

22nd Century Group, Inc. (XXII - \$1.26 - Buy)
Estimate Change

COMPANY NOTE

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

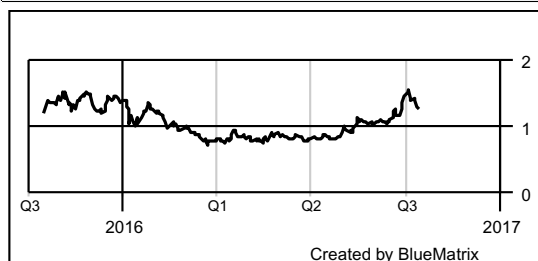
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Stock Data	10/14/16
Price	\$1.26
52 Week Range	(\$0.71 - \$1.75)
Price Target	\$3.50
Market Cap (mil)	\$114.28
Shares out (mil)	90.70
3-Mo Avg Vol	773,341
Cash per share	\$0.18
Total Debt (mil)	\$0.63

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)	(0.14)	(0.15)	(0.12)	–

One year price history XXII



Ample Cash to Pursue Multiple Large Market Opportunities

Recent news for 22nd Century has been very positive for the company and bullish for the shares, which have risen over 65% from the summer lows; we think there is more room for the shares to run given the almost two-years of cash available to fund its strategy which includes seeking a reduced exposure designation for its very-low nicotine (VLN) cigarettes, partnering for a Phase III trial of X-22 for smoking cessation, pursuit of a commercial license with BAT, additional sales of commercial products, and greater utilization of the North Carolina factory for contract manufacturing. We also think the company has an interesting option on the hemp and cannabis market via its partial ownership of, and research collaboration with, Anandia Labs. Our \$3.50 price target is based on a combination of these efforts, but we believe the ultimate potential of any one of these projects could far exceed our current price target.

Last week 22nd Century entered into an agreement to raise \$11.4 million (gross) through the sale of 8.5 million shares at \$1.3425 per share a premium of \$0.0625 to the prior day's closing price. The purchase included 4.25 million warrants, exercisable after six months, at a strike price of \$1.45 per share. We estimate the company had about \$5 million of cash at the end of Q3 and this raise will result in a pro forma cash balance exceeding \$16 million, or almost 8 quarters of operating losses at recent rates. Post the raise, 22nd Century will have about 91 million shares, and almost 14 million warrants which, if exercised for cash would result in an additional \$13 million in cash for the company. This is the largest amount of cash the company has ever had and is coincident with potential significant catalysts.

The value of the company's technology to regulate nicotine in tobacco has been highlighted recently by a study that suggests "large reductions in nicotine content could dramatically reduce reinforcement from and dependence on cigarettes." (*Reducing the nicotine content of combusted tobacco products sold in New Zealand* by Donny, Walker, Hatsukama and Bullen). Also, a Phase III study funded by the National Institutes of Health, (ClinicalTrials.gov NCT02139930), led by Eric Donny, has attracted the Mayo Clinic, the MD Anderson Cancer Center, Duke University, Johns Hopkins University, the Moffitt Cancer Center, the University of California San Francisco and four other institutions for a study expected to be completed in March 2017, The study follows 1,250 patients comparing 22nd Century's VLN cigarettes versus gradually reducing nicotine levels, again using product from 22nd Century.

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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.

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: 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.

We think one of the potential roadblocks the company faces is possible resistance by physicians to prescribing VLN cigarettes as a smoking cessation tool. But recently the company released the results of two surveys that suggest otherwise. 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.

All of the above, including the increased cash, in our opinion, raises the likelihood of 22nd Century finding a partner for a Phase III trial of the company's X-22 very-low nicotine (VLN) cigarette for smoking cessation. 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 partnership more likely. Potential partners include commercial organizations as well as non-profits whose mission includes reduced smoking programs.

We also think the studies and surveys could increase the FDA's willingness to approve 22nd Century's petition for a reduced exposure designation, which was submitted late last year. Approval by the FDA alone could result in significant value creation for the shares.

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.

