

22nd Century Group, Inc. (XXII - \$1.45 - Buy)

COMPANY NOTE

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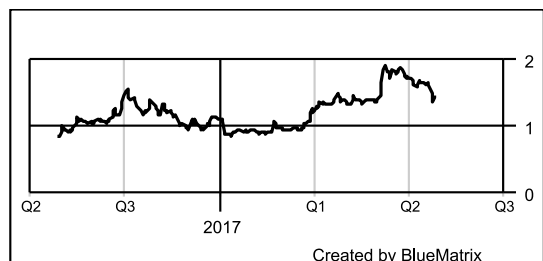
Sales and trading 7 a.m. to 7 p.m. ET, (646) 465-9090
Sales and trading 7 p.m. to 7 a.m. ET, (646) 465-9063

| Stock Data | | 07/27/17 |
|-------------------|--|-------------------|
| Price | | \$1.45 |
| 52 Week Range | | (\$0.81 - \$2.00) |
| Price Target | | \$3.50 |
| Market Cap (mil) | | \$131.52 |
| Shares out (mil) | | 90.70 |
| 3-Mo Avg Vol | | 979,450 |
| Cash per share | | \$0.12 |
| Total Debt (mil) | | \$0.31 |

| Revenues (\$ millions) | | | | | |
|-------------------------------|--------|-------|------|-------|------|
| Yr Dec | 2016A | 2017E | | 2018E | |
| | Actual | Curr | Prev | Curr | Prev |
| Mar | 3.0 | 2.2 | - | - | - |
| Jun | 2.8 | 2.6 | - | - | - |
| Sep | 3.1 | 6.0 | - | - | - |
| Dec | 3.3 | 6.6 | - | - | - |
| YEAR | 12.3 | 16.5 | - | 21.5 | - |

| EPS (\$) | | | | | |
|-----------------|--------|---------|------|--------|------|
| Yr Dec | 2016A | 2017E | | 2018E | |
| | Actual | Curr | Prev | Curr | Prev |
| Mar | (0.04) | (0.03)A | - | - | - |
| Jun | (0.04) | (0.03) | - | - | - |
| Sep | (0.03) | (0.02) | - | - | - |
| Dec | (0.03) | (0.02) | - | - | - |
| YEAR | (0.15) | (0.09) | - | (0.09) | - |

One year price history XXII



FDA Proposed Regulatory Strategy Bullish for 22nd Century

The FDA's "comprehensive regulatory plan to shift trajectory of tobacco-related disease, death," is potentially very bullish for 22nd Century. "The FDA plans to begin a public dialogue about lowering nicotine levels in combustible cigarettes to non-addictive levels through achievable product standards. The agency intends to issue an Advance Notice of Proposed Rulemaking (ANPRM) to seek input on the potential public health benefits and any possible adverse effects of lowering nicotine in cigarettes." 22nd Century's raison d'être is controlling nicotine levels in tobacco and owns the intellectual property that enables this. With the FDA exploring lower nicotine cigarettes as a way to reduce tobacco addiction, we believe this is a major boost for the company.

The FDA's regulatory plan is the start of a process that will take many months to complete but we do expect that as this process continues Big Tobacco will become interested in exploring the technology controlled by 22nd Century. How this new regulatory plan will impact the company's current work with the FDA is uncertain, but the company's work on introducing lower-nicotine cigarettes as smoking cessation tools demonstrates clearly the company is at the forefront of the FDA's strategy on tobacco regulation.

22nd Century is pursuing three paths with the FDA with three different products: 1) Brand A 2) X-22 and 3) Brand B. A few months ago the company met with the FDA and based on those meetings has decided to "significantly expand" its Modified Risk Tobacco Product (MRTP) application and will request FDA approval of packaging and marketing disclosing that its Brand A Very Low Nicotine cigarettes reduce smokers' exposure to nicotine. We still expect 22nd Century to bifurcate the application into a Premarket Tobacco Product application (PMTA) and MRTP. The PMTA could advance quickly while the MRTPA would likely take 12 months to conclude.

This company has received guidance from the FDA regarding design and implementation of two parallel, Phase III clinical trials of 22nd Century's X-22 prescription-based smoking cessation product. Further work will be required to reach agreement on the construction of these trials which could begin in the first half of 2018, depending on funding.

We expect the company to also receive guidance from the FDA on an MRTP for Brand B, the company's low tar-to-nicotine product. This is a third path for commercialization in a market that has been prevented by government from innovating. However, because of the company's unique technology as well as progress on determining, in conjunction with the FDA, the efficacy of 22nd Century's products on smoking cessation and

smoking behavior, it could end up offering a truly innovate product to the market.

We believe all of these paths are consistent with the FDA's proposed new regulatory path, but how the new plan will impact the timing of these is uncertain.

