Gordon Research Conference "Antibody Biology and Engineering"
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The Gordon Research Conference "Antibody biology and Engineering" is a biennial gathering of scientists from both academia and companies working in the field of antibodies. Therapeutic antibodies are increasingly used to treat various diseases, ranging from autoimmune diseases like rheumatoid arthritis to different types of cancer. The first monoclonal antibodies used in the clinic where of murine origin, which often led to an immune response. To reduce this immunogenicity, the next generation of therapeutic monoclonal antibodies were humanized, which resulted in chimeric, humanized and fully human antibodies. Since the last few years, a new generation of therapeutic antibodies is being developed. This new generation often deviates from the classical antibody molecule and only uses the parts of the antibody that are required for the therapeutic effect. The conference "Antibody biology and Engineering" focused on this new generation of antibody therapeutics.

In various presentations the important role of FcRn was shown. FcRn recycles both autologous and therapeutic antibodies, thus extending their half-life. However, by slightly altering the Fc of therapeutic antibodies, the binding affinity to FcRn can be changed. This can further extend their half-life, thereby reducing treatment costs. In addition, Sally Ward (University of Texas Southwestern Medical Center, USA) showed a new mechanism in which the therapeutic antibody binds a soluble target (for instance an inflammatory cytokine) in circulation at pH 7.4, but releases it again in the endosome at pH 6. This way, the soluble target is removed from circulation without clearing the therapeutic antibody.

Another interesting subject was the interaction between antibodies and the complement system. By altering only a few amino acids in the Fc domain, antibodies can bind much stronger to the first complement component C1q. This leads to stronger activation of the complement system and results for instance in faster clearance of targeted cells.

Furthermore, impressive presentations were given on the intracellular antibody receptor TRIM21, as well as on new insights into the structure of IgE and on the most efficient way to produce bispecific antibodies. Much of the data presented was not published yet and I therefore learned a great deal from this conference.

During the poster sessions I received valuable input for my own research and know better in what direction I want to further pursue my project. I got the opportunity to extend my connections in the antibody field and had great conversations with scientist from both academia and companies. Valuable ideas on career building were given during the mentorship component at the seminar by four scientists working in an academic or industry setting. With this knowledge, I can make well-weighted choices in my career as a scientist.

I am very grateful that the Dutch Society for Immunology provided me the travel grant to attend the Antibody Biology and Engineering conference. The conference was valuable in many aspects, and will have influence on my current research as well as on my future career in science.