

CD1a-restricted T-cell receptor

A CD1a-restricted T-cell receptor discovery enabling novel immunotherapies, diagnostics, and immune monitoring approaches for cancer and inflammatory diseases.

Identification of CD1a-reactive T cell receptors, including a shared alpha chain sequence found across multiple donors. This discovery enables new approaches to detect, study, and therapeutically target CD1a-expressing cells in cancer and inflammatory diseases.

Applications: TCR-based immunotherapy, bispecific TCR therapeutics, cancer diagnostics, inflammation biomarkers, immune monitoring, CD1a-targeted drug development



Features	Benefits
Function confirmed by TCR transfer via CRISPR HDR into cells with CD1a-specific activation	Broad applicability across inflammatory skin and mucosal conditions and CD1a-expressing malignancies
Invariant CD1a-reactive TCR alpha chain across donors	Therapeutic potential: Enables TCR-T and bispecific therapies targeting CD1a, with a particular relevance to skin inflammation, as well as subsets of lymphoma and other CD1a-expressing cancers
Conserved core motif with defined CDR1/2 patterns useful for engineering	Diagnostic utility: Shared TCRs serve as biomarkers for CD1a-reactive T cells

Features	Benefits
Extensive functional validation of TCRs, including via transfer into recipient T cells	Research advancement: Faster lead discovery and optimisation using the shared motif and defined sequence templates
Novel robust isolation and expansion workflow using CD1a multimers, cytokine capture, single-cell cloning	High functional avidity and mechanism validated in transfer assays, de-risking translation
Sequence-resolved panel of alpha/beta TCRs with specified CDRs and V/J usage	

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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