

On August 27, 2014, the Company entered into an additional exclusive License Agreement (the "License Agreement") with NCSU. Under the License Agreement, the Company paid NCSU a non-refundable, non-creditable lump sum license fee of $125,000. Additionally, the License Agreement calls for the Company to pay NCSU three non-refundable, non-creditable license maintenance fees in the amount of $15,000 per annum in each of December 2015, 2016 and 2017. Beginning in calendar year 2018, the Company is obligated to pay to NCSU an annual minimum royalty fee of $20,000 in 2018, $30,000 in 2019, and $50,000 per year thereafter for the remaining term of the License Agreement. The Company is also responsible for reimbursing NCSU for actual third-party patent costs incurred. There were no costs reimbursed under the License Agreement through December 31, 2014. The License Agreement continues through the life of the last-to-expire patent, which is expected to be in 2034.

On September 15, 2014, the Company entered into a Sublicense Agreement with Anandia Laboratories, Inc. (the "Anandia Sublicense"). Under the terms of the Anandia Sublicense, the Company was granted an exclusive sublicense in the United States and a co-exclusive sublicense in the remainder of the world, excluding Canada, to the licensed Intellectual Property (more fully discussed in Note 10). The Anandia Sublicense calls for an up-front fee of $75,000, an annual license fee of $10,000, and a running royalties on future net sales. The Anandia Sublicense continues through the life of the last-to-expire patent, which is expected to be in 2035.

The Precision License, the License Agreement with NCSU and the Anandia Sublicense are included in Intangible assets, net in the Company's Consolidated Balance Sheets and the applicable license fees will be amortized over the term of the agreements based on their last-to-expire patent date. Amortization during the year ended December 31, 2014 and 2013 amounted to $32,524 and $0, respectively, and was included in Research and development costs on the Company's Consolidated Statements of Operations.

Lease Agreements **-** On October 9, 2013, the Company executed a guaranty that guarantees performance by NASCO of its obligations to a landlord under a certain triple net lease of the same date between NASCO and a landlord for a

manufacturing facility and warehouse located in North Carolina. Upon the NASCO transaction closing on August 29, 2014, the lease became a direct obligation of the Company. The lease commenced on January 14, 2014, and has an initial term of twelve (12) months. The lease contains four (4) additional extensions; one for an additional one (1) year and three for an additional two (2) years in duration, exercisable at the option of NASCO. The lease expense for the year ended December 31, 2014 amounted to $97,593. The future minimum lease payments under the lease are $123,000, $298,275, $338,250 and $338,250 during the one (1) year optional extension, and each of the three (3), two (2) year optional extensions, respectively.

The Company has extended the lease for its office space in Clarence, New York for a one-year renewal option expiring August 31, 2015, with the Company having the option to extend this lease for either or both of two (2) additional renewal periods, each consisting of one (1) year. Future minimum lease payments for the years ended December 31, 2015, 2016 and 2017 are approximately $44,000, $45,000 and $31,000, respectively, if the Company exercises each of the optional renewal periods.

On January 25, 2013, the Company entered into a two and one-half year lease for manufacturing space in Depew, New York, which commenced February 1, 2013. This lease was cancelled during the third quarter of 2014. There are no remaining rent commitments under this lease.

NOTE 18. - EARNINGS PER COMMON SHARE

The following table sets forth the computation of basic and diluted earnings per common share for the year ended December 31, 2014 and 2013:

	December 31, 2014	December 31, 2013
Net loss attributed to common shareholders	$(15,595,358)	$(26,153,158)
Denominator for basic earnings per share-weighted average shares outstanding	59,993,413	43,635,182
Effect of dilutive securities: Warrants, restricted stock and options outstanding	-	-
Denominator for diluted earnings per common share-weighted average shares adjusted for dilutive securities	59,993,413	43,635,182
Loss per common share - basic and diluted	$(0.26)	$(0.60)

Securities outstanding that were excluded from the computation of earnings per share for the year ended December 31, 2014 and 2013 because they would have been anti-dilutive are as follows:

	December 31, 2014	December 31, 2013
Warrants	13,674,409	10,653,469
Restricted stock	250,000	500,000
Options	890,000	660,000
	14,814,409	11,813,469

NOTE 19. - STOCK BASED COMPENSATION

On October 21, 2010, the Company established the 2010 Equity Incentive Plan (“EIP”) for officers, employees, directors, consultants and advisors to the Company and its affiliates, consisting of 4,250,000 shares of common stock. The EIP had a term of ten years and is administered by our Board of Directors (the “Board”) or a committee to be established by our Board (the “Administrator”), to determine the various types of incentive awards that may be granted to recipients under this plan and the number of shares of common stock to underlie each such award under the EIP. On March 30, 2011, the Company filed a Form S-8 registration statement with the SEC to register all of the shares of

common stock of 22nd Century Group that it may issue under the EIP.

