

Pathway segregation algorithm based on work culture and predefined work states distribution of metabolites

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Quantitative strategies can be employed for studying the connections between biochemical reactions via substrate and product metabolites creating complex metabolic networks. These strategies create some module like frameworks taking into consideration different aspects of metabolites such as structure, function and demonstrate the impact of metabolome biochemistry on the systemic properties of metabolism. Integration of these approaches, systematic classification of metabolite function and their role in metabolic networks enhances our understanding of the internal connectivity and architectural information of metabolic networks and improves our ability to predict the characteristics of metabolites whose roles are undefined. For analyzing the architectural and functional complexity of metabolic networks we propose a pathway segregation algorithm that segregates metabolic networks on the basis of the work culture distribution of metabolites. We propose that metabolites having certain specific structural features play important role in controlling the functioning of pathways. For analyzing the metabolites work states, we have used these structural parameters on the basis of which the function and role of a metabolite can be predicted. Moreover, we have also studied the ubiquitous nature of metabolites in appropriate manner in order to study the work states scenario based on their respective function such as, communication, transporter and food provider. Further, the proposed algorithm can be used to reduce the complexity of a metabolic network and categorize the metabolites involved in them based on their work states.

Biography

Somnath Tagore is an Assistant Professor at Department of Biotechnology and Bioinformatics, Padmashree Dr. D.Y. Patil University, Navi Mumbai. He has done M.Sc. and M.Tech. in Bioinformatics, M.Phil. in Biotechnology and currently in his advance stages of Ph.D. (Engg.) in areas of Computer Science and Engineering from Jadavpur University, India. His research interests are *In-silico* metabolic engineering, algorithms, graphs and optimization. He has 59 journal articles and 2 books to his credit. He is reviewer to 23 journals, some of which are Indian Journal of Biotechnology, Journal of Computational Biology and Bioinformatics Research, International Journal of Computer Science Issues, to name a few, and acted as an editor to 3 journals, namely, Current Drug Metabolism, etc.

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