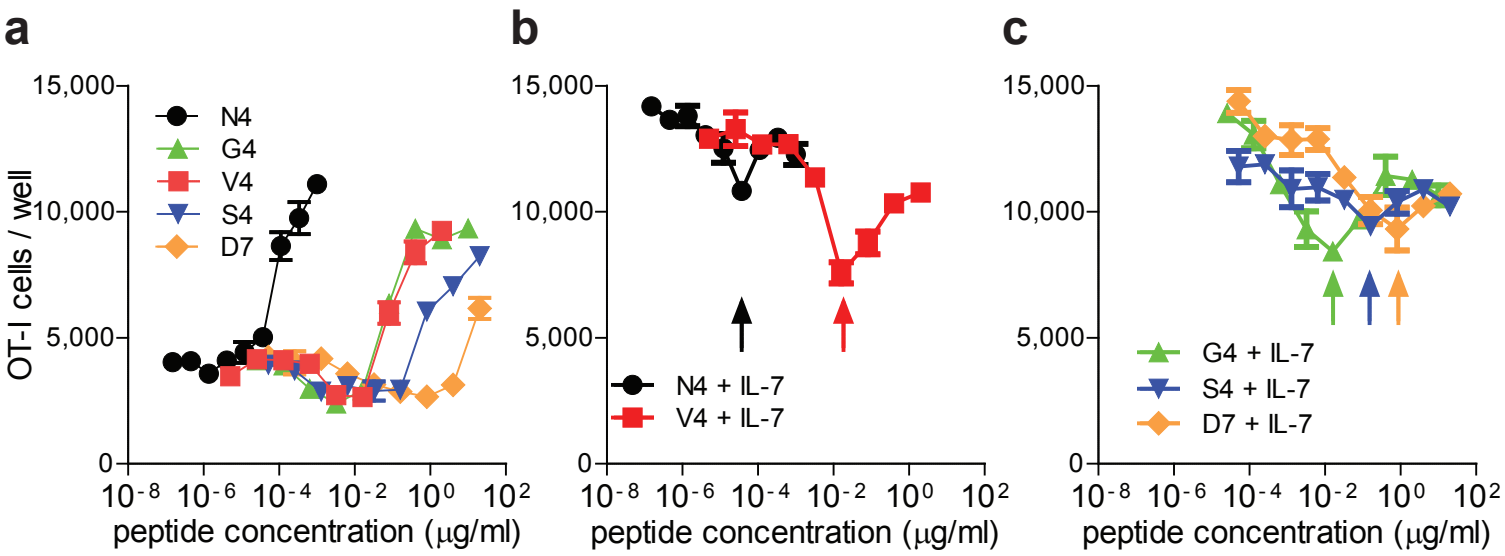
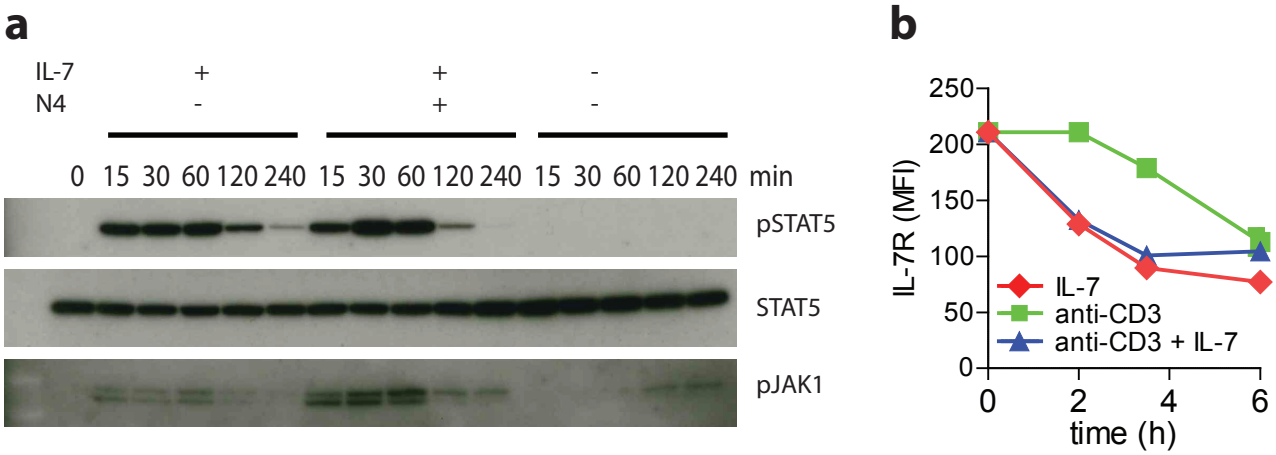
Supplementary Figure S1