During the first quarter of 2014, the Company issued restricted stock awards from the EIP for 850,000 restricted shares to employees and directors that will vest on January 27, 2015. All awards were valued at the closing price on the measurement date of the award. Subsequent to this issuance of restricted stock, there are no shares remaining to be issued from the EIP.

On April 12, 2014, the stockholders of the Company approved the 22nd Century Group, Inc. 2014 Omnibus Incentive Plan (the "OIP"). The OIP allows for the granting of equity and cash incentive awards to eligible individuals over the life of the OIP, including the issuance of up to 5,000,000 shares of the Company's common stock pursuant to awards under the OIP. The OIP has a term of ten years and is administered by the Compensation Committee of our Board of Directors to determine the various types of incentive awards that may be granted to recipients under this plan and the number of shares of common stock to underlie each such award under the OIP. On April 18, 2014, the Company filed a Form S-8 registration statement with the SEC to register the 5,000,000 shares of common stock of 22nd Century Group that may be issued under the OIP.

During the year ended December 31, 2014, the Company issued restricted stock awards from the OIP for 147,556 restricted shares to eligible individuals having vesting periods ranging from zero to three years from the award date. All awards were valued at the closing price on the measurement date of the award.

For the years ended December 31, 2014 and 2013, the Company recorded compensation expense related to restricted stock and stock option awards granted under the EIP and OIP of $2,293,082 and $998,214, respectively. The Company also recorded equity based compensation for the years ended December 31, 2014 and 2013 as payment to third parties for services rendered in the amount $140,170 and $1,363,748, respectively.

As of December 31, 2014, unrecognized compensation expense related to non-vested restricted shares and stock options amounted to approximately $672,000, which is expected to be recognized approximately as follows: $473,000, $160,000, and $39,000 during 2015, 2016 and 2017, respectively.

The fair value of each option grant is estimated on the date of grant using the Black-Scholes option-pricing model. The following assumptions were used for the years ended December 31, 2014 and 2013:

	2014		2013	
Risk-free interest rate	1.80	%	1.89	%
Expected dividend yield	0	%	0	%
Expected stock price volatility	90	%	90	%
Expected life of options	10 years		10 years	

The Company estimated the expected volatility based on data used by a peer group of public companies. The expected term was estimated using the contract life of the option. The risk-free interest rate assumption was determined using yield of the equivalent U.S. Treasury bonds over the expected term. The Company has never paid any cash dividends and does not anticipate paying any cash dividends in the foreseeable future. Therefore, the Company assumed an expected dividend yield of zero.

A summary of all stock option activity since December 31, 2012 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at December 31, 2012	465,000	$ 0.69		
Granted in 2013	215,000	$ 0.80		
Exercised in 2013	(20,000)	$ 0.26		
Outstanding at December 31, 2013	660,000	$ 0.74		
Granted in 2014	300,000	$ 2.61		
Exercised in 2014	(70,000)	$ 0.69		
Outstanding at December 31, 2014	890,000	$ 1.38	8.0 years	$ 532,900
Exercisable at December 31, 2014	640,000	$ 0.89	7.7 years	$ 532,900

There were 300,000 options granted from the OIP during the year ended December 31, 2014 (215,000 options granted during the year ended December 31, 2013). The weighted average grant date fair value of options issued during the year ended December 31, 2014 was $2.07 ($0.68 for the year ended December 31, 2013). The total fair value of options that vested during the year ended December 31, 2014 amounted to $103,250 ($242,160 for the year ended December 31, 2013). During the year ended December 31, 2014, 70,000 options were exercised for cash proceeds of $48,300. During the year ended December 31, 2013, 20,000 options were exercised for cash proceeds of $5,200.

NOTE 20. - INCOME TAXES

The following is a summary of the components giving rise to the income tax provision (benefit) for the years ended December 31, 2014 and 2013.

