



Peptide mutational scan for TCR activation

NLVPMV**L**TV

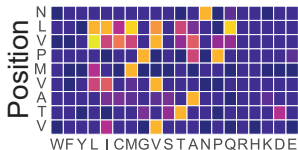
NLV**G**MVATV

Single-AA mutants

⋮

+

Peptide-specific TCR clone

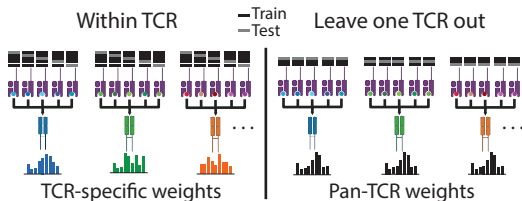


Substituted AA

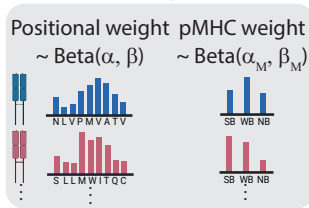
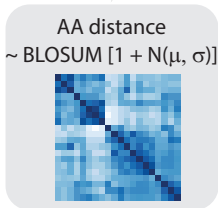
Normalized TCR activation



Hierarchical Bayesian model of BATMAN



Predicted TCR activation
~ AA distance X Positional weight + pMHC weight



Hyperparameters
 μ , σ , α , β , α_M , β_M

TCR activation database