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## 22nd Century Group, Inc. (NASDAQ: XXII)

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### Buy: Hemp/Cannabis plant transformation demonstrated with KeyGene .

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*22<sup>nd</sup> Century and KeyGene have demonstrated the ability to directly insert DNA sequences into hemp/cannabis plants enabling customized, commercially desirable traits in the plant.*

22<sup>nd</sup> Century's announcement yesterday of the ability to insert targeted DNA, that controls for desired traits, in the hemp/cannabis plant is a significant step in the company's roadmap to offer the industry the ability to improve certain plant traits, that increases the value of the plant by enabling customization of the plant, and resulting in the introduction of new, unique products to the market. These characteristics could include customized cannabinoid content, specific flavors and aromas, disease resistance and yields.

In our view, the ability to customize plant characteristics will be critical for the industry as more and more states, and potentially the Federal Government, remove restrictions on the market. Plant customization could expand the market and allow producers to differentiate themselves.

This capability, created in partnership with KeyGene adds another tool to 22<sup>nd</sup> Century's capabilities that already include rapid-cycle breeding and mutagenesis, a genome database and a large library of hemp and cannabis germplasm. The new product lines created with these tools can be accomplished far faster and at lower costs than traditional breeding methods.

Our price target of \$8.50 includes only \$0.74 for the company's efforts in hemp/cannabis, but as development of the capabilities to create customized lines increases, and the regulatory framework in the United States improves, we believe this could increase considerably.

**Valuation:** Our \$8.50 price target is the sum of: An estimated \$4.58/share for the VLN asset, \$3.18/share for the low-nicotine mandate and \$0.74 for the hemp/cannabis franchise.

**Risks to Target include, among others:** Our price target assumes the company launches VLN pilots in test markets this year and this could take longer than estimated and/or its partner could demand different terms than assumed. Our price target also assumes a nicotine mandate. The nicotine mandate may take longer to decide, and the transition period could be longer than estimated. See the Risks Analysis section for additional risks.

Current Price	\$2.14		
Price Target	\$8.50		
Estimates	F2020A	F2021E	F2022E
Revenues (\$000s)	\$ 28,111	\$ 31,799 E	\$ 39,111
1Q March	\$ 7,058	\$ 6,806 A	\$ 11,811
2Q June	\$ 6,435	\$ 8,371 A	\$ 8,400
3Q September	\$ 7,310	\$ 7,811 A	\$ 8,400
4Q December	\$ 7,308	\$ 8,811 E	\$ 10,500
	F2020A	F2021E	F2022E
EPS (diluted)	\$ (0.14)	\$ (0.17)E	\$ (0.21)
1Q March	\$ (0.03)	\$ (0.03)A	\$ (0.04)
2Q June	\$ (0.04)	\$ (0.03)A	\$ (0.06)
3Q September	\$ (0.03)	\$ (0.06)A	\$ (0.06)
4Q December	\$ (0.05)	\$ (0.05)E	\$ (0.05)
EBITDA (\$Ms)	\$ (16.0)	\$ (20.8)	\$ (20.8)
EV/EBITDA (x)	-18.5x	-14.2x	-14.2x
Stock Data			
52-Week Range	\$1.86	-	\$6.07
Shares Outstanding (mil.)	162.7		
Market Capitalization (mil.)	\$348		
Enterprise Value (mil.)	\$295		
Debt to Capital	0%		
Cash (mil.)	\$55.2		
Cash/share	\$0.34		
Average Three Months Trading Volume (K)	1,450		
Insider Ownership	2.3%		
Institutional Ownership	28.2%		
Short interest (mil.)	9.0%		
Dividend / Yield	\$0.00/0.0%		



**Valuation.** Our price target of \$8.50 comprises three components: We attribute about \$4.58/share for the VLN asset. The non-addictive nicotine mandate is valued at \$3.18 per share. The remainder of the price target, or \$0.74 per share, equals about \$112 million and encompasses the company's investment in Exactus, the Anandia licenses and the potential from its relationship with KeyGene. We have assumed a long gestation period for the hemp/cannabis business because it is in the early stages. However, the Aurora announcement and the restructuring of the Panacea/Exactus investment could be catalysts to more rapid development of the market and 22nd Century's monetization efforts.

