Rapamycin is an effective therapy in mouse models of immune-mediated bone marrow failure, acting by specific expansion of regulatory T cells and elimination of clonogenic CD8+ effectors.

Mouse models of immune-mediated bone marrow failure

Cyclosporine A
intraperitoneal once daily for 5-10 days
50 mg/kg

- ↑ cytoplasmic nuclear factor of activated T-cells-1 following T cell receptor stimulation

Rapamycin
intraperitoneal once daily for 5-13 days
2 mg/kg

- ↓ proportion of memory and effector T cells
- maintained a pool of naïve T cells
  - ↓ Th1 inflammatory cytokines IFN-γ & TNF-α
  - ↑ Th2 cytokine IL-10
  - ↑ expansion of functional regulatory T cells
  - ↓ effector CD8+ T cells
- suppressed phosphorylation of S6 kinase and protein kinase B

Feng et al., Haematologica, 2017