



Lars Juhl Jensen

University of Copenhagen

Talk title:

From intraspecies protein networks to host-pathogen networks



Sonja Aits

Lund University

Talk title:

Text mining for COVID-19 knowledge extraction

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Online via Zoom

Lars Juhl Jensen has since 2009 headed a research group at the Novo Nordisk Foundation Center for Protein Research, University of Copenhagen, which combines omics data analysis and biomedical text mining to derive molecular interaction networks. He has published more than 200 scientific publications that have in total received more than 30,000 citations.

Sonja Aits leads the "Cell Death, Lysosomes and Artificial Intelligence" research group at Lund University, which combines artificial intelligence and biomedicine to study cell death and lysosomes and their therapeutic targeting in neurological diseases, lysosomal storage disorders and cancer. Her lab uses bioimaging, computational biology, in vitro and in vivo models.

Abstracts



Lars Juhl Jensen

Talk title:

From intraspecies protein networks to host-pathogen networks

Networks are a powerful abstraction for modeling the interplay between the many proteins within a cell, which lends itself naturally to visualization. With the STRING database, we aim to integrate all known and predicted associations between proteins, including both physical interactions as well as functional associations. To achieve this, STRING collects and scores evidence from automated literature mining, manually annotated complexes/pathways, protein interaction experiments, co-expression, genomic context, and orthology-based transfer of interaction evidence. We have generalized these methodologies to also construct protein networks for how pathogens, both viruses and parasites, interact with their hosts. However, as these are much less studied, the resulting networks are dominated by interactions predicted based on orthology. To further build confidence in these predictions, and to infer potential physical interactions from functional associations, we filter the networks based on their localization at both the subcellular and tissue levels.

Sonja Aits

Talk title:

Text mining for COVID-19 knowledge extraction

During the COVID-19 pandemic access to up-to-date knowledge is important for researchers, drug developers, health care staff and public health decision makers. Unfortunately, the large number of texts that need to be read to extract this knowledge far exceeds the human capability. The problem is even larger because pieces of knowledge that make sense only when combined are scattered over millions of research articles and patient records. Automated text mining with neural networks and dictionary-based systems can address this problem at least in part by extracting and connecting some types of information and highlighting texts that are of high priority to specific reader groups. In this seminar, I will give an overview over our work on developing COVID-19-related text mining tools in English and Swedish and their applications to scientific literature, patient journals and other texts.