#### **Risk Analysis**

Our price target assumes the company launches VLN pilots in test markets this year, and this could take longer than estimated and/or its launch partner could demand different terms than assumed. Our price target also assumes a nicotine mandate. The nicotine mandate may take longer to decide, and the transition period could be longer than estimated. There will likely be other paths attempted by the industry to comply or the industry may opt to focus on other nicotine delivery systems as regulation of the combustible cigarette market increases. This could affect our assumptions on the royalty rate as well as market share.

**Exhibit 1. Income Statement**

<i>(\$ in 000's except per-share data)</i>	2018	2019	2020	Q1 21 A	Q2 21 A	Q3 21 A	Q4 21 E	2021 E	2022 E
Revenue	\$ 26,426	\$ 25,833	\$ 28,111	\$ 6,806	\$ 8,371	\$ 7,811	\$ 8,811	\$ 31,799	\$ 39,111
Cost Of Goods Sold	25,527	25,818	26,673	6,159	7,785	7,362	7,362	28,668	32,048
Gross Profit	899	14	1,438	647	586	449	1,449	3,131	7,063
	3.4%	0.1%	5.1%	9.5%	7.0%	5.7%	16%	10%	18%
R&D	14,990	8,057	4,128	701	746	856	1,000	3,303	4,000
G&A	7,658	12,956	14,971	4,829	6,177	6,821	6,821	24,648	28,311
Impairment Charge	0	1,142	176	0	0	0	0	0	0
Sales & marketing	927	0	0	0	0	0	0	0	0
Depreciation & Amort.	1,342	1,425	1,346	288	303	341	341	1,273	1,364
Opex	24,918	23,581	20,621	5,818	7,226	8,018	8,162	29,224	33,675
Operating Income	\$ (24,019)	\$ (23,566)	\$ (19,183)	\$ (5,171)	\$ (6,640)	\$ (7,569)	\$ (6,713)	\$ (26,093)	\$ (26,612)
Other	14,945	(4,002)	(428)	36	2,372	(1,900)	(1,900)	(1,392)	(7,600)
Impairment Charge	49	0	(1,741)	0	0	0	0	0	0
Interest Income	1,069	1,066	1,751	112	108	52	276	548	711
Interest Expense	(11)	(56)	(72)	(7)	(14)	(23)	(23)	(67)	(92)
Pretax Income	(7,967)	(26,559)	(19,673)	(5,030)	(4,174)	(9,440)	(8,360)	(27,004)	(33,593)
Income Tax Expense	0	0	38	0	0	0	0	0	0
Net to Common	\$ (7,967)	\$ (26,559)	\$ (19,711)	\$ (5,030)	\$ (4,174)	\$ (9,440)	\$ (8,360)	\$ (27,004)	\$ (33,593)
Shares (000)	124,299	125,883	138,813	144,258	154,811	162,721	162,742	156,133	163,311
EPS	(\$0.06)	(\$0.21)	(\$0.14)	(\$0.03)	(\$0.03)	(\$0.06)	(\$0.05)	(\$0.17)	(\$0.21)
D&A	1,200	1,425	1,346	288	302	342	342	1,274	1,368
Stock Comp	3,187	3,540	1,654	507	1,245	1,119	1,119	3,990	4,476
Other	0	1,142	176	0	0	0	0	0	0
EBITDA	\$ (19,632)	\$ (17,459)	\$ (16,007)	\$ (4,376)	\$ (5,093)	\$ (6,108)	\$ (5,252)	\$ (20,829)	\$ (20,768)

