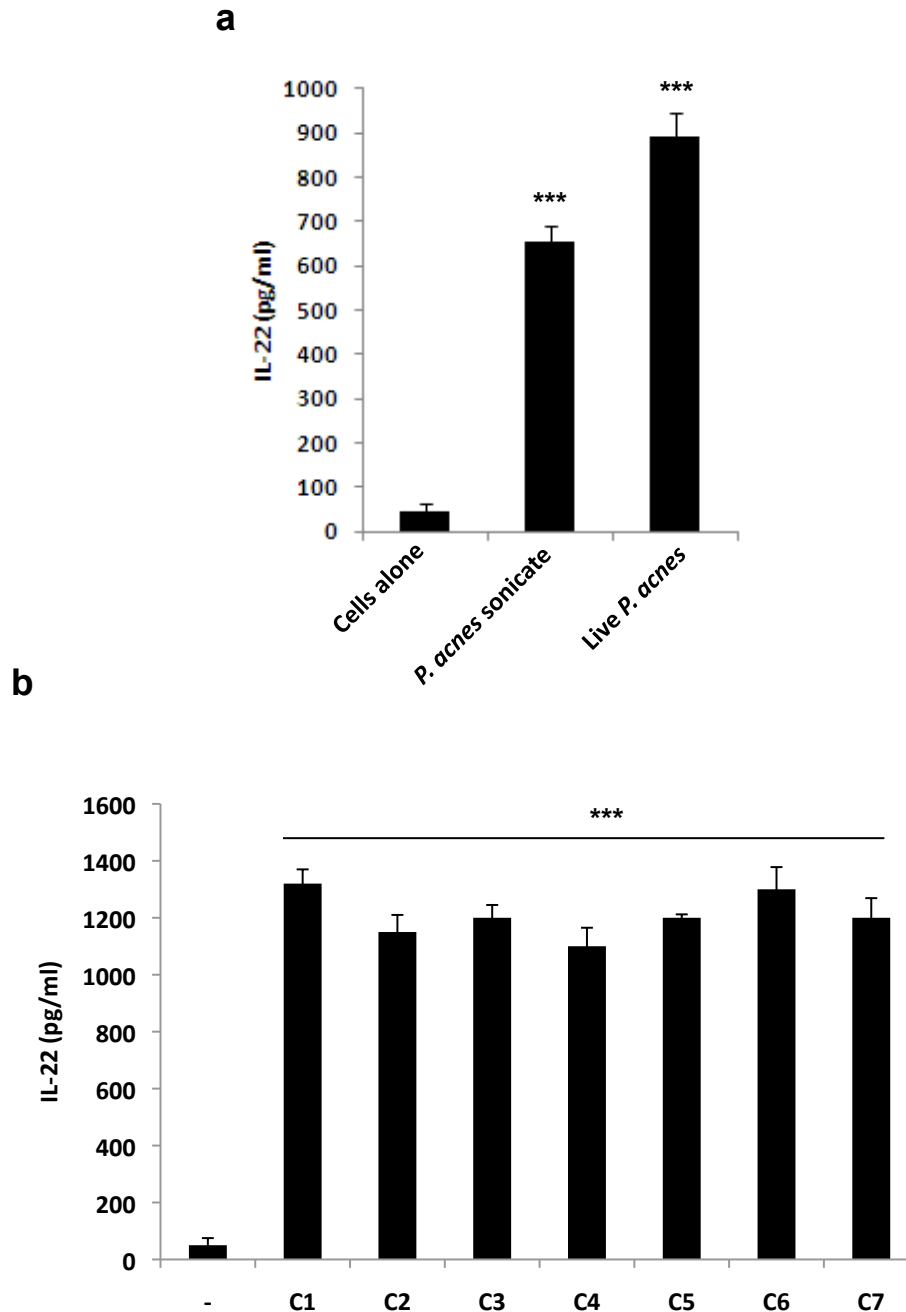
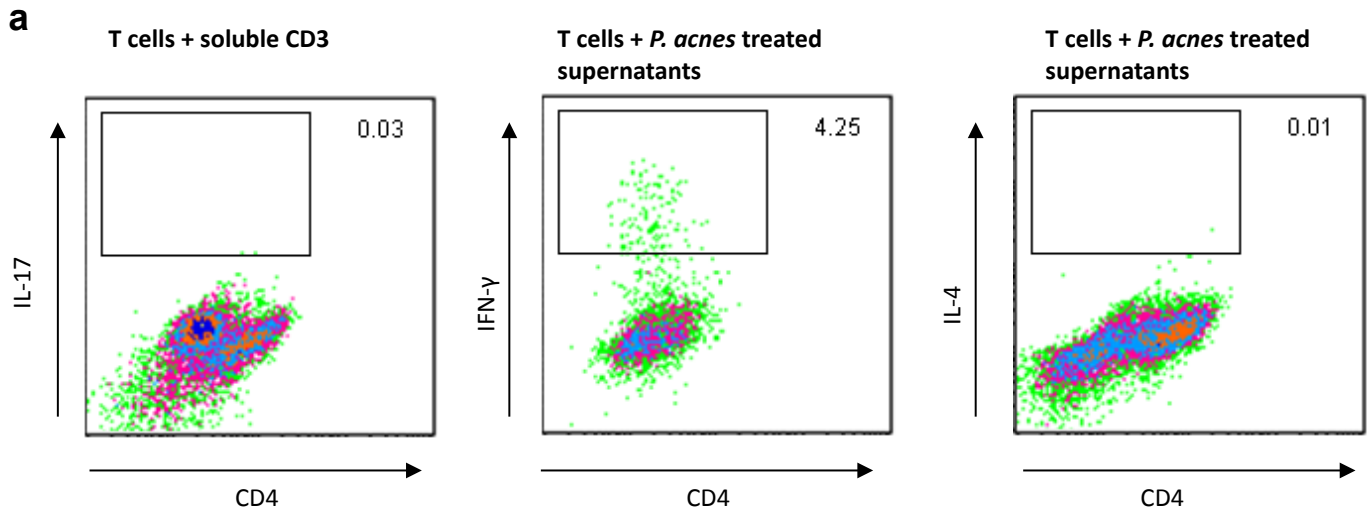


