**Supplementary material**

**Supplementary Figure 1:**

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**Supplementary Figure 1: Evaluation of T-cell frequencies and phenotypes after naïve T-cell depletion following *in vitro* stimulation.**

CD3+ T-cells were isolated from PBMCs of six healthy blood donors followed by TN-depletion using CD45RA and CD62L microbeads. The CD45RA\_NF/PF and CD62L\_NF/PF fractions were co-culutred at a density of 5 x 105 with 5 x 104 antigen-loaded target cells (loaded with 1 μg per peptide /ml ppEBV\_EBNA1, ppEBV\_Consensus, or ppAdV\_Hexon) in the presence 50 U/ml IL-2, 10 ng/ml IL-7 and 10 ng/ml IL-15. Immunophenotypic analysis was performed by flow cytometry after 7 days of stimulation. **(A)** T-cell phenotypes among CD3+ T-cell fraction were described as: naïve (TN: CD45RA+CD62L+), central memory (TCM: CD45RA−CD62L+), effector memory (TEM: CD45RA−CD62L−), and late effector memory T cells re-expressing CD45RA (TEMRA: CD45RA+CD62L−). The isolated fractions consisted mainly of CD45RA\_PF (TN and TEMRA) and CD45RA\_NF (TCM and TEM) as well as CD62L\_PF (TN and TCM) and CD62L\_NF (TEMRA and TEM). Data represent the means of six donors. Memory/negative fractions: CD45RA\_NF and CD62L\_NF, naïve/positive fractions: CD45RA\_PF and CD62L\_PF. **(B)** CD4+/CD8+ T-cell ratio following stimulation with the different antigens within the different T-cell fractions. T-cell fractions cultured alone in the presence of IL-2, IL-7 and IL-15 served as control. Data are expressed as means of six donors and were calculated by subtracting the observed values from the effector cells co-cultured with unloaded target cells alone (negative control). Memory/negative fractions: CD45RA\_NF and CD62L\_NF, naïve/positive fractions: CD45RA\_PF and CD62L\_PF; pp – peptide pool.

**Supplementary Figure 2:**

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**Supplementary Figure 2: Evaluation of T-cell frequencies and phenotypes after naïve T-cell depletion following mixed lymphocyte reaction culture (MLR).**

CD3+ T-cells were isolated from PBMCs of six healthy blood donors followed by TN-depletion using CD45RA and CD62L microbeads. Effector cells (CD45RA\_NF/PF and CD62L\_NF/PF) were labelled with carboxyfluorescein succinimidyl ester (CFSE, 4 µM). 1 x 105 CFSE-labelled T cells (responder) were co-cultured with irradiated (1x 30 Gy) autologous or pooled PBMCs (stimulator, from 3-5 donors) at an E:T ratio of 1:1 supplemented with IL-2, IL-7 and IL-15. As negative controls, target or effector cells were cultured in the presence of IL-2, IL-7 and IL-15 alone, while T-cell fractions co-cultured with anti-CD3/CD28 beads served as positive control. T-cell phenotypes were described as: naïve (TN: CD45RA+CD62L+), central memory (TCM: CD45RA−CD62L+), effector memory (TEM: CD45RA−CD62L−), and late effector memory T cells re-expressing CD45RA (TEMRA: CD45RA+CD62L−) among **(A)** CD3+, **(B)** CD4+, and **(C)** CD8+ T cells respectively. **(D)** CD4+/CD8+ T-cell ratio after T-cell-mediated alloreactivity in MLR assay within the different T-cell fractions. Data represent the means of six donors. Memory/negative fractions: CD45RA\_NF and CD62L\_NF, naïve/positive fractions: CD45RA\_PF and CD62L\_PF.