

22nd Century Group, Inc. (XXII - \$0.86 - Buy)

COMPANY NOTE

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

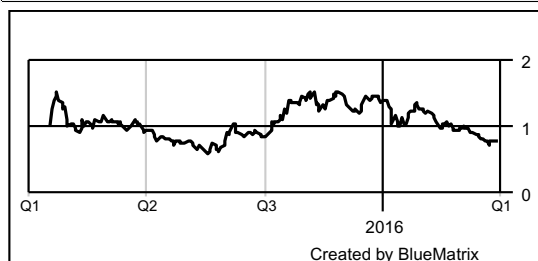
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Stock Data		04/15/16
Price		\$0.86
52 Week Range		(\$0.56 - \$1.75)
Price Target		\$4.50
Market Cap (mil)		\$65.37
Shares out (mil)		76.01
3-Mo Avg Vol		476,946
Cash per share		\$0.16
Total Debt (mil)		\$0.62

Revenues (\$ millions)						
Yr Dec	2015A		2016E		2017E	
	Actual		Curr	Prev	Curr	Prev
Mar	0.6		2.6	–	3.8	–
Jun	2.3		2.7	–	4.1	–
Sep	2.7		3.2	–	4.1	–
Dec	2.9		3.8	–	6.4	–
YEAR	8.5		12.3	–	18.4	–

EPS (\$)						
Yr Dec	2015A		2016E		2017E	
	Actual		Curr	Prev	Curr	Prev
Mar	(0.06)		(0.03)	–	(0.03)	–
Jun	(0.02)		(0.03)	–	(0.03)	–
Sep	(0.04)		(0.03)	–	(0.03)	–
Dec	(0.04)		(0.03)	–	(0.01)	–
YEAR	(0.16)		(0.12)	–	(0.10)	–
P/E	(0.05)		(0.07)	–	(0.09)	–

One year price history XXII



Anandia and the Cannabis Opportunity

22nd Century, in its annual letter to shareholders indicated it intends to “develop cannabis plants with low levels of THC for the commercial hemp market and plants with high levels of CBD for the legal medical marijuana markets.” This could be a significant source of value for the company and timely with the 4/20 events in Denver this week, the DEA’s response to lawmakers on possible re-scheduling of marijuana, Pennsylvania’s pending legalization of medical marijuana, ballot initiatives in Nevada and Florida to legalize recreational and medical marijuana respectively, and possible ballot initiatives to allow recreational marijuana in Arizona, California, Maine, Massachusetts, Michigan, Montana and New Mexico. Development will occur through Anandia Labs, a Canadian-based cannabis genetics research company founded by Jonathan Page, one of the world leaders in sequencing the cannabis genome. We have not placed any value for Anandia, nor the fruits of Anandia’s research, in our price target for 22nd Century.

22nd Century, through its Botanical Genetics subsidiary, invested \$1.5 million and entered into a worldwide license agreement with Anandia Laboratories in 2014. In the US, 22nd Century has exclusive rights to four genes required for cannabinoid production in the cannabis plant. Anandia has exclusive rights in Canada and the pair share co-exclusive rights for the rest of the world. The technology is a result of Jonathan Page’s work sequencing 30,000 genes in the Cannabis sativa genome. Control of these genes will allow 22nd Century to control the level’s of THC and other cannabinoids in cannabis. In addition to the significant opportunity in medical marijuana, and ultimately recreational marijuana, control of these genes could be used to lower THC levels in hemp, which is restricted in the EU and Canada to less than 0.3%.

In September of 2015 Botanical Genetics entered into a sponsored research agreement with Anandia. Botanical paid \$116,400 in October of 2015 and committed to pay an additional \$263,400 this year and will receive co-exclusive worldwide rights to all intellectual property resulting from the research. Initially, research will focus on controlling cannabinoids in hemp and we believe control of THC and CBD in medical marijuana will be a subject of upcoming research.

The promise of Anandia and 22nd Century’s research collaboration is the creation of a plant-genetics company that can offer hemp farmers low THC industrial hemp that complies with the current US regulatory regime, medical marijuana producers product with specific ratios of CBD and THC customized for varying indications and at some point in the future, recreational marijuana providers plants with specific levels of THC, that satisfies the markets demand for standard product and possible regulatory limits.

