**Projekttitel:** **Protective and pathogenic memory after immune reset with immunoablation and autologous stem cell transplantation for systemic autoimmune diseases**

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**Hintergrund:** Our previous studies provided the "proof-of-concept" that depletion of the autoreactive immunologic memory, achieved by immunoablation followed by transplantation of hematopoietic stem cells, i.e. immune reset, is a prerequisite for curative therapeutic concepts in systemic autoimmune diseases (ADs), such as systemic lupus erythematosus (SLE) (Alexander et al. 2009). While both memory PCs and Th-cells are depleted from peripheral blood and bone marrow after immune reset, flares of SLE post-transplantation are preceded by their expansion in peripheral blood (Alexander et al. 2013), potentially emerging from residual pathogenic memory T cells. The direct investigation of the specific Th-cell memory after immune reset is hampered by the fact that those T cells may reside in lymphoid organs or bone marrow. In an indirect approach we therefore want to investigate the immune responses after vaccination (measels, mumps, rubella, tetanus) in SLE patients after immune reset. In contrast to the primary immune response, the secondary response of both B- and T cells is observed following subsequent encounter with the same antigen and is more rapid leading to the activation of previously generated memory cells, which will be measured by flow cytometry. In addition, autoreactive memory Th¬-cells will be investigated in SLE after immune reset by short-term stimulation with autoantigens, such as nucleosomes.