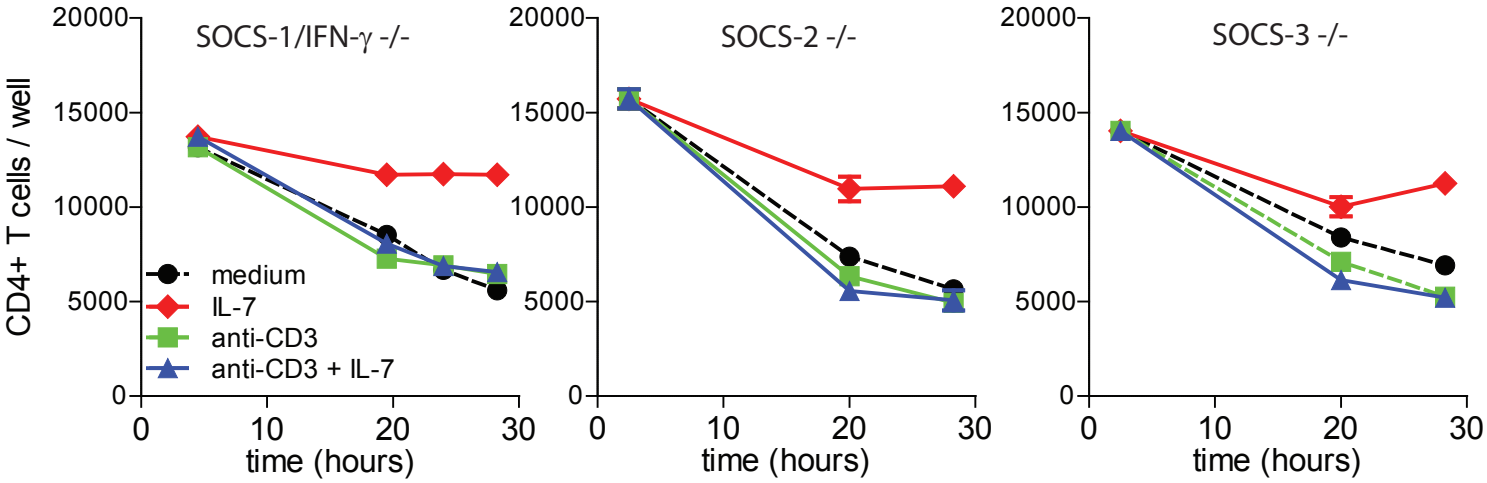
Supplementary Figure S1: Different affinity peptides reveal a relationship between stimulation strength and the switch in survival program. Total viable OT-I $CD8^+$ T cells per well were measured 20 h after stimulation with peptide variants N4, V4, G4, S4, D7 (amino acid replacement at position four or seven of the wild type peptide SIINFEKL (N4)) at increasing concentrations in **(a)** medium or **(b, c)** with 1 ng/mL IL-7. Arrows indicate loss of survival in lower range of peptide efficacy. Data are presented as means ± s.e.m. of triplicate cultures.

