

## Unsupervised-informed classification for TCR-peptide binding predictions

T-cell receptor binding with the pMHC peptide is a fundamental step to activate the killing machinery of the adaptive immune system against pathogens. However, limited data – due to the high specificity of T-cell receptors – make the task of binding prediction very challenging. Here we propose to use Large Language Models to sample new peptide-specific T-cell receptor sequences; by leveraging the transfer-learning ability of Large Language model, we are able to generate sequences compatible with natural ones and use them to improve the predictive power of deep classifiers.

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**Track Classification :** Physics of life