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IIT-M develops computational approach for maintaining good health and addressing diseases

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A computational approach to understand inter-organ communication network in humans



The Indian Institute of Technology Madras (IIT-M) scientists at the Robert Bosch Centre for Data Science and Artificial Intelligence (RBC-DSAI) have developed a computational approach called ‘MultiCens’ to understand the interactions between genes that are responsible for inter-organ communication within the body.

Communication among cells in different tissues and organs is pivotal to multicellular life. Molecular basis of such communication has long been studied, but genome-wide screens for genes and other biomolecules mediating tissue-tissue signaling are lacking.

To systematically identify inter-tissue mediators, IIT-M researchers developed ‘MultiCens’ (Multilayer/Multi-tissue network Centrality measures). The exchange of information between organs and tissues of the body is critical for the proper functioning and survival of all living organisms.

This inter-organ communication network (ICN) allows organisms to adapt to changes in their environment, assess their energy reserves, and maintain overall well-being. This research represents a significant advance in the development of methods to understand inter-organ communication and its implications.

Dr Ramanathan Sethuraman, Healthcare Architect and Principal Engineer at Intel and co-author of this work explained, “Understanding the molecular pathway for disease manifestation and to identify the causal targets are of prime importance in any disease management. MultiCens is a step in this research direction.”