The provision (benefit) for income taxes consists of the following:

	2014	2013
Current:		
Federal	$-	$-
State	-	-
Total current	-	-
Deferred:		
Federal	(3,494,787)	829,306
State	160,319	186,414
Total deferred	(3,334,468)	1,015,720
Change in valuation allowance	3,334,468	(1,015,720)
	$-	$-

The provision (benefit) for income tax varies from that which would be expected based on applying the statutory federal rate to pre-tax accounting loss as follows:

	2014	2013
Statutory federal rate	(34.0)%	(34.0)%
Permanent items	0.6	1.8
Derivative liability	8.4	35.5
Stock based compensation	2.5	-

State tax provision, net of federal benefit	1.1	0.5
Valuation allowance	21.4	(3.9)
Effective tax rate (benefit) provision	0.0 %	0.0 %

Individual components of deferred taxes consist of the following:

	2014	2013
Deferred tax assets:		
Net operating loss carry-forward	$4,775,536	$2,616,624
Derivative liability	-	21,725
Inventory reserve	17,713	19,584
Stock-based compensation	809,319	131,450
Start-up expenditures	388,130	-
Loss on equity investment	35,398	-
Severance liability	218,450	-
Other	6,561	1,292
	6,251,107	2,790,675
Deferred tax liabilities:		
Inventory	-	(52,445)
Fixed assets	(80,251)	(2,956)
Patents and trademarks	(624,010)	(523,157)
Other intangible assets	(21,986)	-
	(726,247)	(578,558)
Valuation allowance	(5,524,860)	(2,212,117)
Net deferred taxes	$-	$-

The Company has incurred a net operating loss of approximately $13,700,000 through December 31, 2014 and this amount is being carried forward to future years and expires in 2031 and 2032. Due to the uncertainty of the Company's ability to generate sufficient taxable income in the future before they expire, the company has recorded a valuation allowance to reduce the net deferred tax asset to zero. This NOL is included in the net deferred tax asset that has been fully offset by the valuation allowance.

ASC 740 provides guidance on the financial statement recognition and measurement for uncertain income tax positions that are taken or expected to be taken in a company's income tax return. The Company has no uncertain tax positions as of December 31, 2014.

The Company's federal and state tax returns for the years ended September 30, 2011 to December 31, 2013 are currently open to audit under the statutes of limitations. There are no pending audits as of December 31, 2014.

NOTE 21. - SUBSEQUENT EVENTS

On January 14, 2015, the Company's Board of Directors approved the Company's Compensation Committee recommendation to award officers, employees and directors of the Company stock awards in the form of stock options from the Company's OIP in an aggregate amount of approximately $1,059,000. The stock options will be granted on February 16, 2015, with an exercise price based on the average closing price of the Company's common stock for the three trading days immediately preceding the date of the grant.

On January 19, 2015, the Company became obligated to issue 70,423 shares of its common stock, par value $0.00001 per share, to Smoker Friendly International, LLC ("Smoker Friendly") under the terms of an agreement between the Company and Smoker Friendly.

Item 15 (b) Exhibits

In reviewing the agreements included as exhibits to this report, please remember they are included to provide you with information regarding their terms and are not intended to provide any other factual or disclosure information about the Company, its subsidiaries or other parties to the agreements. The agreements contain representations and warranties by each of the parties to the applicable agreement. These representations and warranties have been made solely for the benefit of the other parties to the applicable agreement and:

- should not in all instances be treated as categorical statements of fact, but rather as a way of allocating the risk to one of the parties if those statements prove to be inaccurate;
- have been qualified by disclosures that were made to the other party in connection with the negotiation of the applicable agreement, which disclosures are not necessarily reflected in the agreement;
- may apply standards of materiality in a way that is different from what may be viewed as material to you or other investors; and
- Were made only as of the date of the applicable agreement or such other date or dates as may be specified in the agreement and are subject to more recent develpoments.

Accordingly, these representations and warranties may not describe the actual state of affairs as of the date they were made or at any other time. We acknowledge that, notwithstanding the inclusion of the foregoing cautionary statements, we are responsible for considering whether additional specific disclosures of material information regarding material contractual provisions are required to make the statements in this report not misleading. Additional information about the Company may be found elsewhere in this report and the Company's other public files, which are available without charge through the SEC's website at http://www.sec.gov.

