

22nd Century Group, Inc. (XXII - \$1.25 - Buy)

COMPANY NOTE

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Sales and trading 7 a.m. to 7 p.m. ET, (646) 465-9090

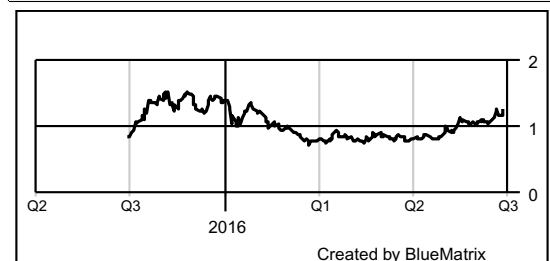
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| Stock Data | 09/27/16 |
|------------------|-------------------|
| Price | \$1.25 |
| 52 Week Range | (\$0.71 - \$1.75) |
| Price Target | \$3.50 |
| Market Cap (mil) | \$102.75 |
| Shares out (mil) | 82.20 |
| 3-Mo Avg Vol | 472,486 |
| Cash per share | \$0.09 |
| Total Debt (mil) | \$0.63 |

| Revenues (\$ millions) | | | | | |
|------------------------|--------|-------|------|-------|------|
| Yr Dec | 2015A | 2016E | | 2017E | |
| | Actual | Curr | Prev | Curr | Prev |
| Mar | 0.6 | 3.0A | – | 3.1 | – |
| Jun | 2.3 | 2.8A | – | 3.3 | – |
| Sep | 2.7 | 2.9 | – | 3.6 | – |
| Dec | 2.9 | 3.1 | – | 5.9 | – |
| YEAR | 8.5 | 11.8 | – | 15.9 | – |

| EPS (\$) | | | | | |
|----------|--------|---------|------|--------|------|
| Yr Dec | 2015A | 2016E | | 2017E | |
| | Actual | Curr | Prev | Curr | Prev |
| Mar | (0.06) | (0.04)A | – | (0.03) | – |
| Jun | (0.02) | (0.04)A | – | (0.03) | – |
| Sep | (0.04) | (0.03) | – | (0.03) | – |
| Dec | (0.04) | (0.03) | – | (0.01) | – |
| YEAR | (0.16) | (0.15) | – | (0.12) | – |

One year price history XXII



Surveys Increase Likelihood of X-22 Funding. 2.25 M Warrants Expire Thursday.

22nd Century released the results of two surveys that we believe demonstrate an increased likelihood of finding a partner for a Phase III trial of the company's X-22 very-low nicotine (VLN) cigarette for smoking cessation. The first survey, of 501 current smokers found, among other things, that 89% would choose X-22 as their first choice to help them quit smoking. More surprising to us is a survey of 136 physicians with experience helping patients stop smoking that found 89% would prescribe X-22 to help their patients stop smoking. We believe the willingness of physicians to prescribe VLN cigarettes as a smoking cessation tool has been a key concern of potential partners for the phase III study 22nd Century is pursuing and this survey will possibly alleviate some of those concerns and makes a finding a funding partner for that study more likely.

Smoking cessation is a \$3 billion global market, about \$1 billion in the US. 22 million Americans attempt to quit every year but only 2-5% are successful in any year. Attempts to quit are ongoing with the average number of attempts around 10. 22nd Century believes its VLN cigarette, X-22, can be an important aid in smoking cessation. X-22 contains 95% less nicotine than commercial "light" cigarettes, smokes, tastes, and smells like a regular cigarette and does not expose the smoker to any new drugs or side effects.

There have been 7 independent cessation studies using VLN cigarettes with encouraging results. A Queen Mary University of London Phase II Clinical Trial funded by Pfizer showed VLN cigarettes in conjunction with Chantix and nicotine replacement therapy (NRT) therapy had better results than Chantix and NRT alone. A New England Journal of Medicine (October 2015) article highlighted a study by Eric C. Donny, Ph.D using 22nd Century's VLN SPECTRUM cigarettes in a smoking cessation trial. Participants assigned VLN cigarettes smoked fewer cigarettes per day (14.9) than those assigned to their usual brand (22.2) and doubled their quit attempts versus smokers of conventional cigarettes. Dr. Donny is now using SPECTRUM in a Phase III clinical study that follows 1,250 smokers for five months (ClinicalTrials.gov NCT02139930).

We have viewed X-22 as a longer-term value creating opportunity for 22nd Century but given the survey results we think this can have an impact sooner than we previously believed particularly if the surveys are convincing to potential partners that there is a market of doctors willing to prescribe X-22 as a smoking cessation tool.

