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# The Future of Healthcare: “A second generation of FDA approved medical cannabis” with Dr. Jonathan Rothbard

*As a part of my series about “Big Ideas That Might Change The World In The Next Few Years” I had the pleasure of interviewing Dr. Jonathan Rothbard, PhD, Stanford University. Dr. Jonathan Rothbard is a scientific pioneer and collaborator of Katexco Pharmaceuticals. Katexco Pharmaceuticals is a medical cannabis company developing innovative, orally available therapies [...]*

By Christina D. Warner, MBA, Healthcare Innovator | Marketing Strategist | Connector

*As a part of my series about “Big Ideas That Might Change The World In The Next Few Years” I had the pleasure of interviewing Dr. Jonathan Rothbard, PhD, Stanford University. Dr. Jonathan Rothbard is a scientific pioneer and collaborator of Katexco Pharmaceuticals. Katexco Pharmaceuticals is a medical cannabis company developing innovative, orally available therapies harnessing endocannabinoid and nicotine receptors to treat inflammatory diseases. Dr. Rothbard received his BA from Hamilton College (1973) and PhD from Columbia University with Ronald Breslow (1977). His post-doctoral fellowship was with Gerald Edelman at The Rockefeller University, after which he was with Gary Schoolnik at Stanford University Medical School, where he published the first of 26 manuscripts with Lawrence Steinman in 1986. Subsequently, he was head of the Molecular Immunology Laboratory at the Imperial Cancer Research Fund in London, where he first collaborated with Professor Sir Marc Feldman (1990). He left academia to help establish ImmuLogic in Palo Alto, Calif., and found Amylin in San Diego, which led to another appointment at Stanford, followed by the founding of CellGate. Leaving CellGate, he returned to an appointment at Stanford, first in the department of chemistry, then rheumatology, and currently in neurology.*

**Thank you so much for joining us! Can you tell us a story about what brought you to this specific career path?**

Both of my parents were academic doctors at prestigious institutions, which naturally influenced my career path. I was always intrigued with medical research, much more than patient care. Consequently, I knew that a graduate program was more likely than medical school. In the '70s, the best and the brightest focused on organic chemistry rather than biology, which was fundamentally descriptive. However, I knew I was most interested in biological chemistry, and the molecular basis of the distinction the immune system makes between self and nonself tissue. Consequently, my postdoctoral training was with Dr. Gerald Edelman at the Rockefeller University, who had won the Nobel Prize for determining the structure of antibodies. During this period, I worked on defining the structure of the human histocompatibility proteins, which define one's self. Our discoveries led to the formation of a start-up, which sadly established the proteins were not "druggable". Even though this was excellent science, the realization led to the dissolution of the company. This failure led to my discovery that short peptides of arginine could penetrate cell membranes and the founding of another start-up, which also failed, this time due to poor leadership by the Venture capitalists. Returning back to Stanford, I pursued a fundamental question central to the molecular basis of multiple sclerosis. Remarkably, the story led to defining a unique pathway of immune suppression mediated.

**Can you tell us about your "Big Idea That Might Change The World"?**

[Katexco](#) is spearheading the so-called "second generation" of medical cannabis, which represents the evolution of medical cannabis from its inception to today. We know, anecdotally, that medical cannabis has many potential benefits in treating a variety of ailments. But anecdotes aren't good enough for doctors, patients and the U.S. Food and Drug Administration. We need hard scientific research proving the benefits of medical cannabis, with detailed findings on dosage, for example. This is why Katexco is developing cannabis-derived treatments through clinical trials that will eventually be submitted to the FDA, including the world's first drug to exploit a key receptor on immune cells in the brain with the ability to treat inflammatory diseases like Crohn's disease, gout and multiple sclerosis That's the best way to help patients, and that's our big idea.

**How do you think this will change the world?**

We saw what happened last year with GW Pharmaceuticals, which received FDA approval for Epidiolex, a cannabis-derived treatment that reduces epileptic seizures. Imagine the impact that this has on a child with epilepsy, and their parents and caregivers. For Katexco, our focus is on inflammatory ailments like gastrointestinal disorders, gout and multiple sclerosis. We believe that CBD has inflammatory benefits, and that we can prove it through clinical trials. We want to help the millions of people affected by these diseases with FDA-approved pharmaceutical drugs.

**What do you need to lead this idea to widespread adoption?**

We need to successfully shepherd a cannabis-derived synthetic anti-inflammatory through late-stage clinical trials, proving that it's successful in treating inflammatory diseases. Then, we need to submit that compound to the FDA. If the federal agency gives it the green light, that's the badge of approval that will lead to widespread adoption.

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