Valuation:

We value X-22/Modified risk at \$3 per share and the combined value of the potential BAT royalty stream and commercial products at \$1.50 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.

Technology to control cannabinoid, including THC, levels in hemp and medical marijuana could take on increasing importance as government regulations change over the coming years. The 2014 federal farm bill allows farmers in states with industrial hemp legislation to grow hemp for research purposes. Over the years there have been multiple bills introduced in Congress to amend the Controlled Substances Act to remove industrial hemp with less than 0.3% THC from all schedules of the CSA. None have passed, yet, but the attempts have attracted bipartisan and growing support.

Reclassification of marijuana to Schedule II of the CSA can have a consequential impact for Anandia and highlight the value of its technology. The DEA has responded to an inquiry from Senator Elizabeth Warren (D-MA) and seven other senators about a five-year old petition to reclassify marijuana as a Schedule I substance. In its response, the DEA indicated it "has received the HHS scientific and medical evaluations, as well as a scheduling recommendation, and is currently reviewing these documents and all other relevant data to make a scheduling determination in accordance with the CSA." The DEA hopes to release its determination in the first half of 2016. We think it is more likely Congress will have to take the lead in re-scheduling marijuana, but these steps, in our view, are part of the political moves necessary to gather support in Congress. But if the DEA does recommend reclassification, we think this could highlight the value of Anandia.

A common view is marijuana will be re-classified from Schedule I (no currently accepted medical use and high potential for abuse) to Schedule II, (accepted medical use and high potential for abuse). A problem with this reclassification is the impact on the recreational market. Currently the DoJ and DEA have mostly looked on the recreational markets in Colorado and Washington with benign neglect. However, reclassifying marijuana to Schedule II could change the calculus of the DoJ and result in greater scrutiny of the recreational markets.

That said, reclassification could have a salutary impact on Anandia and 22nd Century. If marijuana becomes a Schedule II substance the research market would likely develop at a much faster pace as companies follow the lead of GW Pharma and its research into cannabinoid prescription medicines. GW Pharma's Sativex, a cannabinoid medicine for the treatment of spasticity due to multiple sclerosis has been approved in 27 countries and it is evaluating Epidiolex for the treatment of Dravet syndrome and LGS. The market capitalization of GW Pharma is \$1.8 billion and we think others will follow with reclassification. If this occurs access to technology that can control the ratio of the CBD in plants will facilitate research into the plant's efficacy on various conditions.

While reclassification will probably accelerate research of cannabis as a treatment for various conditions, 22nd Century and Anandia could look for sponsored research partners before that event. To date research efforts have been self-funded, and as we indicated earlier, focused on the industrial hemp market. We expect additional research for the medical markets will occur and possibly funded by third-parties.

Anandia's and 22nd Century's near-term efforts will center on hemp and medical marijuana but we believe in the long-run the technology could have wide applicability in the recreational market. Currently products in the recreational market vary widely in their THC levels and consistency. Over time, as the market develops we believe quality, consistency and branding will become more important. Precise control of all the cannabinoids in the plant, including possible limits on THC, could be critical in this effort.

We continue to believe 22nd Century's intellectual property, exclusive worldwide rights to all uses for certain genes that control nicotine content in tobacco plants is an asset that will be monetized in multiple ways and has a value far in excess of the current share price. The company is pursuing research partnerships with BAT, selling its own brand of high and low-nicotine cigarettes in the US and Europe, working to find a partner to fund a phase III study of X-22 for smoking cessation, and has filed an application for a reduced risk designation for its Brand A, very-low nicotine (VLN) cigarettes.

We value X-22/Modified risk at \$3 per share and the combined value of the potential BAT royalty stream and commercial products at \$1.50 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.

The company's monthly burn is \$650,000 per month, or \$7.8 million annually, and excluding BAT milestone payments or partnership payments for X-22, the company estimates it has enough cash through October of this year. We believe the company will extend this date by reducing its burn, but absent commercial license payments from BAT or a sharp ramp in contract manufacturing we expect additional capital will be required in 12-18 months.

