**Supplemental Data**

# Patients with *CD3G* mutations reveal a role for human CD3γ in $T_{reg}$ diversity and suppressive function

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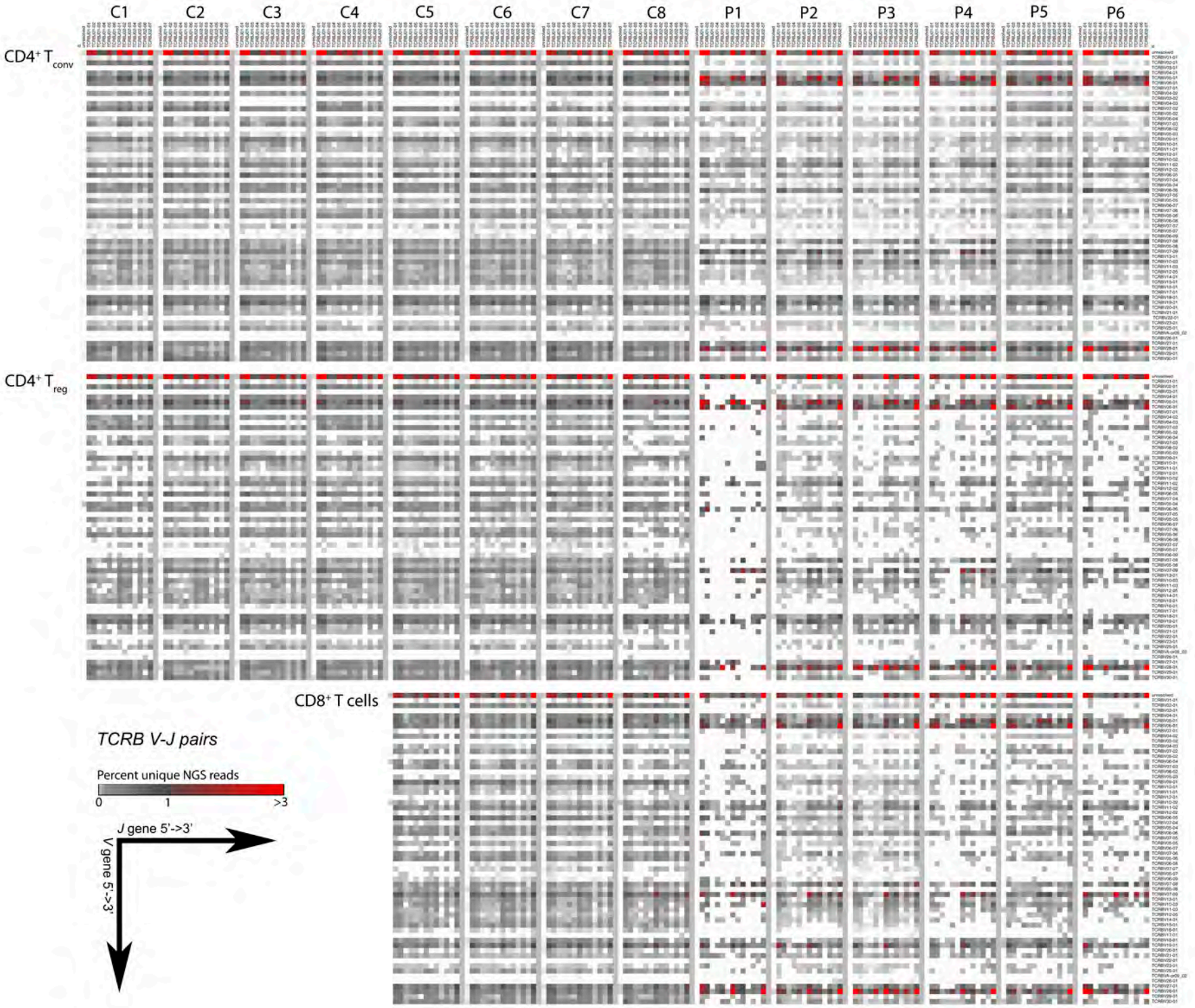
**Table S1 – Characteristics of autoimmunity in *CD3G*-mutated patients**

| Patient # | Autoimmune manifestation | Age at onset | Treatment | Age at the time of the study | Outcome | Current age (years) |
|---|---|---|---|---|---|---|
| P1 | Enteropathy<br>AIHA<br>GLILD | 15 months<br>21 months<br>21 months | Rituximab, sirolimus | 27 months | MUD-HSCT at 32 months, deceased at 47 months (GvHD, infections) | N/A |
| P2 | Subclinical hypothyroidism (positive TG and TPO Ab) | 11 years | none | 19 years | Actively followed, no treatment needed | 20 |
| P3 | Hypothyroidism | 5 years | Thyroid hormone replacement | 6 years | Still under hormone replacement therapy | 7 |
| P4 | Evans syndrome<br>Autoimmune hepatitis<br>Nephropathy<br>ALPS | 12 months<br>5 years<br>5 years<br>12 years | Steroids, cyclosporine A, high dose IVIG | 15 years | Multiple relapses of Evans syndrome, persistent hepatomegaly and splenomegaly | 18 |
| P5 | Hypothyroidism | 10 years | Thyroid hormone replacement | 23 years | Still under hormone replacement therapy | 24 |
| P6 | Vitiligo<br>Subclinical hypothyroidism (positive TG and TPO Ab) | 12 months<br>18 years | none | 34 years | Actively followed, no treatment needed | 36 |

