# Chapter 1

# TraCeR

T lymphocytes recognize specific peptide-major histocompatibility complex (pMHC) combinations presented on the surface of antigen-presenting cells (APC). This highly specific recognition is mediated by the T cell receptor (TCR), an extremely diverse heterodimeric cell-surface protein comprising an $\alpha-$ and a $\beta-$chain encoded by gene produced by recombination of V(D)J loci during T cell development. The DNA sequence diversity of mouse TCR has been estimated as $5 \times 10^{21}$ different paired combinations.

# Acronyms

**APC** antigen-presenting cells. 1

**MHC** major histocompatibility complex. 1

**pMHC** peptide-major histocompatibility complex. 1

**TCR** T cell receptor. 1, 3

**TraCeR** a computational method to reconstruct full-length, paired TCR sequences from T lymphocyte single-cell RNA sequence data. 1