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APERIM

Advanced Bioinformatics Platform for Personalised Cancer Immunotherapy

Implementation of Cancer Immunotherapies

Within APERIM leading experts in bioinformatics and cancer immunology develop user-friendly **software modules** as well as **analytical standard operating procedures** for clinical use.

The bioinformatics platform aims to accelerate the clinical translation of biomedical data in research and medicine.

Tremendous Potential of Immunotherapies

Personalized cancer immunotherapy has high potential to provide an incredible benefit to society. It will not only increase quality of life of affected patients but also will help to reduce health care costs.

Bioinformatics solutions are lacking

Technological advances, especially in next-generation sequencing (NGS) combined with data from different sources (imaging data, clinical data) allow for the first time precision tumor medicine.

Providing the necessary - but still lacking - bioinformatics means to accelerate the implementation of these immunotherapies in the clinical setting.

Specific Aims

The overall objective of APERIM is to develop an **advanced bioinformatics platform for personalised cancer immuno-therapy**, which integrates NGS data, whole tissue slides imaging data, and clinical data, as well as novel analytical software tools.

The tools in this platform will address the following issues:

- Quantification of **tumor-infiltrating lymphocytes (TILs)** in colorectal cancer patients. This digital sorting tool will be invaluable for future biomedical and clinical research.
- Development of an analytical pipeline for **NGS-guided personalised cancer vaccines.** In the future tumor - specific neo-antigens will be identified as individual vaccine targets.
- Development of a novel method to **predict T-cell receptor (TCR) specificity.** Based on this information adoptive T-cell cancer therapy might be successful in the future.

Network of Experts

In APERIM, a network of leading experts in bioinformatics and cancer immunology was assembled to ensure that not only highly relevant problems are addressed but also that the implementation of the developed tools in the clinical setting is guaranteed.

The bioinformatics platform will thus considerably accelerate the clinical translation and maximise the accessibility and utility of biomedical data in research and medicine.