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IIT-Kgp shows alterations in lung cell metabolism post COVID-19 infection

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The research would lead to a better understanding of metabolic reprogramming and aid the development of better therapeutics to deal with the viral pandemics



Researchers at IIT Kharagpur (Kgp) have, for the first time, reported a method to find an alteration in metabolic reaction rates inside lung cells when they are affected by virus/pathogens. As the method finds and reports critical aspects of physiology, which are affected by SARS-CoV-2 infection, it will enable the discovery of therapeutic targets.

Scientists have been trying to extract information from the human genome sequences for the past two decades to gather a better understanding of genetic disorders thus allowing us to penetrate deeper into the fabric of life and enable better therapeutics.

Using the power of genomics the researchers posed the operation of reactions as a set of mathematical equations and solved it to obtain which reactions are altered in the cells when SARS-CoV-2 infects a person.

Further, the researchers have identified pathways like fatty acid synthesis and lipid metabolism that can be targeted by novel drugs. This model is based on genome-scale differential flux analysis (GS-DFA) in context-specific metabolic models.

In the case of SARS-CoV-2 infection, the researchers predict that lipid metabolism particularly fatty acid oxidation, cholesterol biosynthesis and beta-oxidation cycle along with arachidonic acid metabolism to be most affected which was confirmed with clinical metabolomics studies.