Source: 22<sup>nd</sup> Century Group, Inc. and Dawson James Securities estimates

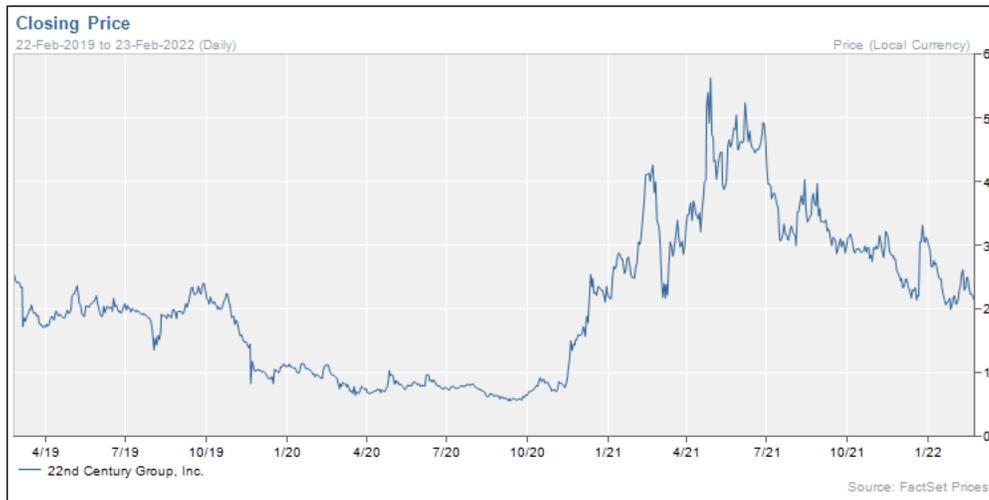
**Exhibit 2. Balance Sheet and Cash Flow Statement**

(\$ in 000's)	2018	2019	2020	2021 E	2022 E
Cash	605	485	1,029	1,629	1,629
Short-Term Investments	55,749	38,477	21,313	44,669	14,829
A/R	871	867	2,159	2,897	4,027
Inventory	3,044	2,266	2,034	2,824	3,284
Prepaid Exp.	928	648	1,806	3,131	3,131
<b>Total Current Assets</b>	<b>\$ 61,198</b>	<b>\$ 42,743</b>	<b>\$ 28,341</b>	<b>\$ 55,150</b>	<b>\$ 26,900</b>
PP&E	3,261	3,120	2,483	4,681	4,389
Operating Lease	0	602	247	478	478
Patent, Trademark, other intangibles	9,752	8,494	8,211	7,992	7,816
Equity Investment	3,092	8,403	6,536	7,300	7,300
Convertible Note Receivable	0	5,589	5,876	3,713	3,713
<b>Total Assets</b>	<b>\$ 77,302</b>	<b>\$ 68,951</b>	<b>\$ 51,694</b>	<b>\$ 79,314</b>	<b>\$ 50,596</b>
Bank Loans and N/P	689	581	539	1,782	1,782
Operating Lease	0	220	247	74	74
A/P	2,575	1,998	1,116	1,443	1,443
Accrued Expenses	1,826	2,619	4,830	3,440	3,440
Accrued Severance	0	359	339	223	223
Deferred Income	83	5	272	0	0
<b>Total Current Liabilities</b>	<b>\$ 5,174</b>	<b>\$ 5,780</b>	<b>\$ 7,343</b>	<b>\$ 6,962</b>	<b>\$ 6,962</b>
Long-Term Debt	848	292	0	0	0
Operating Lease	0	382	0	407	407
Accrued Severance	0	446	241	72	72
Shareholders' Equity	71,280	62,051	44,110	71,873	43,155
<b>Total Liabilities And Equity</b>	<b>\$ 77,302</b>	<b>\$ 68,951</b>	<b>\$ 51,694</b>	<b>\$ 79,314</b>	<b>\$ 50,596</b>
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021 E</b>	<b>2022 E</b>
Net Income	(7,967)	(26,559)	(19,711)	(27,004)	(33,593)
Depreciation & Amort.	1,200	1,425	1,345	1,274	1,368
Stock Comp	3,187	3,540	1,654	3,990	4,476
Other	(14,618)	7,249	2,722	(281)	0
Working Capital	354	(242)	(1,631)	(4,924)	(1,591)
<b>Operating Cash Flow</b>	<b>\$ (17,844)</b>	<b>\$ (14,587)</b>	<b>\$ (15,621)</b>	<b>\$ (26,945)</b>	<b>\$ (29,340)</b>
Acquisition of Patents and trademarks	(657)	(515)	(468)	(364)	(500)
CapEx	(449)	(527)	(54)	(570)	(400)
Other	16,251	5,595	16,991	(32,498)	0
<b>Investing Activities</b>	<b>\$ 15,145</b>	<b>\$ 4,552</b>	<b>\$ 16,469</b>	<b>\$ (33,432)</b>	<b>\$ (900)</b>
Debt	(800)	(700)	(354)	1,236	0
Equity	445	10,616	50	50,878	400
Other	0	0	0	0	0
<b>Financing Activities</b>	<b>\$ (355)</b>	<b>\$ 9,916</b>	<b>\$ (304)</b>	<b>\$ 52,114</b>	<b>\$ 400</b>
Change in Cash	<b>(\$3,055)</b>	<b>(\$120)</b>	<b>\$ 544</b>	<b>(\$8,263)</b>	<b>(\$29,840)</b>