Tomorrow is the expiration date for 2.25 million warrants issued to Crede in September 2014 in conjunction with a \$10 million investment by Crede in 22nd Century and the formation of a joint venture to pursue opportunities in the Chinese market. The Tranche 1A warrants gave Crede the right to purchase 1.25 million shares of 22nd Century at \$3.36 per share and also contained an exchange

right based on a Black-Scholes valuation of the warrants divided by price of 22nd Century shares 2 days before the exchange. 22nd Century voided the exchange right in a March 10, 2016 letter to Crede, citing a breach of the activity restrictions in the Tranche 1A agreement.

The Tranche 1B warrants, for 1 million shares, did not have an exchange feature and will expire tomorrow. In addition there were two other tranches issued, Tranche 2 and Tranche 3, that were not exercisable unless and until certain revenue milestones were attained. 22nd Century terminated the joint venture agreement on June 22, 2015 so those revenue milestones will not be achieved and the Tranche 2 and Tranche 3 warrants will never become exercisable. Those warrants had an expiration date of Sep 29, 2019.

The cancellation of the JV and the voiding of the exchange rights of the Tranche 1A warrants is now part of litigation between Crede and 22nd Century. However, in a June 14, 2016 hearing Judge Katherine Polk Failla stated "I don't think I can say on this record that the plaintiff (Crede) has demonstrated a likelihood of success on the merits," and added, regarding the voiding of the exchange rights, "I think there is a likelihood that the plaintiff violated the activities restrictions that are contained in Section 1(h)," supporting 22nd Century's position in the case.

Excluding the Crede warrants, there are 9.5 million warrants outstanding, 7 million of which with a \$1 strike price. Currently there are 82.1 million shares outstanding.

Investment Summary:

The company's path to value creation remains the same: monetizing its extensive intellectual property which allows it to modulate the level of nicotine in tobacco plants through genetic engineering and plant breeding. There are a number of paths the company is pursuing to monetize this technology.

One of the most promising paths for 22nd Century is the pending application with the FDA for a reduced exposure designation for its Brand A, low-nicotine cigarette. This has now been before the FDA since the beginning of the year and a 12-month evaluation by the agency is expected. However, one must remember that government agencies move at their own pace and delays are common. That said, this application, if successful, would be ground breaking and would highlight the unique and valuable technology 22nd Century possesses and could result in the company licensing its technology to large tobacco companies with wider distribution.

The company is also attempting to develop a low nicotine cigarette brand, MAGIC, and high nicotine brand RED SUN. Sales to date have been modest but 22nd Century continues to make progress in the US and international markets. For instance, shipments to Australia and France are scheduled for September of both RED SUN and MAGIC.

Most of the company's revenues this year have been for contract manufacturing which it is seeking to expand. It continues to target the filtered cigar market which has been roiled by a recent change in FDA regulations. This could result in an opportunity for the company to increase its presence in this space.

The company eliminated the near term financing risk it faced by raising \$5 million in a stock and warrant deal. With the cash on hand, plus \$5 million from the raise, the company estimates it has enough cash to fund operations through May 2017

Recently, in testimony for the Crede litigation, the company stated that its patents are worth more than \$200 million, or greater than \$2.50 per share. We value X-22/Modified risk at \$2.50 per share and the combined value of the potential BAT royalty stream and commercial products at \$1.00 per share to reflect a modest tempo in the roll-out of commercial products as well as a less steep ramp for the BAT royalties. We have not given any value for the company's 25% ownership of Anandia or its exclusive US rights to four genes required for cannabinoid production in the cannabis plant. Risks to achieving our price target include delays in the FDA process, ability to find partners for X-22, challenges in attracting contract manufacturing and selling product overseas and possibility of requiring additional capital.

Valuation:

We value X-22/Modified risk at \$2.50 per share and the combined value of the potential BAT royalty stream and commercial products at \$1.00 per share. We have not included a value for the company's investment in Anandia.

Risks to achievement of target price:

Risks to achieving our price target: The industry is subject to significant regulatory constraints, litigation, societal views on smoking and changing legislation. Any one of these could have a deleterious impact on our assumptions. We assume the company is able to monetize its technology in multiple ways, but these are subject to regulatory risk, funding risk and could take longer and cost more than we expect.

Company description:

22nd Century owns or exclusively controls over 200 issued patents, 50 pending patent applications. The company's proprietary technology enables the control of nicotine levels in tobacco plants by controlling the genes responsible for nicotine production in tobacco plants.

