

Investigators:

Kerstin Theil and Peter Aichele

Type I interferons are hormone-like molecules that are produced early after viral and bacterial infections. They signal via the type I interferon receptor (IFNAR) and have pleiotropic effects on different cells of the immune system. Their best known function is the antiviral activity. To test the direct effect of type I interferons on CD8 T cells in vivo we adoptively transferred LCMV glycoprotein specific TCR transgenic P14 CD8 T cells that are deficient in type I interferon receptor (IFNAR^{-/-}) into wild-type B6-recipient mice and compared their expansion with wild-type (wt) P14 T cells after viral infection. We could demonstrate a severe impairment in the capacity of P14 T cells lacking type I IFNR (IFNAR^{-/-}) to expand after LCMV infection. Following infection of recipient mice with recombinant vaccinia virus, recombinant VSV (vesicular stomatitis virus) or recombinant listeria monocytogenes expressing LCMV glycoprotein, P14 T cells expansion was considerably less dependent on type I IFNR expression. Therefore direct type I IFN signalling is essential for CD8 T cell expansion and survival only after LCMV infection.

References:

Aichele P., Unsoeld H., Koschella M., Schweier O., Kalinke U., Vucikujia S. (2006) Cutting edge: CD8 T cells specific for lymphocytic choriomeningitis virus require type I IFN receptor for clonal expansion. *J Immunol.* 176, 4525-4529.