Source: 22<sup>nd</sup> Century Group, Inc. and Dawson James Securities estimates

**Important Disclosures:**

**Price Chart:**



**Price target and ratings changes over the past three years:**

- Initiated – Buy – April 13, 2021 – Price Target \$7.00
- Update – Buy – April 15, 2021 – Price Target \$7.00
- Update – Buy – April 19, 2021 – Price Target \$7.00
- Update – Buy – May 7, 2021 – Price Target \$7.00
- Update – Buy – June 1, 2021 – Price Target \$7.00
- Update – Buy – June 11, 2021 – Price Target \$7.00
- Update – Buy – July 2, 2021 – Price Target \$7.00
- Update – Buy – July 23, 2021 – Price Target \$7.00
- Update – Buy – August 6, 2021 – Price Target \$7.00
- Update – Buy – August 31, 2021 – Price Target \$7.00
- Update – Buy – October 18, 2021 – Price Target \$7.00
- Update – Buy – November 5, 2021 – Price Target \$7.00
- Update – Buy – November 22, 2021 – Price Target \$7.00
- Update – Buy – December 9, 2021 – Price Target \$7.00
- Update – Buy – December 23, 2021 – Price Target \$7.00
- Price Target Change – Buy – January 6, 2022 – Price Target changed from \$7.00 to \$8.50
- Update – Buy – January 24, 2022 – Price Target \$8.50
- Update – Buy – February 16, 2022 – Price Target \$8.50
- Update – Buy – February 24, 2022 – Price Target \$8.50

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- 1) **Buy:** The analyst believes the price of the stock will appreciate and produce a total return of at least 20% over the next 12-18 months.
- 2) **Neutral:** The analyst believes the price of the stock is fairly valued for the next 12-18 months.
- 3) **Sell:** The analyst believes the price of the stock will decline by at least 20% over the next 12-18 months and should be sold.

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Current as of... 8-Feb-22

	Company Coverage		Investment Banking	
<b>Ratings Distribution</b>	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	31	76%	6	19%
Market Perform (Neutral)	10	24%	0	0%
Market Underperform (Sell)	0	0%	0	0%
<b>Total</b>	<b>41</b>	<b>100%</b>	<b>6</b>	<b>15%</b>

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