

Proposal for the establishment of an EFIS-IL Study Group on „Immune escape and immune resistance“

Concept to build up a European Network on “Immune Escape and Immune Resistance of Tumors”

1. Research Area

Recently, immunotherapies have gained renovated interest due to the unprecedented success immune checkpoint inhibitors (ICIs) for the clinical management of melanoma and other solid tumors. However, only 20-40% of patients respond to ICIs employed as single agents, suggesting that tumors are naturally endowed with (innate resistance) or develop on treatment (acquired resistance) different strategies to escape anti-tumor immune responses. Based on these premises, the long-term objective of this initiative is to establish a European Network for tumor immunologists working on viral, bacterial, fungi and neoplastic transformation-mediated immune escape, the underlying molecular mechanisms and the possibility to revert resistance in order to develop novel therapeutic strategies, to exchange research ideas, develop interactions and collaborations as well as support young investigators in the field of tumor immunology/ immunotherapy with the ultimate goal to apply jointly for international grants funded by the European Union.

Despite immunotherapies have dramatically improved, their implementation as monotherapy or in combination with different therapeutics, and the enthusiasm raised by this therapeutic modality, success is limited due to immune escape mechanisms. These must be identified to allow their inactivation, which may lead to an increased efficacy of immunotherapeutics. However, this topic is often scarcely addressed and briefly touched, but becomes more important, since some reports demonstrated a role of these mechanisms in mounting therapy resistances.

More than 12 years ago, the research study group “Tumor Immunology” of the German Society of Immunology was established with constantly growing member numbers. The goal of this study group is to understand and get deeper insights into immune escape strategies of tumors, the role of the tumor microenvironment (TME) in the initiation and progression of tumors, and in the modulation of innate and adaptive immune responses, changes of the immune cell repertoire in the peripheral blood and in the TME as well as the importance of the immune and tumor cell metabolism for mounting anti-tumoral immune responses. This knowledge leads to the rational design of immune therapeutic strategies.

The yearly “Tumor Immunology meets Oncology (TIMO)” symposium at the Martin Luther University in Halle (Saale), Germany, which concentrates on all these topics, has been developed by Barbara Seliger.

The tumor immunology group currently consists of more than 130 members located in Germany and yearly meets at the “Tumor Immunology meets Oncology (TIMO)” meeting and/ or at the meeting of the German Society of Immunology. With the EFIS research focus group for tumor immunologists working in Europe we want to combine the national activities of the group with other participants of European

countries and Israel in order to form a strong consortium, which gives more information on immune escape, an important topic for basic and translational tumor immunology including immunotherapies. In order to accomplish this main goal, we will organize the first EFIS workshop on tumor immunology in late summer 2019 and will develop a small meeting/ workshop for the network of tumor immunologists. The second workshop will take place in Jerusalem, the third workshop in Paris. In summary, this network will allow to create a platform of tumor immunologists on all aspects of immune escape, the development of resistances and their reversion in order to improve the outcome of immunotherapies.

2. Core group of proponents:

Barbara Seliger (Halle/ Saale, Germany), Ofer Mandelboim (Jerusalem, Israel), Lorenzo Galluzzi (Paris, France and New York, USA)

The core proponents will develop an EU network (e.g. Marie Curie, COST initiative) and will regularly meet.

3. Group's nominated speaker/ coordinator:

Barbara Seliger (Halle/ Saale, Germany)

4. Tentative list of participants:

Participants of the last two years of TIMO (list attached)

5. Any other potential sources of funding:

There might be funding by the German Society of Immunology as well as some small grants from the pharmaceutical industry. The group is committed to offer one special issue for "Immunology Letters" covering the subject "Immune escape and immune resistance" during the 3 years of its establishment.