

عنوان مقاله:

Transfer Learning between Sars and Ebola Pathogen Systems for Virus-Host Protein-Protein Interaction Prediction

محل انتشار:

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خلاصه مقاله:

Pathogens infect host organisms by exploiting host cellular mechanisms and evading host defense mechanisms through molecular pathogen-host interactions (PHIs). Current PHI knowledge is limited due to the time-consuming and expensive experimental methods for validating PHIs. PHI prediction is worthwhile to enlighten the infection mechanisms, however PHI prediction confronted a serious challenge of data scarcity. This is due to data scarcity for most of pathogen systems. One of the approaches can be knowledge transfer between pathogen systems. This is reasonable since various pathogens are biologically related and they exploit common host features. We leverage such commonalities and propose a multi-pathogen version of our recent study for realizing this idea. Furthermore, the current study can predict interactions even for proteins which have no validated PHI. In other words, this extension solves the cold start problem for PHI prediction. Experiments show promising results towards considering individual pathogen systems.

کلمات کلیدی:

Pathogen-Host interaction prediction; Multi Task Learning; Transfer Learning

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