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Editorial

The promise of IO and IOTECH

My friends and colleagues regularly ask me how IOTECH is doing. My only answer to that question is that I am highly excited about the content and the manuscripts that are submitted for review. We are seeing manuscripts with original data coming in, wonderful reviews and "technology explained" stories. But let's be honest, starting a new journal in the IO space is a competitive endeavor. But as the top scientists in the field are excited to send in material, so should you. Never hesitate to write me an email to inquire whether your manuscript maybe suitable for IOTECH. As well as being a fully Open Access journal and therefore freely available to all, each edition of IOTECH is actively circulated to all ESMO members ensuring maximum impact and visibility for papers published in the Journal. All ESMO members are also entitled to publish in the Journal at a discounted rate. We hope to see much from you in the coming months.

In this 3rd issue of IOTECH, the diversity of new developments happening in the IO space is nicely demonstrated.

First, Nicolas Girard, a specialist in thymomas and thymic carcinomas, takes us on an impressive journey through the field of thymic tumors, a very rare and remarkable disease, with many signs of autoimmune activity as demonstrated by the high frequency of for instance myasthenia gravis [1]. Now, the question of why these tumors are associated with autoimmunity is still unresolved, but clearly dysregulation of the process of positive and negative selection is likely to be involved. This poses a problem to the treatment of thymomas and to a lesser extend thymic carcinomas, when entering the field of immune checkpoint inhibition, which already increases the likelihood of developing autoimmune-like adverse events. To state it mildly, just do not try to do this as home, but refer these patients to specialized centers, where they can be enrolled in prospective clinical trials.

Close to my heart is the increasing interest in cellular therapy of cancer. Having worked in this space for the past 10 years, seeing the developments going at such a speed, fills me with hope that cell therapy will be the next wave in immunotherapy. The approval of two T cell products for the treatment of CD19 expressing hematological malignancies is already a major leap forward. But there is more …

In this issue of IOTECH, Robertson et al. from Achilles Therapeutics, display their ideas of how cell therapy may improve the treatment of NSCLC and melanoma [2]. Importantly, these two tumor types are characterized by the presence of many non-synonymous mutations, which is necessary for T cell recognition. The more mutations, the more foreign the cancer appears to the immune system, but prior work from the Swanton lab indicated that especially mutations that develop early during the disease and are shared between all cancer metastases are most important for tumor control with immunotherapy. The Achilles team is using their pipeline to sort out those T cells, targeting so-called clonal mutations from tumor-infiltrating lymphocytes, in order to augment their number in vitro before returning them to the patients. The first clinical trials have just started. We are eagerly awaiting the results!

The millions of years we lived in close encounter with bacteria and viruses, have resulted in highly sophisticated ways to build defenses against them. Viruses, not much more than nanoparticles filled with DNA or RNA, require the host cell to procreate, oftentimes at the cost of the host cell's life. To be protected from these invaders, pathogen recognition receptors (PRR) have evolved that sense whether a cell is under viral or bacterial attack. Activation of these receptors leads to the development of anti-viral immune response. Cancers are often invisible to the immune system because they do not activate these PRR. But clever scientists have thought of ways to activate these receptors in order to mount a better immune response to the cancer. Intratumoral immunotherapy, makes use of injecting viruses or molecules that simulate the ligands for these PRRs, like unmethylated DNA, or viral RNA. By delivering these to the tumor-microenvironment, an inflammatory response is induced, which in turn elicits an adaptive immune response. Agrawal and Sandimalla reviewed the current clinical possibilities of PRRs activation to improve immunotherapy of cancer [3]. As these drugs are injected directly into the tumor lesions, the local immune response that develops because of it, should be spread to other non-injected sites as well. Combination with immune checkpoint blockade are showing very promising results, but it is still early days.

Enjoy reading this issue and have a good day!

References

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