## pSTAT5 in T cells $\mathsf{IFN}\alpha$ Unstim IL-6 IL-21 IL-2 Patient (stim) Total Normalized To Mode Patient (unstim) Mother **Father** Comp-APC-A: pSTAT5 Comp-APC-A = pSTATS Comp-APC-A: pSTAT5 Naïve malized To Mode Memory

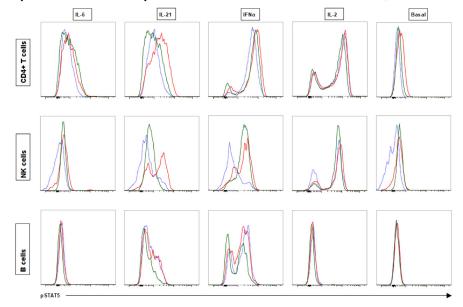
**FIGURE E1.** STAT5 phosphorylation in patient A's basal and stimulated T cells compared with a healthy control. In the presence of IL-21 and IFN- $\alpha$ , patient A's T cells had significantly increased phosphorylated STAT5 levels compared with the healthy control. Baseline STAT5B phosphorylation was not increased in the patient compared with healthy controls. *stim*, Stimulated; *unstim*, unstimulated.

Comp-APC-A :: pSTATS

Comp-APC-A = pSTAT5

pSTAT1 ——

## pSTAT5 responses in CD4-T cells, B and NK cells



Blue: Healthy control
Red: Patient B - ruxolitinib
Greens: Patient B + ruxolitinib

FIGURE E2. STAT5 phosphorylation in patient B's basal and stimulated cells compared with a healthy control. In the presence of IL-21, patient B's cells had increased phosphorylated STAT5 levels compared with the healthy control. Baseline STAT5B phosphorylation was not increased in the patient compared with healthy controls. Levels of phosphorylated STAT5 in the presence of IL-21 are significantly decreased when the patient is on treatment with ruxolitinib. NK, Natural killer.