22nd Century Group, Inc
Income Statement \$ in 000s

| | 2013 | 2014 | 2015 | Q1 16 | Q2 16 | Q3 16 E | Q4 16 E | 2016 E | 2017 E |
|------------------------------|-------------|-------------|-------------|------------|------------|------------|------------|-------------|-------------|
| Revenue | \$ 7,278 | \$ 529 | \$ 8,522 | \$ 3,019 | \$ 2,828 | \$ 2,875 | \$ 3,125 | \$ 11,847 | \$ 15,863 |
| Cost Of Goods Sold | 462 | 498 | 9,103 | 2,895 | 2,969 | 2,738 | 2,863 | 11,464 | 12,896 |
| Gross Profit | 6,817 | 31 | (581) | 124 | (141) | 138 | 263 | 383 | 2,967 |
| R&D | 744 | 1,249 | 1,669 | 597 | 510 | 600 | 600 | 2,307 | 2,653 |
| G&A | 4,107 | 8,793 | 7,760 | 1,847 | 1,722 | 1,750 | 1,750 | 7,068 | 7,775 |
| Pre-Mfg. Facility Costs | 0 | 1,177 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sales & marketing | 9 | 86 | 1,358 | 703 | 251 | 251 | 251 | 1,456 | 2,184 |
| Depreciation & Amort. | 144 | 463 | 676 | 205 | 207 | 207 | 207 | 827 | 909 |
| Opex | 5,004 | 11,768 | 11,463 | 3,352 | 2,690 | 2,808 | 2,808 | 11,658 | 13,522 |
| Operating Income | \$ 1,812 | \$ (11,737) | \$ (12,044) | \$ (3,228) | \$ (2,831) | \$ (2,671) | \$ (2,546) | \$ (11,276) | \$ (10,555) |
| Interest Expense | (749) | (7) | (22) | (8) | (7) | (7) | (7) | (30) | (8) |
| Other | 122 | (30) | 889 | (87) | (64) | 0 | 0 | (152) | 0 |
| Warrant Charge | (27,339) | (3,821) | 145 | 71 | 0 | 0 | 0 | 71 | 0 |
| Pretax Income | (26,153) | (15,595) | (11,032) | (3,252) | (2,902) | (2,678) | (2,553) | (11,386) | (10,563) |
| Income Tax Expense | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net before Minority Interest | (26,153) | (15,595) | (11,032) | (3,252) | (2,902) | (2,678) | (2,553) | (11,386) | (10,563) |
| Minority Interest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net to Common | \$ (26,153) | \$ (15,595) | \$ (11,032) | \$ (3,252) | \$ (2,902) | \$ (2,678) | \$ (2,553) | \$ (11,386) | \$ (10,563) |
| Shares | 43,635 | 59,993 | 68,143 | 74,031 | 76,024 | 80,024 | 82,024 | 78,026 | 91,563 |
| EPS | (\$0.60) | (\$0.26) | (\$0.16) | (\$0.04) | (\$0.04) | (\$0.03) | (\$0.03) | (\$0.15) | (\$0.12) |