Ab, antibody; AIHA, autoimmune hemolytic anemia; ALPS, autoimmune lymphoproliferative syndrome; GLILD, granulomatous lymphocytic interstitial lung disease; GvHD, graft versus host disease; IVIG, intravenous immunoglobulins; MUD-HSCT, hematopoietic stem cell transplantation from a matched unrelated donor; TG, thyroglobulin; TPO, thyroid peroxidase

N/A: not applicable

**Figure S1 - High throughput sequencing analysis of *TRB* repertoire in CD4$^+$ $T_{conv}$, CD4$^+$ $T_{reg}$, and CD8$^+$ T cell subsets.** Heat maps showing *Vβ* and *Jβ* pairing in unique *TRB* reads of CD4$^+$ $T_{conv}$ (top), CD4$^+$ $T_{reg}$ (middle) or CD8$^+$ T cells (bottom) from all controls and all *CD3G*-mutated patients included in the study.



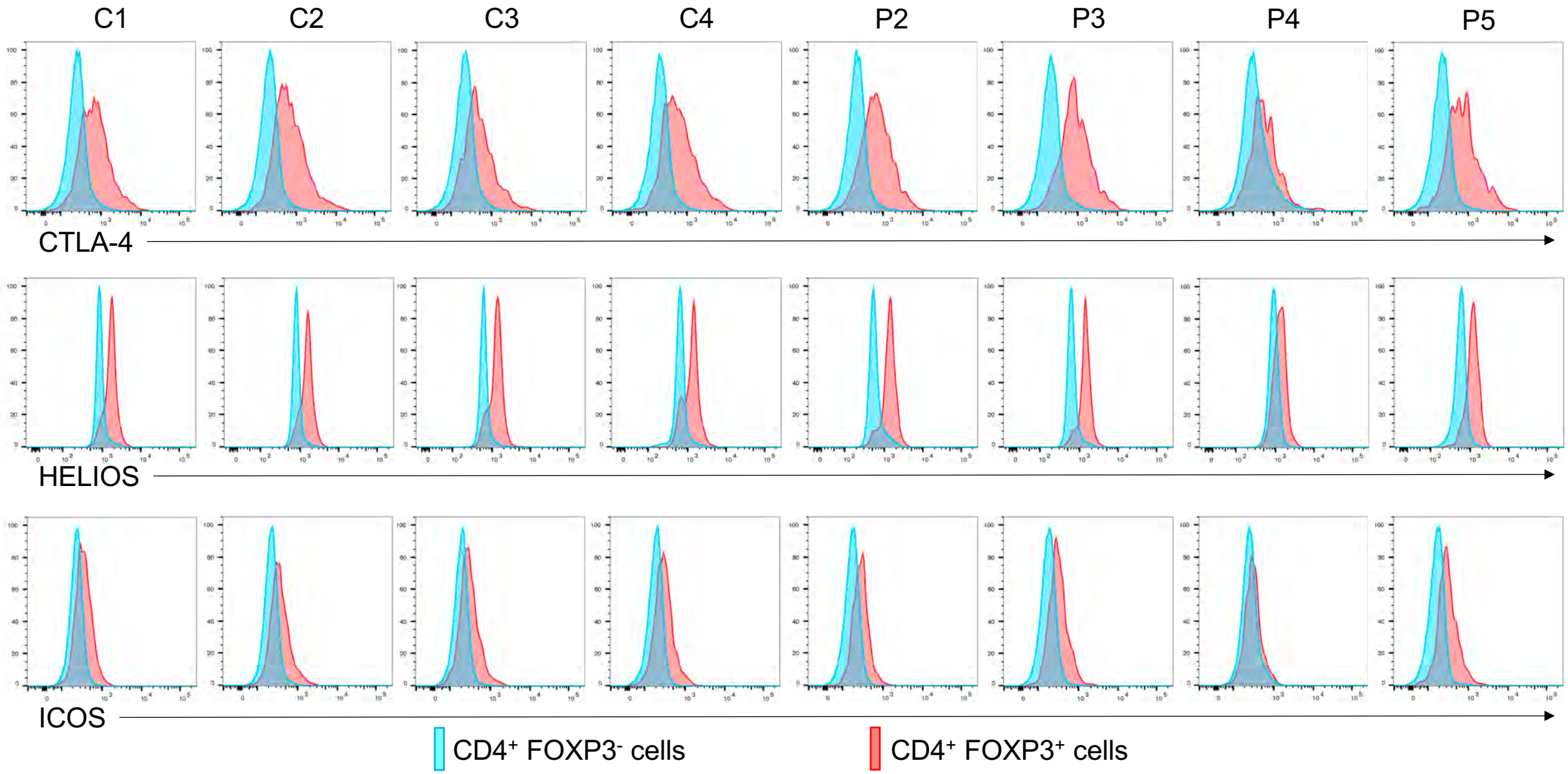



**Figure S2 – Overlay of expression of CTLA-4, HELIOS, and ICOS on $CD4^+$ $FOXP3^-$ T conventional ($T_{conv}$) cells (blue) and $CD4^+$ $FOXP3^+$ regulatory T ($T_{reg}$) cells (red) from controls (C1-C4) and patients (P2-P5).** Results demonstrate that $T_{reg}$ cells from both controls and patients show increased expression of CTLA-4, HELIOS, and ICOS as compared to $T_{conv}$ cells.