Supplementary Figure S2



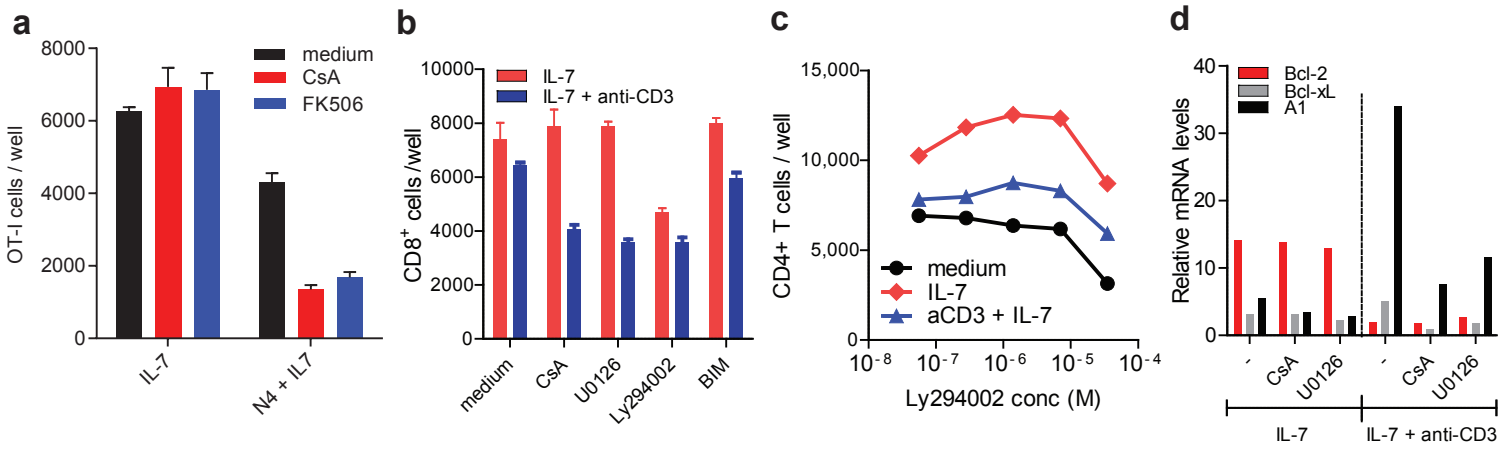
Supplementary Figure S2: TCR ligation inhibits phosporylation of STAT5 but not Jak1 or IL-7R expression. (a) Western blot analysis of total STAT5 protein and phosphorylation of Tyr694/699 STAT5 and of Tyr1022/1023 Jak1 in OT-1 $CD8^+$ T cell cultured for the indicated times in medium alone, with 10ng/mL IL-7 or with 10ng/mL IL-7 and 0.01µg/mL SIINFEKL peptide (N4). **(b)** Time course of IL-7R expression in purified CD4+ T cells from C57BL/6 mice after culture in 1ng/mL IL-7 or stimulation with plate bound anti-CD3 expressed as mean fluorescence intensity. Data are presented as means ± s.e.m. of triplicate cultures.

