**SHORT MEETING REPORT: CANCER IMMUNOTHERAPY CIMT 2016**

From May 10-12, 2016 the 14th international annual meeting Cancer Immunotherapy (CIMT) in Mainz brought together about 1000 academic and clinical professionals from 40 countries. Along with the evolving importance of immunotherapy to treat cancer, the annual meeting developed to the Europe’s largest specialty meeting on cancer immunotherapy. With the successful clinical application of immune checkpoint inhibitors (e.g. mAb to PD-1, PD-L1 or CTLA-4) and adoptive T cell therapy, immunotherapies are now included in the standard of care. The focus of the 14th annual meeting “Mechanisms of Efficacy” aimed to improve current strategies by better understanding the effects as well as to look for combinations of therapies that may lead to a more potent clinical outcome.

To better understand why immunotherapies work in one patient better than in another, investigations of the tumor microenvironment are very important. Many talks were about immune suppressive factors in the tumor like regulatory T cells, myeloid suppressor cells or inhibitory stromal cells. But there were also new immune cell types presented, that enable to supress cancer progression. To overcome immunosuppressive effects of the microenvironment, a focus was the improvement of adoptive T cell therapy and therapeutic vaccines by combing these approaches with chemotherapy. In contrast to antecedent thinking, it has now become clear that some chemotherapies have a very potent effect on improving anticancer immunity by modulating the tumor microenvironment as well as by enhancing the potency of adoptively transferred T cells. Another great opportunity for the future offered talks about combinations of adoptive T cell therapy or therapeutic vaccines with antibodies to immune checkpoint inhibitors.

Personalized therapies are moving forward to come into the clinic. They can be distinguished in stratification, passively and actively personalized therapies. Most of the personalized therapies presented focused on therapeutic peptide or RNA vaccinations. On the field of actively personalized therapies vaccination against mutated neoeptopes of the tumor offered the opportunity to be strongly immunogenic with low side effects.

Effective therapeutic vaccinations strongly depend upon the adjuvant used. Adjuvants have two important functions: First, the delivery of the antigens to the site of action and second a local activation of the immune response. Encouraging new adjuvants based on toll like receptor ligands, nanoparticles or type I IFNs were presented at the CIMT meeting and hopefully will be soon improve current vaccination strategies.

New targets (including tumor stromal cells) for T cell receptor (TCR) engineered T cells and chimeric antigen receptors (CAR) were introduced. Improving adoptive immunotherapies also involve the risk assessment of on and off target toxicities. This issue was addressed in several talks and posters presenting methods that enable to predict toxicities as well as by showing investigations of patient cases to learn about the mechanisms that lead to toxicities. Another important issue was to define which side effects have to be tolerated by the patient and how to comprehensively inform the patient upon side effects and how to manage them.

An EU consortium lesson informed about the EU-funded cancer immunotherapy consortium. Talks were about ongoing studies like the personal peptide vaccination of glioblastoma (GAPVAC) or streptamer-based generation of multi-virus-specific T-cells after stem cell transplantation. Moreover studies of the next round were presented that included a bioinformatics platform (APERIM) and an immunotherapy training network for young scientists (IMMUNTRAIN).

The generation of cellular based therapies according to GMP guidelines is often very time consuming and accompanied by lots of “in process” controls and documentation, especially if the medicinal product is considered as advanced-therapy medicinal product (ATMP). To simplify therapies using
dendritic cell vaccines or T cells, new approaches were presented to activate dendritic cells \textit{in vivo} or to transduce T cells by chimeric antigen receptor (CAR) constructs \textit{in vivo}. Implementing new therapies into the clinic needs a regulatory application processes to perform clinical studies. A session bringing together industry, clinical physicians and investigators and the Paul Ehrlich Institute as regulatory authority, informed comprehensively about the critical steps in early and advanced stage therapy development.

An interesting industry satellite including a panel discussion with a clinician, a scientist and a pathologist showed the importance of interdisciplinary research to efficiently move on improving immunotherapies for the future.

New strategies to monitor immunotherapies were presented. They allow the simultaneously assessment of multi parameters in one assay e.g. using bar-coded multimer staining of T-cells, others show how to increase assay sensitivity and new markers associated with benefit on therapy were evaluated by the researchers.

The CIMT Endeavour workshop on the translation and commercialization of cancer immunotherapies provided an opportunity for young scientists to present their work to experts on the field of immunotherapy with the aim to assess the potential of the presented research and how it can be transduced into a business plan for company founding.

Beside talks of invited speakers and selected short talks of scientists, a poster session with more than 300 presenters encompassing the whole field of cancer immunotherapy enabled a deep exchange among the investigators and initiation of new co-operations.

A very nice and simple take home message possible to take into account for everyone was proposed by Per thor Straten: He noticed a direct correlation between physical exercise and activation of NK cells leading to the prevention of tumor outgrowth. Although these experiments were only performed in mice yet, the immunologists of Tübingen followed his advice by dancing at the groovy social event followed by visiting the dance club “Schon Schön” in Mainz. Provided with new impulses for our research we are looking forward to the 15\textsuperscript{th} CIMT meeting next year in Mainz.

More Information about the CIMT meeting is found on \url{http://www.meeting.cimt.eu/}. A detailed meeting report will be published in Human Vaccines & Immunotherapeutics.