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The future of food: Evidence-based science for the natural products Industry

The natural product industry is one of fastest growing industry with revenue of over size of $187B. However it is constantly under attack and is having to defend itself. One of the weaknesses for the industry is not always having the data that a products are safe, efficacious and work for the particular ailment, compared to the pharmaceutical industry. The fact that the pharmaceutical industry has to concern itself with only single synthetic molecules as opposed to the multi-molecule products in the natural product industry adds to the complexity of providing safe and efficacious products to the consumer by the natural product industry. Health and wellbeing is based on combinations of multiple molecules, which is what food is, and tuning that combination for a particular systemic effect. CytoSolve, a computational systems biology collaboratory, is a proven, revolutionary technology developed at M.I.T. that can help the natural supplement industry by discovering formulations that are efficacious and safe, building real trust in customers based on science, defending the industry from attacks, and proactively protecting and strengthening the industry by discovery. CytoSolve uses a holistic, systems-based approach towards understanding the underlying biology and come up with single or multi-ingredient solutions for a physiological condition or a disease. Based on proprietary in silico technology and a feedback systems design that mines existing peer-reviewed literature for validated molecular mechanisms, while reusing scientific data from wet lab and clinical trials, CytoSolve offers a revolutionary and proven information-centric platform that delivers accurate quantitative mechanistic models, for predicting complex molecular phenomena. These models enable rapid in silico testing for the development of single and multi-combination compounds for drugs, nutritional supplements, and medical foods, by optimizing *in vitro* and *in vivo* testing. Leading pharmaceutical and functional food companies as well as major universities, foundations and government agencies, are now using this revolutionary approach to accelerate development. This talk that will provide an introduction to a disruptive platform that will likely revolutionize understanding of natural supplements, food nutrition and food safety in the 21st century.

Biography

V A Shiva Ayyadurai, the inventor of email and polymath, holds four degrees from MIT and is a world-renowned Systems Scientist. He is a Fulbright Scholar, Lemelson-MIT Awards Finalist, First Outstanding Scientist and Technologist of Indian Origin (STIO), Westinghouse Science Talent Honors Award recipient, and was nominated for the US National Medal of Technology and Innovation. In 1982, the US government recognized him as the inventor of email by awarding him the first Copyright for "Email" at a time when copyright was the only way to protect software inventions. His interest in human health also began early, when as a child, he observed his grandmother, a village farmer and healer, practice Siddha, India's oldest system of traditional medicine. This motivated his future study and research in Systems Biology at MIT, leading to his discovery of Systems Health®, a major breakthrough that provides an integrative framework linking eastern and western medicine. His latest invention CytoSolve®, emerging from his doctoral research at MIT, provides a revolutionary platform for modelling complex biological phenomena, to support the development multi-combination medicines without animal testing.

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