We expect continued momentum in revenue growth for the remainder of the year as well as progress on the multiple paths the company is pursuing to commercialize its technology that regulates nicotine in tobacco plants. Recently, the company strengthened its balance sheet with a warrant exchange that raised over \$13 million resulting in a cash runway well in to 2019. We expect a strong Q2 and even stronger 2H as it delivers on a large contract manufacturing agreement. There has also been advancements recently on 22nd Century's three-pronged approach to monetizing the company technology for the smoking cessation and traditional smoking market. In our view, this is bullish for the shares and supports our Buy recommendation and \$3.50 price target.

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.

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.

Most of the company's revenues this year have been for contract manufacturing which it is seeking to expand.

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. The company is fully funded for almost two years.

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 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.

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

| | 2014 | 2015 | 2016 | Q1 17 | Q2 17 E | Q3 17 E | Q4 17 E | 2017 E | 2018 E |
|------------------------------|-------------|-------------|-------------|------------|------------|------------|------------|------------|------------|
| Revenue | \$ 529 | \$ 8,522 | \$ 12,280 | \$ 2,232 | \$ 2,582 | \$ 5,087 | \$ 6,642 | \$ 16,543 | \$ 21,500 |
| Cost Of Goods Sold | 498 | 9,103 | 12,710 | 2,505 | 2,600 | 4,644 | 6,021 | 15,770 | 19,350 |
| Gross Profit | 31 | (581) | (430) | (274) | (18) | 444 | 621 | 773 | 2,150 |
| R&D | 1,249 | 1,669 | 2,341 | 551 | 550 | 550 | 550 | 2,201 | 2,314 |
| G&A | 8,793 | 7,760 | 6,193 | 1,620 | 1,400 | 1,400 | 1,400 | 5,820 | 6,806 |
| Pre-Mfg. Facility Costs | 1,177 | 0 | 0 | | | | | 0 | 0 |
| Sales & marketing | 86 | 1,358 | 1,582 | 296 | 350 | 350 | 350 | 1,346 | 1,242 |
| Depreciation & Amort. | 463 | 676 | 842 | 229 | 193 | 193 | 193 | 807 | 770 |
| Opex | 11,768 | 11,463 | 10,958 | 2,696 | 2,493 | 2,493 | 2,493 | 10,174 | 11,132 |
| Operating Income | \$ (11,737) | \$ (12,044) | \$ (11,388) | \$ (2,970) | \$ (2,511) | \$ (2,049) | \$ (1,872) | \$ (9,401) | \$ (8,982) |
| Interest Expense | (7) | (22) | (21) | 8 | (2) | (2) | (2) | 2 | (8) |
| Other | (30) | 889 | (202) | 346 | 0 | 0 | 0 | 346 | 0 |
| Warrant Charge | (3,821) | 145 | 30 | (5) | 0 | 0 | 0 | (5) | 0 |
| Pretax Income | (15,595) | (11,032) | (11,581) | (2,621) | (2,513) | (2,051) | (1,874) | (9,058) | (8,990) |
| Income Tax Expense | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net before Minority Interest | (15,595) | (11,032) | (11,581) | (2,621) | (2,513) | (2,051) | (1,874) | (9,058) | (8,990) |
| Minority Interest | 0 | 0 | 0 | | | | | 0 | 0 |
| Net to Common | \$ (15,595) | \$ (11,032) | \$ (11,581) | \$ (2,621) | \$ (2,513) | \$ (2,051) | \$ (1,874) | \$ (9,058) | \$ (8,990) |
| Shares | 59,993 | 68,143 | 79,843 | 90,700 | 91,000 | 102,023 | 102,073 | 96,449 | 102,198 |
| EPS | (\$0.26) | (\$0.16) | (\$0.15) | (\$0.03) | (\$0.03) | (\$0.02) | (\$0.02) | (\$0.09) | (\$0.09) |

