

Taiwanese biotech firms optimize R&D processes with innovative technology

09 March 2021 | News

Optimizing rising trend toward broadly using plant-based ingredients to address healthcare needs



In an era when consumers are demanding more from producers for better, faster, and stronger products, the biotechnology industry is not exempt. Situated in Taiwan are two companies, VIRTUALMAN and Hughes Biotechnology, paying close attention to this shift in the trend and revolutionizing R&D processes.

VIRTUALMAN accelerates drug development and enhances safety

In 2020, artificial intelligence (AI) company VIRTUALMAN guided four pharmaceutical entities to a more streamlined hit compound screening process excelling at toxicity and bioavailability in-silico predictions. The cloud platform behind this, powered by customizable AI models, is capable of generating over a thousand compounds with higher potential concerning multiple endpoints such as toxicity and absorption, accomplishable in a short span of just three weeks. Without needing to economize at the cost of quality, their AI platform excels at multitasking the elements of the hit-to-lead process.

Despite the development of in-silico tools for decades, it has still been hard for drug companies to analyze novel compounds due to the limitations of current statistical models. The secret behind VIRTUALMAN's drug development mastery lies in its powerful algorithms; a system generated by the company's team of dedicated computer scientists that effectively produces highly accurate and explainable results. Working in tandem with them is a team of chemists experienced in novel drug development. This comprehensive expertise allows VIRTUALMAN to serve small molecule drug companies better with a thorough understanding of their problems. By identifying relevant and specific hit compounds from the beginning, the number of compounds tested is reduced. The drug development process is thus accelerated, economized, and produces safer hit compounds.

Hughes Biotechnology enhances the effectiveness of health supplements

Unlike the aforementioned company that focuses on drug-development, Hughes Biotechnology is one that develops active ingredients used in fuss-free supplements. Its breakthrough strategy has improved the solubility and bioavailability of nutraceuticals. Having won the 2020 Ministry of Science and Technology Academia-Industry Collaboration Award, Hughes Biotechnology is expected to navigate next-generation nutraceutical ingredients with its unique proprietary biological

technique "RenoSorb™".

RenoSorb™ greatly enhances the solubility of plant-based active ingredients. Instead of excipients or nanoparticle technology, the company applies functional groups through a unique bioprocess to a broad range of active substances. Thus, ingredients are water-soluble as opposed to water-dispersible. Water-dispersible products are low in purity and not composed of 100% food-grade components, whereas the opposite holds for water-soluble products as demonstrated by RenoFlavone™.

RenoFlavone™ (next-generation isoflavone) is the first product developed in a breakthrough using RenoSorb™. The technique has been scientifically proven to increase the aqueous solubility and bioavailability of a raw ingredient by 100,000 and 3.7 times respectively, maximizing the ingredient's benefits across nutraceuticals, pharmaceuticals, and skincare.

Additionally, Hughes Biotechnology has also launched RenoCidin™ and RenoSage™ (next-generation hesperetin and luteolin respectively). Such products can be involved in a broad array of applications like health drinks, jellies, and lotions, just to name a few. Other ingredients in the pipeline include curcumin, silymarin, rutin, quercetin, and resveratrol.

Presently, Hughes Biotechnology is collaborating with global companies from the U.S. and Australia. Hughes Biotechnology is on the lookout to expand their collaborations with appropriate partners on a larger scale internationally in a movement to commercialize their products, as well as co-develop new ones.