Supplementary Figure S3



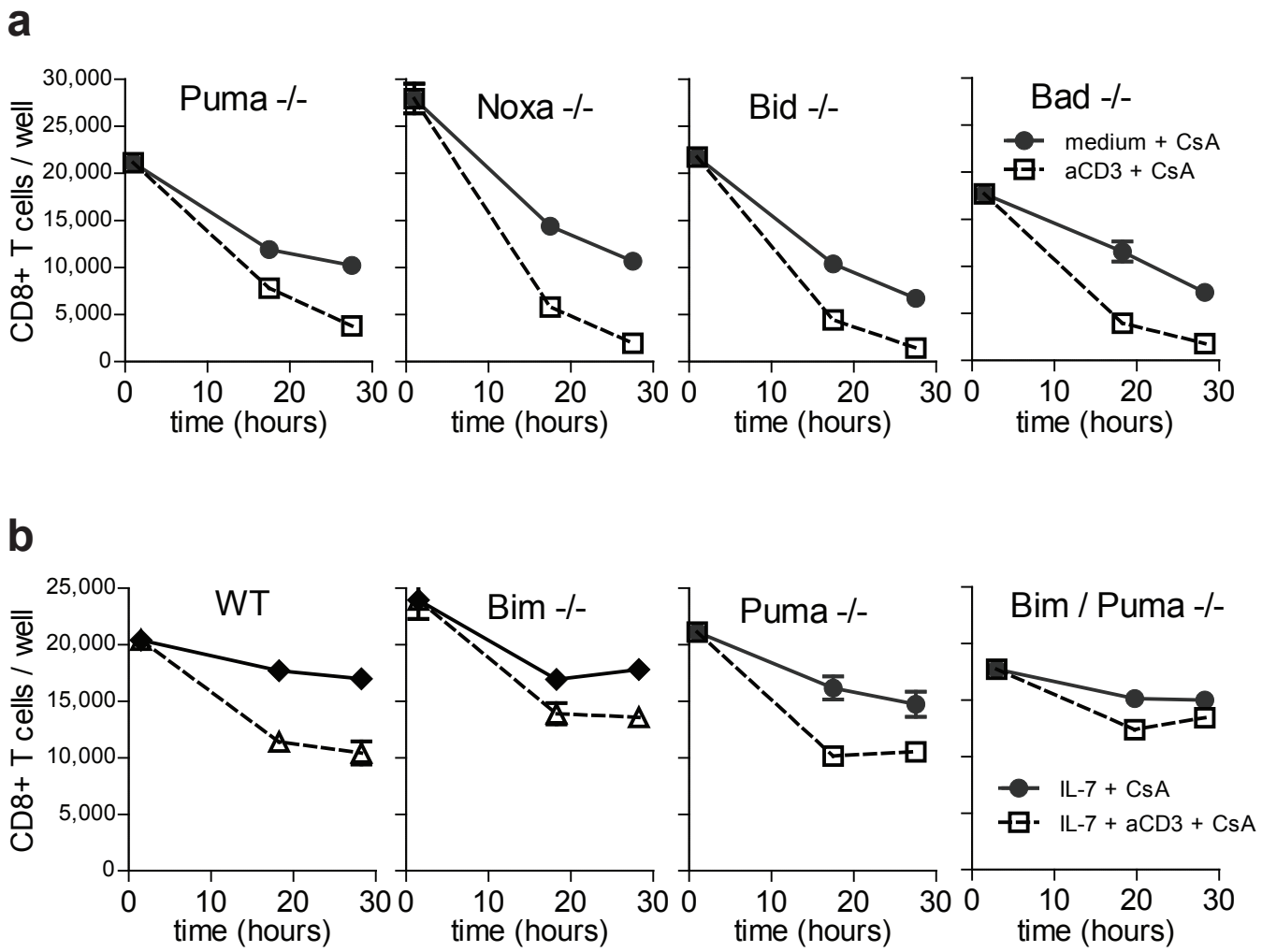
Supplementary Figure S3: Deficiency in SOCS proteins does not prevent inhibition of IL-7 mediated survival through TCR stimulation. Effect of loss of SOCS proteins on cell survival of $CD4^+$ T cells after TCR ligation. $CD4^+$ T cells from C57BL/6-SOCS-1/IFNγ, -SOCS-2 or -SOCS-3 knock out mice were cultured in medium or on CD3 antibody coated plates with or without 1ng/mL IL-7. Total viable cells were measured at indicated time points. Data are presented as means ± s.e.m. of triplicate cultures.