Lower nicotine cigarettes as a prescription product, or an over-the-counter product is receiving increased attention from researchers in the field and this could have an influence on policy by the FDA. For instance, a special paper in the September online issue of Tobacco Control, advocated the case for "enacting a national nicotine policy in order to dramatically lower smoking rates." The authors, Drs. Eric Donny, Natalie Walker, Dorothy Hatsukami, and Chris Bullen, cited results from 15 major clinical studies conducted with 22nd Century's VLN tobacco. It is not unreasonable to imagine FDA willingness to embrace this suggestion in some form.

This path to a higher share valuation has been most prominent recently and we continue to believe commercial applications can move the shares including the company's proprietary RED SUN and MAGIC brands as well as its relationship with BAT.

While we have been disappointed the relationship with BAT has moved as slowly as it has, we still believe it could result in significant value creation. The research term of this license expires September of next year and we had expected at least some of the \$7 million in potential milestone payments to have been made by now. This has not been the case but does not preclude the potential of a royalty-bearing commercial license at any time prior to the expiration of the research license next year.

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 were scheduled to begin last month for both RED SUN and MAGIC.

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The company has also had positive news on its capital structure including the expiration of 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. XXII 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 have also expired. 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.

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.

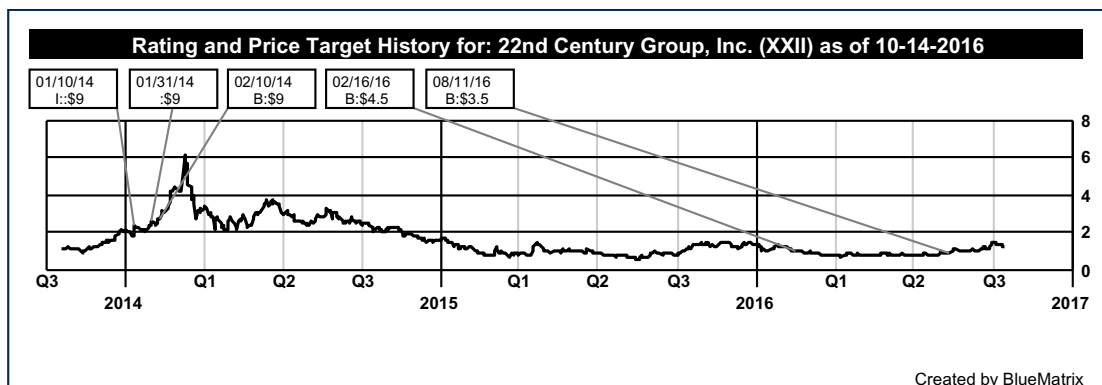
22nd Century Group, Inc
Income Statement \$ in 000s

	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	80,000	90,000	80,014	90,798
EPS	(\$0.60)	(\$0.26)	(\$0.16)	(\$0.04)	(\$0.04)	(\$0.03)	(\$0.03)	(\$0.14)	(\$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	13,236	13,236	5,539
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	\$ 17,865	\$ 17,865	\$ 10,871
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	\$ 28,680	\$ 28,680	\$ 21,501
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	24,847	24,847	17,136
Total Liabilities And Equity	\$ 12,287	\$ 21,954	\$ 18,296	\$ 20,600	\$ 17,691	\$ 20,070	\$ 28,680	\$ 28,680	\$ 21,501
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	10,716	20,508	200
Other	(9)	7	46	0	0	0	0	0	0
Financing Activities	\$ 5,717	\$ 9,863	\$ 5,130	\$ 5,092	\$ -	\$ 4,700	\$ 10,716	\$ 20,508	\$ 200
Change in Cash	\$ 5,830	\$ 572	(\$2,642)	\$ 2,291	(\$3,211)	\$ 2,082	\$ 8,314	\$ 9,476	(\$7,697)

Required Research Disclosures



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Rating	Count	Percent	IB Serv./Past 12 Mos.	
			Count	Percent
BUY [BUY]	54	68.35	23	42.59
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NOT RATED [NR]	0	0.00	0	0.00

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Neutral: Returns expected to be in line with sector average over 12 months and indicates total return between negative 10% and 10% over the next 12 months.

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) - \$1.26 - 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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