

Category

Best Startup

Product/Solution Name

LifeMine Therapeutics: Mining the Medicines of Life

Date of Approval

2022-12-31

Indications

This technology is applicable in principle to any indication in human medicine.

Therapeutic Categories

This technology is applicable in principle to any therapeutic category for which an administered therapeutic agent is appropriate.

Attached Files:

- LifeMine Therapeutics Prix GALIEN Startup Award.pdf

Background information and need for solution/product

Nature is the consummate medicinal chemist, and indeed some of the most transformative medicines, from penicillin to morphine to cyclosporin, are naturally derived. The archaeological record suggests that humans have availed themselves of natural medicines for tens of thousands of years, likely longer. Despite the promise of naturally derived small molecules, their discovery by the conventional method of sifting through mixtures containing thousands of compounds proved hopelessly inefficient, and therefore this avenue of drug discovery has been largely abandoned.. LifeMine Therapeutics has reinvented the discovery of natural medicines by making it possible to search for these compounds via high-throughput genomic sequencing and AI-based search algorithms. This stands to revolutionize in speed and scalability the discovery of new medicines, for the benefit of humankind.

History of the development of the solution/product

LifeMine Therapeutics was incorporated in 2016 and operationalized in 2017. By 2018, the company had made the revolutionary discovery that it was possible to infer the human target of genetically encoded small molecules derived from fungi, organisms that are prodigious evolves of bioactive small molecules. The company has subsequently acquired the legacy fungal strain collections from several major pharmaceutical companies -- Merck, Pfizer, Wyeth, Schering and others, and has amassed the largest fully genomicized fungal strain collection known to science -- this collection comprises some 100,000 wild-type strains, 100,000 of which have been dee-sequenced, annotated and reposted into a searchable database. The company is now advancing one of these molecules toward the clinic, a medicine that is expected to vastly improve the quality of life for patients that have undergone organ transplantation.

Why this solution/product is innovative, the broad implications for future research, and/or how it

will improve the human condition

Never before in the history of science, let alone the pharmaceutical industry, has genomic search been used to discovery new, highly evolved bioactive small molecules from living orrganisms. Prior to LifeMine Therapeutics, so-called "natural products" were discovered by a laborious process involving sifting through thousands of compounds -- chemical search. Genomic search enables the discovery enterprise to exploit the central dogma of molecular biology, which of course underpins the discovery of biologics, but which had not been applied to genetically encoded small molecules. LifeMine Therapeutics expects to advance an entire pipeline of novel medicines discovered by genomic search, deployed in multiple therapeutics areas from cancer to organ transplantation to metabolic disease, fungal infection and beyond.

Please provide appropriate references (ie Pubmed links)

The company is just now preparing its first manuscript.

