

Rick Tsai, CEO, LUCA Science Inc.

“Mitochondria as medicine? Providing Energy for Life”

Luca science is a company that focuses on energy for life.

Mitochondria are the power plants in our cells that make over 90% of the body's energy. Mitochondrial function decline on average by 8% per decade in humans. In addition to aging, Mitochondrial DNA mutation, acute ischemic reperfusion injury, or accumulation of Reactive Oxygen Species (ROS) with ageing can also lead to mitochondrial dysfunctions and result in tissue damage. Just imagine if you can replace, maintain or improve the battery or the power plant in your cells. Just imagine the possibility if we can power the innovative cell therapies to provide better care through mitochondria.

Myocardial and cerebral infarction are one of the leading causes of death and disability around the world. In recent years, lifestyle-related diseases and aging have been drawing attention for the onset and progression of these diseases. The brain and heart tissues have high energy demands, reacting very sensitively to oxygen deficiency. This makes them most susceptible to re-perfusion injury, when oxidative stress triggers cell necrosis due to mitochondrial damage, resulting in irreversible functional and tissue injury.

Recent advances in research have shown that supplying highly functional mitochondria to injured tissues helps to stimulate cell activation and restore normal functions. LUCA Science is developing an innovative platform of highly functional mitochondrial agents using proprietary technologies. For the first time, mitochondria can be stored and delivered as a biopharmaceutical agent. LUCA have been able to demonstrate in vitro bioenergetics enhancement, tissue protection, and cellular functional improvement from the mitochondria therapy. In an in vivo rodent myocardial infarction model, LUCA Science's allogenic HUVEC mitochondria reduced the size of ischemic-reperfusion injury and provided significant therapeutic benefits for acute myocardial infarction

We are at the forefront of creating a new class of modality using mitochondria based on our proprietary technology. Our platform of mitochondria technology can improve cellular bioenergetics and restore normal functions. The use of mitochondria as a biopharmaceutical agent would be revolutionary for the treatment of many unmet medical needs.