CASE STUDY

Clonal and constricted T-cell repertoire in common variable immune deficiency (CVID)

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WHY IMMUNOSEQ?

The immunoSEQ Assay enables immune repertoire profiling of CVID patients to help elucidate the role of T cells in the disease.

ImmunoSEQ quantitates immune repertoire diversity and clonality to identify and characterize a CVID-associated T-cell defect.
BACKGROUND

- Common variable immune deficiency (CVID) is usually classified as a disease involving B-cell defects
- Other features of the disease such as autoimmune cytopenias, granulomatous and lymphocytic lung disease, enteropathy and lymphoid hyperplasia, all suggest defects within the T-cell compartment as well

AIM

- In previous studies, the authors have established that CVID patients have loss of CD4+ T cells, defective T-cell proliferation and reduced numbers of circulating naïve T cells
- Immunosequencing was applied to T-cells in CVID patients to investigate the role of T cells in this disease

METHODS

1. Peripheral blood samples obtained from 44 CVID subjects and 22 healthy controls
2. Peripheral blood mononuclear cells (PBMCs) isolated → gDNA extraction → immunoseq® T-cell receptor beta (TCRB) assay performed

RESULTS

CONCLUSIONS

- CVID patients have a restricted T-cell receptor (TCR) repertoire with fewer mutational changes
- CVID patients have increased clonality of their T cells as compared to healthy controls
- These data support an inherent defect in the T-cell compartment in CVID patients

WHY IMMUNOSEQ?

The immunoseq assay enables immune repertoire profiling of CVID patients to help elucidate the role of T cells in the disease

Immunoseq quantitates immune repertoire diversity and clonality to identify and characterize a CVID-associated T-cell defect


Increased clonality was observed in CVID patients

Fewer nucleotide deletions and insertions were observed in CVID patients

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