Gene symbol	Forward primer sequence	Reverse primer sequence	GenBank Accession number
GAPDH	TGCACCACCAACTGCTTAGC	GGCATGGACTGTGGTCATGAG	NM_001256799
IL17A	ACCAATCCCAAAGGTCCTC	GGGGACAGAGTTCATGTGGT	NM_002190
IL17RA	CAGCGGTCTGGTTATCGTCT	AAATGCCCGCCACATAGTAG	NM_014339
RORA	GCCTTTGACTCTCAGAACAACACCG	TCTTTCAAATTCAAACACAAAGC	NM_134261
RORC	TTTTCCGAGGATGAGATTGC	CTTTCCACATGCTGGCTACA	NM_005060
IL17RC	GCCCCATGGACAAATACATC	CCTGTTTCAAGAGCCTCAGC	NM_153461

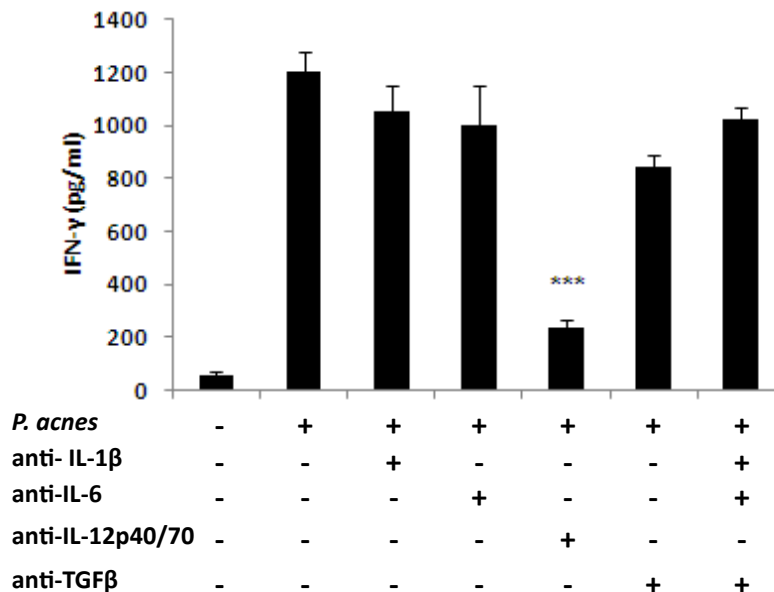
Supplementary Table S1. **Primers used in the study.**



