Dissecting Hubs and Bottlenecks in a Protein-Protein Interaction Network

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Abstract

Nodes in a network are endowed with centrality measures such as degree and betweenness. Nodes with high degrees have been referred to as hubs and those with high betweenness as bottlenecks. Many studies have reported the importance of these centrally important nodes in networks including protein-protein interaction networks. A few of these studies had also reported existence of three categories of nodes in protein-protein interaction networks: a) hub-bottlenecks (nodes with high degree and betweenness, b) non-hub-bottlenecks (nodes with high betweenness and low degree) and c) hub-non-bottlenecks (nodes with high degree and low betweenness). However, it was not been clear whether these three categories of proteins form distinct sets from the stand point of their molecular features. We, therefore, undertook detailed analyses of proteins belonging to these categories identified from a human protein-protein interaction network and this talk essentially discusses the results obtained.