Docket #: S21-411

Computational Systems for Immune Receptor Analysis

This technology includes a set of machine learning methods designed to extract meaningful information from immune cell receptor protein sequences. The sequences are converted into latent embeddings using a protein language model, and the embeddings are used for classification tasks to identify patterns potentially indicative of specific health conditions. The technology incorporates approaches to analyze sequence similarities across datasets and to infer potential disease association labels for immune receptor sequences. The multi-modal framework integrates B cell and T cell receptor sequencing data into ensemble predictions of immune response status.

Stage of Development:
Proof of concept

This technology write-up includes information about Stanford Dockets:
21-411
24-030
24-031
From Inventors:
Professor Scott Boyd
Professor Anshul Kundaje
Professor Robert Tibshirani
Maxim Zaslavsky
Erin Craig
Jackson Michuda
Nidhi Sehgal

Applications

- Analysis of immune receptor collections drawn from biological samples
- Assessment of various immune responses and potential immune-mediated conditions

Advantages

- Provides computational framework for bulk receptor sequencing dataset analysis without labels associating individual receptors to health conditions
- Adaptable to different types of immune-related data analysis tasks

Patents

- Published Application: WO2023086999

Innovators

- Maxim Zaslavsky
- Scott Boyd
- Anshul Kundaje
- Robert Tibshirani

Licensing Contact

Imelda Oropeza

Senior Licensing Manager, Physcial Sciences

Email