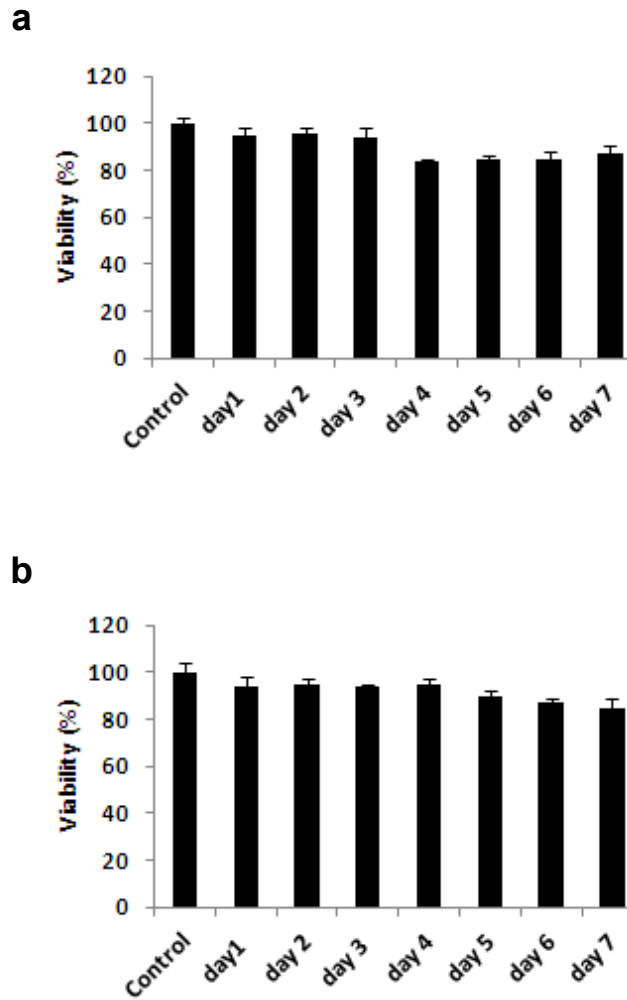
Supplementary Fig. 1. ***P. acnes* lab strain and clinical isolates stimulate production of IL-22 in human PBMCs.** **a)** PBMCs were cultured ($2-5 \times 10^6/\text{ml}$) in the presence of *P. acnes* sonicate ($2 \mu\text{g}/\text{ml}$), and live *P. acnes* (0.5 multiplicity of infection) for seven days. **b)** PBMCs ($2-5 \times 10^6/\text{ml}$) were cultured either in the presence or absence of seven *P. acnes* clinical isolates (C1-C7). Levels of IL-22 accumulated in culture supernatants were measured using ELISA. Experiments were performed at least five times using PBMCs from five different donors with similar results. (***) $p \leq 0.001$



b



Supplementary Fig. 2. **Supernatants from PBMCs treated with *P. acnes* differentiate naïve CD4⁺T cells to IFN- γ producing T cells.** **a)** PBMCs ($2-5 \times 10^6$ /ml) were stimulated overnight with *P. acnes* sonicate (2 μ g/ml). Culture supernatants were then collected and used to stimulate naïve CD4⁺CD45RA T cells for seven days in 96 well plates. Cells were harvested and intracellular cytokine staining for IL-17, IFN- γ and IL-4 was performed. Soluble CD3 was used as a control in the first panel, Each panel is representative of three independent experiments. **b)** PBMCs ($2-5 \times 10^6$ /ml) were cultured with IL-1 β , IL-6, IL-12p40/p70 and TGF- β neutralizing antibodies for one hour followed by seven days of stimulation with *P. acnes*. IFN- γ production was then measured using ELISA. Data are representative of four independent experiments. Data represent mean \pm SD (***) $p \leq 0.001$)



Supplementary Fig. 3. **Effects of 1,25D3, 25D3 and ATRA on cell viability.** Human PBMCs were stimulated with *P. acnes* sonicate (2 $\mu\text{g/ml}$) in the presence of **(a)** 1, 25D3 (10^{-7} M) and **(b)** ATRA (10^{-7} M). Cell viability was measured for 7 days in an MTT ((3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide) assay. Each panel is representative of three independent donors.