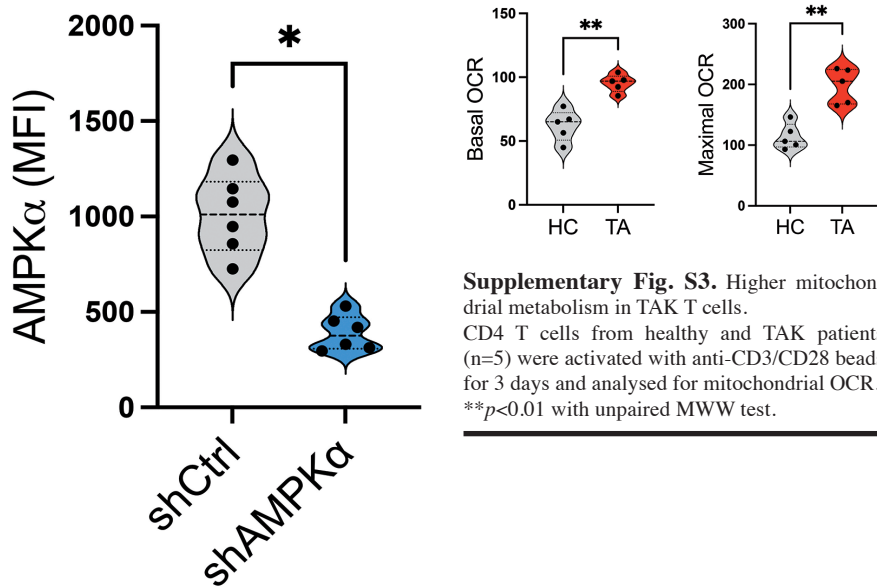
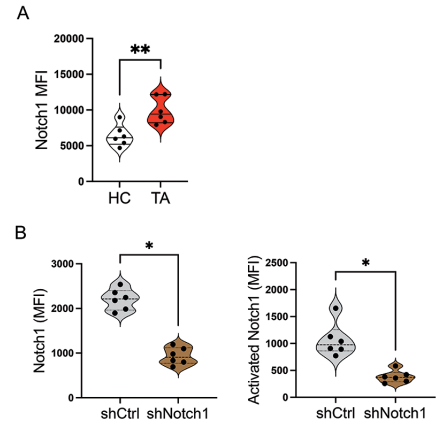


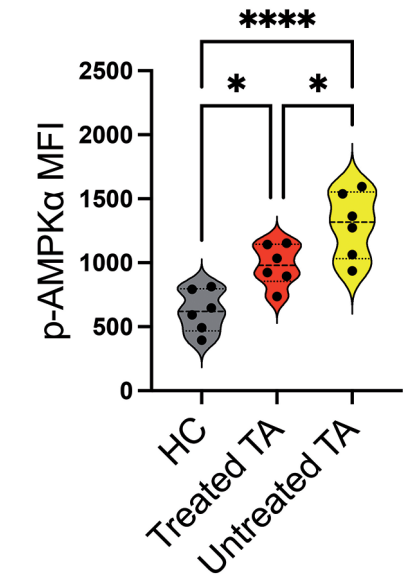
Supplementary Fig. S1. AMPK hyperactivity in TAK T cells upon stimulation. (A) CD4 T cells from healthy and TAK patients were activated with anti-CD3/CD28 beads for 3 days and analysed for phosphor-AMPK using Phosflow cytometry. Representative from 6 healthy-TAK pairs. (B) CD4 T cells from healthy and SLE patients (n=5) were activated with anti-CD3/CD28 beads for 3 days and analysed for intracellular phosphor-AMPK. (C) CD8 T cells from healthy and TAK patients (n=5) were activated with anti-CD3/CD28 beads for 3 days and analysed for intracellular phosphor-AMPK. (D) CD4 T cells from healthy and TAK patients were activated with anti-CD3/CD28 beads for 6 days and analysed for survival by detecting Annexin-V⁺7-AAD⁺ fractions. Representative from 6 healthy-TAK pairs. (E) Unstimulated CD4 T cells from healthy and TAK patients (n=5) were analysed for p-AMPK and survival using flow cytometry. Unpaired MWW test, ***p*<0.01.



Supplementary Fig. S2. Knockdown efficiency of AMPKα in T cells. CD4 T cells from TAK patients (n=6) were transfected with AMPKα shRNA or the control, and activated with anti-CD3/CD28 beads for 24 hrs. **p*<0.05 with paired MWW test.



Supplementary Fig. S4. Genetic knockdown of Notch1 in TAK T cells. (A) CD4 T cells from healthy and TAK patients (n=6) were stimulated with anti-CD3/CD28 beads for 3 days and analysed for Notch1 expression using flow cytometry. (B) CD4 T cells from TAK patients (n=6) were transfected with Notch1 shRNA or the control, and activated with anti-CD3/CD28 beads for 24 hrs. Unpaired (A) and paired (B) MWW test. **p*< 0.05, ***p*<0.01.



Supplementary Fig. S5. AMPK hyperactivity in T cell from patients ± treatments. CD4 T cells from healthy individuals and TAK patients ± treatments were activated with anti-CD3/CD28 beads for 3 days and analysed for intracellular phosphor-AMPK. ANOVA with Turkey method from 6 individuals in each group, **p*<0.05, *****p*<0.0001.