
Engineering Tissue-Specific CAR-Tregs for Targeted IBD Therapy

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The aim of the project is to develop a highly specific, cell-based immunotherapy for chronic inflammatory bowel diseases (IBD) such as Crohn's disease and ulcerative colitis. Regulatory T cells (Tregs) are to be modified using genetic engineering so that they carry a chimeric antigen receptor (CAR) that recognizes a characteristic inflammatory antigen of the intestinal mucosa. After adoptive transfer of the CAR-Tregs, these cells migrate precisely to the inflamed tissue, where they are activated in an antigen-dependent manner. The local release of anti-inflammatory mediators (e. g. IL-10, TGF- β) by the CAR-Tregs serves to specifically regulate the excessive immune response without impairing the systemic immune defense.