Exhibit No. Description

2.1	Membership Interest Purchase Agreement between 22nd Century Group, Inc. and Ralph Angiuoli dated September 17, 2013 (incorporated by reference to Form 8-K filed with the Commission on September 17, 2013).
2.2	First Amendment to Membership Interest Purchase Agreement, dated May 13, 2014, between 22nd Century Group, Inc. and Ralph Angiuoli (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed with the Commission on May 19, 2014)
2.3	Stock Purchase Agreement, dated September 17, 2014, by and between 22nd Century Group, Inc. and Crede CG III, Ltd. (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed with the Commission on September 18, 2014)
2.4	Investment Agreement, dated April 11, 2014, by and between 22nd Century Group, Inc. and Anandia Laboratories Inc. (incorporated by reference to Exhibit 2.2 to the Company's Form 8-K filed with the Commission on September 18, 2014)

2.5	Purchase Agreement, dated December 22, 2014, by and between 22nd Century Limited, LLC and the National Research Council of Canada (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed with the Commission on December 29, 2014)
3.1	Amended and Restated Certificate of Incorporation of the Company (incorporated herein by reference to Exhibit 3.2 of the Company's Annual Report on Form 10-K for the year ended September 30, 2010 filed with the Commission on December 3, 2010).
3.1.1	Amendment to Certificate of Incorporation of the Company (incorporated by reference to Appendix A to the Company's Definitive Proxy Statement filed with the Commission on March 4, 2014)
3.2	Amended and Restated Bylaws of the Company (incorporated herein by reference to Exhibit 3.2 of the Company's Annual Report on Form 10-K for the year ended December 31, 2014 filed with the Commission on January 30, 2014).
4.1	Form of Warrant dated as of January 25, 2011 issued to LLC members of 22nd Century Limited, LLC prior to the consummation of the Private Placement Offering upon consummation of the merger of 22nd Century Limited, LLC with the Company (incorporated herein by reference to Exhibit 10.4 of the Company's Current Report on Form 8-K filed with the Commission on February 1, 2011).
4.2	Form of Warrant dated as of January 25, 2011 issued to investors in the Private Placement Offering upon consummation of the merger of 22nd Century Limited, LLC with the Company (Incorporated herein by reference to Exhibit 10.5 of the Company's Current Report on Form 8-K filed with the Commission on February 1, 2011).
4.3	Form of Warrant dated as of January 25, 2011 issued to the Placement Agent and Sub-Agent upon consummation of the merger of 22nd Century Limited, LLC with the Company (incorporated herein by reference to Exhibit 10.6 of the Company's Current Report on Form 8-K filed with the Commission on February 1, 2011).

4.4	Form of Common Stock Purchase Warrant (incorporated herein by reference to Exhibit 4.2 of the Company's Current Report on Form 8-K filed with the Commission on December 14, 2011).
4.5	Form of Common Stock Purchase Warrant (incorporated herein by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed with the Commission on May 18, 2012).
4.6	Form of Common Stock Purchase Warrant (incorporated herein by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed with the Commission on November 13, 2012).
4.7	Form of Tranche 1A Warrant (incorporated by reference to Exhibit 4.1 to the Company's Form 8-K filed with the Commission on September 30, 2014)
4.8	Form of Tranche 1B Warrant (incorporated by reference to Exhibit 4.2 to the Company's Form 8-K filed with the Commission on September 30, 2014)
4.9	Form of Tranche 2 Warrant (incorporated by reference to Exhibit 4.3 to the Company's Form 8-K filed with the Commission on September 30, 2014)
4.10	Form of Tranche 3 Warrant (incorporated by reference to Exhibit 4.4 to the Company's Form 8-K filed with the Commission on September 30, 2014)
10.1†	2010 Equity Incentive Plan (incorporated herein by reference to Exhibit 4.3 to the Company's Form S-8 filed with the Commission on March 30, 2011).
10.2†	Employment Agreement dated as of January 25, 2011 by and between the Company and Joseph Pandolfino (incorporated herein by reference to Exhibit 10.15 of the Company's Current Report on Form 8-K filed with the Commission on February 1, 2011).
10.3†	Employment Agreement dated as of January 25, 2011 by and between the Company and Henry Sicignano III (incorporated herein by reference to Exhibit 10.16 of the Company's Current Report on Form 8-K filed with the Commission on February 1, 2011).
10.4†	Employment Agreement dated as of March 15, 2011 by and between the Company and Michael R. Moynihan (incorporated by reference to Exhibit 10.18 to the Company's Form S-1 registration statement filed with the Commission on June 6, 2011).
10.5††	License Agreement dated March 6, 2009 between North Carolina State University and 22nd Century Limited, LLC (incorporated by reference to Exhibit 10.21 to the Company's Form S-1 registration statement filed with the Commission on August 26, 2011).
10.5.1	Amendment dated August 9, 2012 to License Agreement dated March 6, 2009 between North Carolina State University and 22nd Century Limited, LLC (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Commission on August 20, 2012).
10.6††	License Agreement dated May 1, 2009 between The National Research Council of Canada and 22nd Century Limited, LLC (incorporated by reference to Exhibit 10.22 to the Company's Form S-1 registration statement filed with the Commission on August 26, 2011).

