

SESSION TITLE: Read Across: Case studies, New Techniques, and Guidelines for Practical Application

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Role: Presenter 3

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Presentation Title: A framework to build scientific confidence in read across results

Presentation Description: Read-across acceptance is remains a major hurdle primarily due to the lack of objectivity and clarity on how to practically address uncertainties. One avenue that can be exploited to build scientific confidence in the development and evaluation of read-across is by taking advantage of new *in vitro* bioactivity data streams which have the potential to provide mechanistic information. A read-across prediction could be formulated in the context of a local neighborhood that then is amenable to objective evaluation using a QSAR-like framework. In this talk, we present such a framework where the read-across prediction relies on a similarity weighted activity of nearest neighbors based on chemistry and bioactivity descriptors. We illustrate how this framework can be used to make predictions for untested chemicals and how the uncertainty of the prediction can be evaluated dynamically across the entire neighborhood for a number of different toxicity effects.