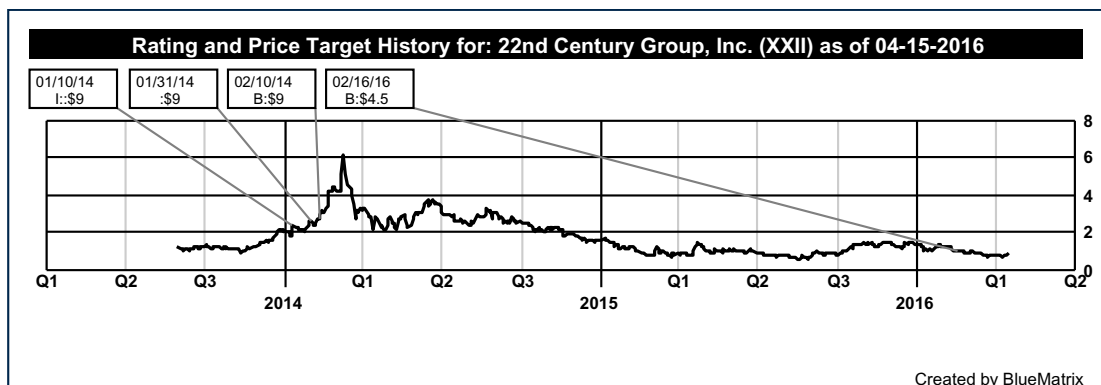
22nd Century Group, Inc
Income Statement \$ in 000s

	2013	2014	2015	Q1 16 E	Q2 16 E	Q3 16 E	Q4 16 E	2016 E	2017 E
Revenue	\$ 7,278	\$ 529	\$ 8,522	\$ 2,550	\$ 2,700	\$ 3,175	\$ 3,825	\$ 12,250	\$ 18,363
Cost Of Goods Sold	462	498	9,103	2,355	2,650	3,008	3,493	11,505	15,082
Gross Profit	6,817	31	(581)	195	50	168	333	745	3,282
R&D	744	1,249	1,669	500	500	300	300	1,600	1,840
G&A	4,107	8,793	7,760	1,500	1,500	1,500	1,500	6,000	6,600
Pre-Mfg. Facility Costs	0	1,177	0	0	0	0	0	0	0
Sales & marketing	9	86	1,358	350	350	350	350	1,400	2,100
Depreciation & Amort.	144	463	676	175	175	175	175	700	770
Opex	5,004	11,768	11,463	2,525	2,525	2,325	2,325	9,700	11,310
Operating Income	\$ 1,812	\$ (11,737)	\$ (12,044)	\$ (2,330)	\$ (2,475)	\$ (2,158)	\$ (1,993)	\$ (8,955)	\$ (8,029)
Interest Expense	(749)	(7)	(22)	(2)	(2)	(2)	(2)	(8)	(8)
Other	122	(30)	889	0	0	0	0	0	0
Warrant Charge	(27,339)	(3,821)	145	0	0	0	0	0	0
Pretax Income	(26,153)	(15,595)	(11,032)	(2,332)	(2,477)	(2,160)	(1,995)	(8,963)	(8,037)
Income Tax Expense	0	0	0	0	0	0	0	0	0
Net before Minority Interest	(26,153)	(15,595)	(11,032)	(2,332)	(2,477)	(2,160)	(1,995)	(8,963)	(8,037)
Minority Interest	0	0	0	0	0	0	0	0	0
Net to Common	\$ (26,153)	\$ (15,595)	\$ (11,032)	\$ (2,332)	\$ (2,477)	\$ (2,160)	\$ (1,995)	\$ (8,963)	\$ (8,037)
Shares	43,635	59,993	68,143	75,970	76,470	76,970	77,470	76,720	83,220
EPS	(\$0.60)	(\$0.26)	(\$0.16)	(\$0.03)	(\$0.03)	(\$0.03)	(\$0.03)	(\$0.12)	(\$0.10)

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

	2013	2014	2015	Q1 16 E	Q2 16 E	Q3 16 E	Q4 16 E	2016 E	2017 E
Cash	5,831	6,403	3,760	6,632	4,600	2,620	791	791	1,967
Due from related party and officers	50	46	0	0	0	0	0	0	0
A/R	0	0	51	288	164	308	514	514	528
Settlement proceeds receivable	0	0	0	0	0	0	0	0	0
Inventory	1,406	2,065	2,706	2,934	3,177	3,470	3,869	3,869	4,319
Prepaid Consulting Fees	0	1,979	0	0	0	0	0	0	0
Prepaid Exp.	458	214	710	770	833	911	1,015	1,015	1,133
Total Current Assets	\$ 7,744	\$ 10,707	\$ 7,228	\$ 10,624	\$ 8,774	\$ 7,309	\$ 6,189	\$ 6,189	\$ 7,947
Patent and Trademark costs	1,545	7,078	7,364	7,303	7,242	7,180	7,119	7,119	6,874
PP&E	2,998	2,851	2,556	2,587	2,614	2,637	2,655	2,655	2,682
Equity Investment	0	1,318	1,223	1,223	1,223	1,223	1,223	1,223	1,223
Total Assets	\$ 12,287	\$ 21,954	\$ 18,371	\$ 21,736	\$ 19,853	\$ 18,349	\$ 17,185	\$ 17,185	\$ 18,726
Bank Loans and N/P	175	495	309	309	309	309	309	309	309
A/P	55	884	1,283	1,391	1,506	1,646	1,834	1,834	2,048
Accrued Expenses	576	1,294	1,644	1,783	1,930	2,108	2,350	2,350	2,624
Deferred Revenue	179	0	0	0	0	0	0	0	0
Total Current Liabilities	\$ 984	\$ 2,673	\$ 3,236	\$ 3,483	\$ 3,745	\$ 4,062	\$ 4,493	\$ 4,493	\$ 4,981
Long-Term Debt	0	605	308	308	308	308	308	308	308
Accrued Severance	0	412	200	131	62	0	0	0	0
Warrant Liability & Other	3,780	3,043	2,898	2,898	2,898	2,898	2,898	2,898	2,898
Shareholder's Equity	7,523	15,220	11,729	14,917	12,840	11,080	9,486	9,486	10,539
Total Liabilities And Equity	\$ 12,287	\$ 21,954	\$ 18,371	\$ 21,736	\$ 19,853	\$ 18,349	\$ 17,185	\$ 17,185	\$ 18,726
Net Income	(26,153)	(15,595)	(11,032)	(2,332)	(2,477)	(2,160)	(1,995)	(8,963)	(7,997)
Depreciation & Amort.	144	463	774	155	159	164	168	646	718
Stock Comp	980	2,293	1,326	350	350	350	350	1,400	1,400
Other	29,386	6,740	2,341	(69)	(69)	(62)	0	(200)	0
Working Capital	(501)	(483)	(731)	(278)	80	(197)	(277)	(672)	(95)
Operating Cash Flow	\$ 3,856	\$ (6,583)	\$ (7,322)	\$ (2,173)	\$ (1,957)	\$ (1,905)	\$ (1,754)	\$ (7,789)	\$ (5,974)
Acquisition of Patents and trademarks	(290)	(727)	(413)	0	0	0	0	0	0
Capx	(3,452)	(212)	(37)	(125)	(125)	(125)	(125)	(500)	(500)
Other	0	(1,769)	0	0	0	0	0	0	0
Investing Activities	\$ (3,743)	\$ (2,708)	\$ (451)	\$ (125)	\$ (125)	\$ (125)	\$ (125)	\$ (500)	\$ (500)
Debt	(1,810)	(4)	(508)	0	0	0	0	0	0
Equity	7,536	9,859	5,592	5,170	50	50	50	5,320	7,650
Other	(9)	7	46	0	0	0	0	0	0
Financing Activities	\$ 5,717	\$ 9,863	\$ 5,130	\$ 5,170	\$ 50	\$ 50	\$ 50	\$ 5,320	\$ 7,650
Change in Cash	\$ 5,830	\$ 572	(\$2,642)	\$ 2,872	(\$2,032)	(\$1,980)	(\$1,829)	(\$2,969)	\$ 1,176

Important Research Disclosures



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Rating	Count	Percent	IB Serv./Past 12 Mos.	
			Count	Percent
BUY [BUY]	59	73.75	19	32.20
HOLD [NEUTRAL]	18	22.50	0	0.00
SELL [SELL]	3	3.75	0	0.00
NOT RATED [NR]	0	0.00	0	0.00

Regulation Analyst Certification ("Reg AC") — JAMES McILREE, CFA

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Buy: Expected to materially outperform sector average over 12 months and indicates total return of at least 10% over the next 12 months.

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