

FGCZ Seminar series

Join us at the Functional Genomics Center Zurich, and see how the group of Prof. Pedro Beltrao is testing the potential and limitations of recent progress in **deep learning methods using AlphaFold2** to predict structures for human interactions.

Prof. Dr. Pedro Beltrao

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ORCID



Towards a tissue specific and structurally resolved human interactome

Abstract:

“All cellular functions are governed by complex molecular machines that assemble through protein-protein interactions. Their tissue or cell type specificity and atomic details are critical to the study of their molecular and cellular mechanisms but fewer than 5% of hundreds of thousands of human interactions have been structurally characterized and their tissue specificity is essentially unknown. We are testing the potential and limitations of recent progress in deep-learning methods using AlphaFold2 to predict structures for human interactions. We show that higher confidence models are enriched in interactions supported by affinity or structure based methods and can be orthogonally confirmed by spatial constraints defined by cross-link data. In addition, we find examples of how the predicted binary complexes can be used to build larger assemblies. To study the tissue specificity we are using over 6500 datasets of protein abundance measurements to predict in which tissues protein interactions are more likely to occur. We can show that specifically protein co-variation is a strong predictor of protein interactions and can be used to build tissue specific protein interaction networks. These tissue specific networks can be used to link trait/disease associated genes to specific tissues and can serve as a resource for studying tissue specific differences in cell biology and disease.”

Date: Tuesday April 25th, 2023, 16:00-17:00

Location: Functional Genomics Center (FGCZ)
Winterthurerstrasse 190
CH-8057 Zürich, Seminar room Y59 G30, Y59 G floor
<https://fgcz.ch/>

Participation is free of charge. Please register by clicking the registration link or using the provided QR-code.

The seminar will be followed by an apero.

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Registration:

