Arbeitstitel: Assessing immunogenicity of biologics

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Biologics in form of monoclonal antibodies, blood products, recombinant cytokines or hormones are applied more and more in medical conditions such as chronic autoimmune inflammation, infection or malignant diseases as well as in context of transplantations. In most of these indications, biologics have increased the therapeutic options for treatment significantly. However, all biologics(e.g. even fully humanized recombinant proteins) have the potential to activate the patients immune systems and induce immune responses. Biologics-neutralizing antibodies can be induced during the treatment with biologics during initial application but also after repeated application cycles, reducing or even completely abolishing treatment efficacy or in severe cases even inducing an anaphylactic shock.While there are many factors that contribute to the immunogenicity of biologics, T cells play a critical role in the patients susceptibility to develop humoral and cellular immunity against biologics.
In this project we aim to assess in parallel preexisting immunogenicity and tolerance against anti-TNFalpha, a prototype day one biologics, in rheumatoid arthritis, ankylosing spondylitis andCrohn's diseasepatients. We aim to correlate our results with treatment success and failures. A successful validation of our new immunogenicity screening assay would be highly useful in many diseases to evaluate treatment regimentswith biologics and consequently will help to improve significantly the medication of patients.