## **Supplementary Materials** a) MBPP1 MBPP1 CPI CPI CPI $(0.5 \mu M)$ $(1 \mu M)$ $(0.5 \mu M)$ (1 µM) $(1 \mu M)$ Control 35% 23% 6% 37% 38% **IL17** 3% 8% 9% 3% 4% 3% Foxp3 125 ITKas % Foxp3<sup>+</sup> Treg like cells Cf. control 250 \*\* 100-200 ITKas % IL17<sup>+</sup> Cf. control 50 100 25 50 Con 0.5 0.5 1 Con 0.5 0.5 MBPP1(μM) CPI(μM) MBPP1(μM) CPI(μM) a) CPI MBPP1 CPI CPI MBPP1 $(0.5 \mu M)$ (1 µM) (2 µM) $(0.5 \mu M)$ $(1 \mu M)$ Control 23% 8% 21% IL17 3% 18% 18% 4% 12% 4% Foxp3 \*\*\* Foxp3<sup>+</sup> Treg like cells Cf. control 125-400 350 100-300 WT ITK %IL17<sup>+</sup> Cf. control 250 200 50 WT ITK % 100 25 50 Con 0.5 2 0.5 Con 0.5 0.5 1 2 CPI(μM) MBPP1(μM) CPI(μM) MBPP1(μM)

**Fig. S1.** The effects of MBPP1 and CPI-818 on Th17 cells is specific. (a) Naïve ITK*as* IL17A-GFP/Foxp3-RFP CD4<sup>+</sup> T cells were activated under Th17 differentiation conditions (anti-CD3/28, IL6 and TGFβ) in presence of ITK*as* inhibitor 2MBPP1, CPI-818, or DMSO control as indicated, followed by flow cytometric analysis for percentage of GFP<sup>+</sup>/IL17<sup>+</sup> cells and RFP<sup>+</sup>/Foxp3<sup>+</sup> Treglike cells. (b) Naïve WT IL17A-GFP/Foxp3-RFP CD4<sup>+</sup> T cells were activated under Th17 differentiation conditions in presence of ITK*as* inhibitor 2MBPP1, CPI-818, or DMSO control as indicated, followed by flow cytometric analysis for percentage of GFP<sup>+</sup>/IL17<sup>+</sup> cells and

RFP<sup>+</sup>/Foxp3<sup>+</sup> Treg-like cells. Mean  $\pm$  SEM, Student's T test was performed for statistical significance where \* p  $\leq$  0.05, \*\* p  $\leq$  0.005, 3 independent experiments.