Group Members:

Hong Qian Zhao 300063965

Steven Sun 300067541

Paper Information:

TransCDR: a deep learning model for enhancing the generalizability of drug activity prediction through transfer learning and multimodal data fusion

Xia, X., Zhu, C., Zhong, F. & Liu, L. (2024). TransCDR: a deep learning model for enhancing the generalizability of drug activity prediction through transfer learning and multimodal data fusion. BMC Biology, 22(1), 227. https://doi.org/10.1186/s12915-024-02023-8

Rationale for Selection:

The TransCDR paper provides our team with the necessary code and data to comprehensively study and evaluate the paper experimentally. Most papers lack a transparent and well-documented codebase for successful reproduction. Therefore, we will deliver a presentation covering how the authors of the paper developed an open-source, neural network-based tool called TransCDR. Their machine learning model has demonstrated measurable success in generalizing data, and by integrating transfer learning, self-attention transformers, graph neural networks to predict the drug responses among cancer cell lines. We will analyze how the following bioinformatic keywords in the context of machine learning enabled them to synthesize their functioning product:

IC50, interactome networks, multi-head attention, correlations, deep learning, drug response, GDSC, gene expression.