10.7	Letter Agreement between the Company and North Carolina State University dated November 22, 2011 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on November 23, 2011).
10.8†	Employment Agreement between John Brodfuehrer and the Company dated March 19, 2013 (incorporated by reference to Form 8-K filed on March 25, 2013).
10.9†	Form of Restricted Stock Award Agreement (incorporated by reference to Form 10-Q filed on May 10, 2013).
10.10†	Form of Stock Option Award Agreement (incorporated by reference to Form 10-Q filed on May 10, 2013).
10.11††	Research License and Commercial Option Agreement with British American Tobacco (Investments) Limited dated October 1, 2013 (incorporated by reference to Exhibit 10.12 to the Company's Annual Report on Form 10-K for the year ended December 31, 2014 filed with the Commission on January 30, 2014).
10.12 †	22nd Century Group, Inc. 2014 Omnibus Incentive Plan (incorporated by reference to Appendix B to the Company's Definitive Proxy Statement filed with the Commission on March 4, 2014)
10.13 †	Form of Restricted Stock Award Agreement under 22nd Century Group, Inc. 2014 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed with the Commission on April 14, 2014)
10.14 †	Form of Stock Option Award Agreement under 22nd Century Group, Inc. 2014 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed with the Commission on April 14, 2014)
10.15 †	Employment Agreement dated May 12, 2014 by and between the Company and Thomas James (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on May 14, 2014)
10.16	Registration Rights Agreement, dated September 17, 2014, by and between 22nd Century Group, Inc. and Crede CG III, Ltd. (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on September 18, 2014)
10.17	Consulting Agreement, dated September 29, 2014, by and between 22nd Century Group, Inc., Crede CG III, Ltd. and Terren Peizer (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on September 30, 2014)

21.1*	Subsidiaries
23.1*	Consent of Freed Maxick CPAs, P.C.
31.1*	Section 302 Certification
31.2*	Section 302 Certification
32.1*	Written Statement of Principal Executive Officer and Chief Financial Officer pursuant to 18.U.S.C §1350
101*	Interactive data files formatted in XBRL (eXtensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations, (iii) the Consolidated Statements of Cash Flows, and (iv) the Notes to the Consolidated Financial Statements.
101.INS	XBRL Instance Document*
101.SCH	XBRL Taxonomy Extension Schema Document*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document*

*Filed herewith.

† Management contract or compensatory plan, contract or arrangement.

†† Certain portions of the exhibit have been omitted pursuant to a confidential treatment order. An unredacted copy of the exhibit has been filed separately with the United States Securities and Exchange Commission pursuant to the request for confidential treatment.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

22nd CENTURY GROUP, INC.

Date: February 5, 2015 By: /s/ Henry Sicignano, III
Henry Sicignano, III
President, Chief Operating Officer and Director
(Principal Executive Officer)

Date: February 5, 2015 By: /s/ John T. Brodfuehrer
John T. Brodfuehrer
Chief Financial Officer
(Principal Accounting and Financial Officer)

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: February 5, 2015 By: /s/ Henry Sicignano III
Henry Sicignano III
President, Chief Operating Officer and Director

Date: February 5, 2015 By: /s/ Joseph Alexander Dunn, Ph.D.
Joseph Alexander Dunn, Ph.D.
Director

Date: February 5, 2015 By: /s/ James W. Cornell
James W. Cornell
Director

Date: February 5, 2015 By: /s/ Richard M. Sanders
Richard M. Sanders
Director

Date: By:
Joseph Pandolfino
Director

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