Supplementary Figure S4



Supplementary Figure S4: Effect of inhibitors of calcineurin, PKC, PI3K or MEK1/2 on T cell survival before division. (a) $CD8^+$ T cells from OT-I TCR tg mice were cultured for 20h with 10ng/mL IL-7 and without or without 0.1µg/mL N4 peptide. Calcinuerin inhibitors CsA (1µg/mL) or FK506 (10ng/mL) were added at the start of the culture. Data are presented as means ± s.e.m. of triplicate cultures. **(b)** $CD8^+$ T cells from C57BL/6 mice were cultured with 1ng/mL IL-7 without TCR ligation or on CD3 antibody coated plates in the presence of inhibitors of calcineurin (CsA, 0.5 µg/mL), MEK1/2 (U0126, 10 µM), PI3K (Ly294002, 50 µM) or PKC (Bisindolylmaleimide, (BIM) 0.1 µM)**.** Total viable cells were measured at 18 h of culture. Data are presented as means ± s.e.m. of triplicate cultures. **(c)** Effect of PI3K inhibitor Ly294002 on survival of T cells. $CD4^+$ T cells from C57BL/6 mice were cultured with 1ng/mL IL-7 without TCR ligation or on CD3 antibody coated plates in the presence of Ly294002 at increasing concentrations (56nM to 32µM). Total viable cells were measured at 28 h of culture. Data are presented as means ± s.e.m. of triplicate cultures. **(d)** Relative expression levels of *bcl-2, A1* and *bcl-xL* mRNA in $CD8^+$ T cells measured by qPCR. $CD8^+$ T cells from C57BL/6 mice were cultured for 6 h with 10ng/mL IL-7 without TCR ligation or on CD3 antibody coated plates in the presence or absence of CsA (2 µg/mL) or U0126 (25µM). Data are expressed as expression relative to freshly isolated uncultured cells.

Supplementary Figure S5



Supplementary Figure S5: **Effect of loss of pro-apoptotic Bcl-2 proteins Puma, Noxa, Bid, Bad or Bim on the survival of T cells after TCR ligation.** (a) CD8+ T cells from C57BL/6-Puma-/-, Noxa-/-, Bid-/- or Bad-/- mice were cultured in medium or on CD3 antibody coated plates in the presence of 1µg/mL CsA. Total viable cell were measured at indicated time points. (b) CD8+ T cells from C57BL/6-WT Bim-/-, Puma-/-, or Bim/Puma-/- mice were cultured in medium with 1ng/mL IL-7 without TCR ligation or on CD3 antibody coated plates in the presence of 1µg/mL CsA. Total viable cell were measured at indicated time points. (a,b) Data are presented as means ± s.e.m. of triplicate cultures.

Supplementary Table S1: Recovery of OT-I $CD8^+$ T cells expressed as percentage of recovery form saline treated non immunised mice.

	saline	**FK506**	**N4**	**N4 + FK506**
Exp 1 12 h	100	106.0	22.7	9.0
Exp 1 17 h	100	69.6	18.2	6.5
Exp 2 19 h	100	90.1	12.4	4.1

CTV labelled OT-I $CD8^+$ T cells were adoptively transferred into wild type C57BL/6 mice. A day later FK506 treated groups began a course of 2.5 mg/kg FK506 every 6 h. Peptide stimulated groups received 10 µg N4 1 h **(Exp 1)** or 2 h (**Exp 2**) after FK506 treatments had begun. OT-I cell were identified as $CD8^+$, $LY5.2^+$, $V\alpha2^+$, CTV^+.

Supplementary Table S2: Recovery of OT-I $CD8^+$ T cells expressed as percent of OT-I $CD8^+$ T cells to total $CD8^+$ $V\alpha2^+$ population.

	saline	**FK506**	**N4**	**N4 + FK506**
Exp 1 12 h	2.4	3.1	0.5	0.1
Exp 1 17 h	3.5	3.6	0.8	0.3
Exp 2 19 h	5.1	4.6	0.5	0.2

CTV labelled OT-I $CD8^+$ T cells were adoptively transferred into wild type C57BL/6 mice. A day later FK506 treated groups began a course of 2.5 mg/kg FK506 every 6 h. Peptide stimulated groups received 10 µg N4 1 h **(Exp 1)** or 2 h (**Exp 2**) after FK506 treatments had begun. OT-I cell were identified as $CD8^+$, $LY5.2^+$, $V\alpha2^+$, CTV^+.