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

| | 2014 | 2015 | 2016 | Q1 17 | Q2 17 E | Q3 17 E | Q4 17 E | 2017 E | 2018 E |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Cash | 6,403 | 3,760 | 13,468 | 10,729 | 20,448 | 18,690 | 17,070 | 17,070 | 9,889 |
| Due from related party and officers | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| A/R | 0 | 51 | 41 | 2 | 478 | 482 | 528 | 528 | 616 |
| Inventory | 2,065 | 2,706 | 3,093 | 3,035 | 3,136 | 4,814 | 5,945 | 5,945 | 4,973 |
| Prepaid Consulting Fees | 1,979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Prepaid Exp. | 214 | 636 | 196 | 434 | 448 | 688 | 850 | 850 | 711 |
| Total Current Assets | \$ 10,707 | \$ 7,154 | \$ 16,797 | \$ 14,200 | \$ 24,510 | \$ 24,674 | \$ 24,393 | \$ 24,393 | \$ 16,189 |
| Patent and Trademark costs | 7,078 | 7,364 | 7,390 | 7,439 | 7,378 | 7,316 | 7,255 | 7,255 | 7,010 |
| PP&E | 2,851 | 2,556 | 2,435 | 2,360 | 2,396 | 2,428 | 2,455 | 2,455 | 2,519 |
| Equity Investment | 1,318 | 1,223 | 1,020 | 1,366 | 1,366 | 1,366 | 1,366 | 1,366 | 1,366 |
| Total Assets | \$ 21,954 | \$ 18,296 | \$ 27,642 | \$ 25,365 | \$ 35,650 | \$ 35,785 | \$ 35,469 | \$ 35,469 | \$ 27,085 |
| Bank Loans and N/P | 495 | 309 | 308 | 314 | 314 | 314 | 314 | 314 | 314 |
| A/P | 884 | 1,283 | 1,340 | 1,729 | 1,786 | 2,742 | 3,386 | 3,386 | 2,833 |
| Accrued Expenses | 1,294 | 1,570 | 1,601 | 1,376 | 1,422 | 2,183 | 2,696 | 2,696 | 2,256 |
| Deferred Revenue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Current Liabilities | \$ 2,673 | \$ 3,162 | \$ 3,249 | \$ 3,419 | \$ 3,522 | \$ 5,239 | \$ 6,397 | \$ 6,397 | \$ 5,402 |
| Long-Term Debt | 605 | 308 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accrued Severance | 412 | 200 | 0 | 0 | (69) | 0 | 0 | 0 | 0 |
| Warrant Liability & Other | 3,043 | 2,898 | 59 | 64 | 64 | 64 | 64 | 64 | 64 |
| Shareholder's Equity | 15,220 | 11,729 | 24,334 | 21,882 | 32,133 | 30,482 | 29,008 | 29,008 | 21,619 |
| Total Liabilities And Equity | \$ 21,954 | \$ 18,296 | \$ 27,642 | \$ 25,365 | \$ 35,650 | \$ 35,785 | \$ 35,469 | \$ 35,469 | \$ 27,085 |
| Net Income | (15,595) | (11,032) | (11,581) | (2,621) | (2,513) | (2,051) | (1,874) | (9,058) | (8,990) |
| Depreciation & Amort. | 463 | 774 | 842 | 205 | 150 | 155 | 159 | 668 | 681 |
| Stock Comp | 2,293 | 1,326 | 881 | 169 | 350 | 350 | 350 | 1,219 | 1,400 |
| Other | 6,740 | 2,341 | 241 | (318) | (69) | 69 | 0 | (318) | 0 |
| Working Capital | (483) | (731) | (270) | (129) | (488) | (205) | (181) | (1,003) | 28 |
| Operating Cash Flow | \$ (6,583) | \$ (7,322) | \$ (9,888) | \$ (2,695) | \$ (2,569) | \$ (1,683) | \$ (1,545) | \$ (8,493) | \$ (6,881) |
| Acquisition of Patents and trademarks | (727) | (413) | (357) | (30) | 0 | 0 | 0 | (30) | 0 |
| Capx | (212) | (37) | (197) | (14) | (125) | (125) | (125) | (389) | (500) |
| Other | (1,769) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Investing Activities | \$ (2,708) | \$ (451) | \$ (554) | \$ (44) | \$ (125) | \$ (125) | \$ (125) | \$ (419) | \$ (500) |
| Debt | (4) | (508) | (333) | 0 | 0 | 0 | 0 | 0 | 0 |
| Equity | 9,859 | 5,592 | 20,483 | 0 | 12,413 | 50 | 50 | 12,513 | 200 |
| Other | 7 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Financing Activities | \$ 9,863 | \$ 5,130 | \$ 20,149 | \$ - | \$ 12,413 | \$ 50 | \$ 50 | \$ 12,513 | \$ 200 |
| Change in Cash | \$ 572 | (\$2,642) | \$ 9,708 | (\$2,739) | \$ 9,719 | (\$1,758) | (\$1,620) | \$ 3,602 | (\$7,181) |

Required Research Disclosures



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| Rating | Count | Percent | IB Serv./Past 12 Mos. | |
|----------------|-------|---------|-----------------------|---------|
| | | | Count | Percent |
| BUY [BUY] | 66 | 67.35 | 20 | 30.30 |
| HOLD [NEUTRAL] | 29 | 29.59 | 3 | 10.34 |
| SELL [SELL] | 2 | 2.04 | 0 | 0.00 |
| NOT RATED [NR] | 1 | 1.02 | 1 | 100.00 |

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Sell: Returns expected to be materially below sector average over 12 months and indicates total price decline of at least 10% over the next 12 months.

22nd Century Group, Inc. (XXII - \$1.45 - 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 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.

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