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22nd Century and Dent Neurosciences Research Center to Partner on Brain Imaging Clinical Trial

Trial will image brain activity associated with smoking Company's proprietary Very Low Nicotine cigarettes

CLARENCE, N.Y.--(BUSINESS WIRE)-- 22nd Century Group, Inc. (NYSE MKT:[XXII](#)), a plant biotechnology company that is focused on tobacco harm reduction and cannabis research, announced today that it has signed a collaborative research agreement with The Dent Neurosciences Research Center. The agreement features a clinical trial that will use functional magnetic resonance imaging (fMRI) to image the brains of smokers. Participants will smoke 22nd Century's proprietary Very Low Nicotine (VLN) cigarettes, or conventional cigarettes, which will allow scientists to study both the immediate and longer-term effects of nicotine on brain activity.

Recent clinical trial findings suggest that a significant physiological change occurs in the brains of smokers as early as 6 days after switching to Very Low Nicotine cigarettes ([Donny et al., 2015](#); [Mercincavage et al., 2016](#)). Over the course of the Dent trial, researchers will study changes in the physiology of the brains of VLN smokers. As a result, scientists hope to identify changes in the brain that correlate with changes in nicotine addiction. A non-invasive marker of addiction status at the level of brain activity would be an invaluable tool for future studies on nicotine addiction.

The differences in brain activity after smoking a single VLN cigarette as opposed to smoking a conventional cigarette will provide 22nd Century scientists with important insights into the mechanisms of how the Company's proprietary VLN cigarettes affect the physiology of smokers' brains.

"The identification of changes in brain activity associated with smoking our VLN cigarettes compared to smoking regular cigarettes will be an important step forward," explained Dr. Paul Rushton, 22nd Century's Vice President for Plant Biotechnology.

"Clinical trials show that 22nd Century's Very Low Nicotine SPECTRUM® cigarettes are associated with significant reductions in consumption and increases in quit attempts," explained Dr. Laszlo Mechtler, Medical Director at The Dent Neurosciences Research Center. "We are very excited that this project will study the brain's response to Very Low Nicotine cigarettes and may identify exactly how Very Low Nicotine cigarettes work to alter behavior in smokers."

About 22nd Century Group, Inc.

22nd Century is a plant biotechnology company focused on technology which allows it to increase or decrease the level of nicotine in tobacco plants and the level of cannabinoids in cannabis plants through genetic engineering and plant breeding. The Company's primary mission in tobacco is to reduce the harm caused by smoking. The Company's primary mission in cannabis is to develop proprietary cannabis strains for important new medicines and agricultural crops. Visit www.xxii-century.com and www.botanicalgenetics.com for more information.

About Dent Neurologic Institute/Dent Imaging Centers

As a national leader in diagnostic imaging for more than 30 years, Dent's long-standing experience with advanced imaging techniques qualifies physicians and medical research to advance in the science and art of diagnostic imaging. Dent Neurologic Institute is among the largest autonomous neurologic centers in the United States. Dent's comprehensive neuroscience practice includes a full range of neurological, psychological and psychiatric services. Its research team manages approximately 50 projects per year, including ongoing collaborative work with local and national universities using "functional" methods to better understand brain processes underlying neurologic and psychiatric disorders.

Cautionary Note Regarding Forward-Looking Statements: This press release contains forward-looking information, including all statements that are not statements of historical fact regarding the intent, belief or current expectations of 22nd Century Group, Inc., its directors or its officers with respect to the contents of this press release, including but not limited to our future revenue expectations. The words “may,” “would,” “will,” “expect,” “estimate,” “anticipate,” “believe,” “intend” and similar expressions and variations thereof are intended to identify forward-looking statements. We cannot guarantee future results, levels of activity or performance. You should not place undue reliance on these forward-looking statements, which speak only as of the date that they were made. These cautionary statements should be considered with any written or oral forward-looking statements that we may issue in the future. Except as required by applicable law, including the securities laws of the United States, we do not intend to update any of the forward-looking statements to conform these statements to reflect actual results, later events or circumstances, or to reflect the occurrence of unanticipated events. You should carefully review and consider the various disclosures made by us in our annual report on Form 10-K for the fiscal year ended December 31, 2016, filed on March 8, 2017, including the section entitled “Risk Factors,” and our other reports filed with the U.S. Securities and Exchange Commission which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operation and cash flows. If one or more of these risks or uncertainties materialize, or if the underlying assumptions prove incorrect, our actual results may vary materially from those expected or projected.

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