22nd Century Group, Inc
Balance Sheet and Cash Flow Statement \$ in 000s

| | 2013 | 2014 | 2015 | Q1 16 | Q2 16 | Q3 16 E | Q4 16 E | 2016 E | 2017 E |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|
| Cash | 5,831 | 6,403 | 3,760 | 6,052 | 2,841 | 4,922 | 2,570 | 2,570 | 2,323 |
| Due from related party and officers | 50 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| A/R | 0 | 0 | 51 | 103 | 106 | 308 | 514 | 514 | 528 |
| Settlement proceeds receivable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inventory | 1,406 | 2,065 | 2,706 | 2,921 | 3,147 | 3,248 | 3,351 | 3,351 | 3,913 |
| Prepaid Consulting Fees | 0 | 1,979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Prepaid Exp. | 458 | 214 | 636 | 529 | 717 | 741 | 764 | 764 | 892 |
| Total Current Assets | \$ 7,744 | \$ 10,707 | \$ 7,154 | \$ 9,605 | \$ 6,811 | \$ 9,220 | \$ 7,199 | \$ 7,199 | \$ 7,655 |
| Patent and Trademark costs | 1,545 | 7,078 | 7,364 | 7,383 | 7,385 | 7,324 | 7,263 | 7,263 | 7,018 |
| PP&E | 2,998 | 2,851 | 2,556 | 2,477 | 2,415 | 2,445 | 2,472 | 2,472 | 2,532 |
| Equity Investment | 0 | 1,318 | 1,223 | 1,135 | 1,081 | 1,081 | 1,081 | 1,081 | 1,081 |
| Total Assets | \$ 12,287 | \$ 21,954 | \$ 18,296 | \$ 20,600 | \$ 17,691 | \$ 20,070 | \$ 18,014 | \$ 18,014 | \$ 18,285 |
| Bank Loans and N/P | 175 | 495 | 309 | 315 | 321 | 321 | 321 | 321 | 321 |
| A/P | 55 | 884 | 1,283 | 1,729 | 1,567 | 1,618 | 1,669 | 1,669 | 1,949 |
| Accrued Expenses | 576 | 1,294 | 1,570 | 1,442 | 1,416 | 1,462 | 1,508 | 1,508 | 1,761 |
| Deferred Revenue | 179 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Current Liabilities | \$ 984 | \$ 2,673 | \$ 3,162 | \$ 3,485 | \$ 3,305 | \$ 3,401 | \$ 3,498 | \$ 3,498 | \$ 4,031 |
| Long-Term Debt | 0 | 605 | 308 | 308 | 308 | 308 | 308 | 308 | 308 |
| Accrued Severance | 0 | 412 | 200 | 145 | 90 | 0 | 0 | 0 | 0 |
| Warrant Liability & Other | 3,780 | 3,043 | 2,898 | 17 | 27 | 27 | 27 | 27 | 27 |
| Shareholder's Equity | 7,523 | 15,220 | 11,729 | 16,644 | 13,962 | 16,334 | 14,181 | 14,181 | 13,920 |
| Total Liabilities And Equity | \$ 12,287 | \$ 21,954 | \$ 18,296 | \$ 20,600 | \$ 17,691 | \$ 20,070 | \$ 18,014 | \$ 18,014 | \$ 18,285 |
| Net Income | (26,153) | (15,595) | (11,032) | (3,252) | (2,902) | (2,678) | (2,553) | (11,386) | (9,311) |
| Depreciation & Amort. | 144 | 463 | 774 | 181 | 183 | 156 | 160 | 679 | 685 |
| Stock Comp | 980 | 2,293 | 1,326 | 260 | 472 | 350 | 350 | 1,432 | 1,400 |
| Other | 29,386 | 6,740 | 2,341 | 74 | (154) | (90) | 0 | (170) | 0 |
| Working Capital | (501) | (483) | (731) | (62) | (690) | (231) | (234) | (1,216) | (171) |
| Operating Cash Flow | \$ 3,856 | \$ (6,583) | \$ (7,322) | \$ (2,799) | \$ (3,091) | \$ (2,493) | \$ (2,277) | \$ (10,661) | \$ (7,397) |
| Acquisition of Patents and trademarks | (290) | (727) | (413) | 0 | (101) | 0 | 0 | (101) | 0 |
| Capx | (3,452) | (212) | (37) | (2) | (19) | (125) | (125) | (271) | (500) |
| Other | 0 | (1,769) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Investing Activities | \$ (3,743) | \$ (2,708) | \$ (451) | \$ (2) | \$ (120) | \$ (125) | \$ (125) | \$ (372) | \$ (500) |
| Debt | (1,810) | (4) | (508) | 0 | 0 | 0 | 0 | 0 | 0 |
| Equity | 7,536 | 9,859 | 5,592 | 5,092 | 0 | 4,700 | 50 | 9,842 | 7,650 |
| Other | (9) | 7 | 46 | 0 | 0 | 0 | 0 | 0 | 0 |
| Financing Activities | \$ 5,717 | \$ 9,863 | \$ 5,130 | \$ 5,092 | \$ - | \$ 4,700 | \$ 50 | \$ 9,842 | \$ 7,650 |
| Change in Cash | \$ 5,830 | \$ 572 | (\$2,642) | \$ 2,291 | (\$3,211) | \$ 2,082 | (\$2,352) | (\$1,190) | (\$247) |

Required Research Disclosures



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| Rating | Count | Percent | IB Serv./Past 12 Mos. | |
|----------------|-------|---------|-----------------------|---------|
| | | | Count | Percent |
| BUY [BUY] | 63 | 70.79 | 24 | 38.10 |
| HOLD [NEUTRAL] | 19 | 21.35 | 0 | 0.00 |
| SELL [SELL] | 7 | 7.87 | 0 | 0.00 |
| NOT RATED [NR] | 0 | 0.00 | 0 | 0.00 |

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22nd Century Group, Inc. (XXII - \$1.25 - Buy)

Price Target \$3.50

VALUATION:

We value X-22/Modified risk at \$2.50 per share and the combined value of the potential BAT royalty stream and commercial products at \$1.00 per share. We have not included a value for the company's investment in Anandia.

RISKS TO ACHIEVEMENT OF TARGET PRICE:

Risks to achieving our price target: The industry is subject to significant regulatory constraints, litigation, societal views on smoking and changing legislation. Any one of these could have a deleterious impact on our assumptions. We assume the company is able to monetize its technology in multiple ways, but these are subject to regulatory risk, funding risk and could take longer and cost more than we expect.

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