

Biomarker – Trial Service • Development • Training

New challenges need innovative approaches and partnerships

Dear customers, colleagues and friends,

Targos has started in 2005 as central lab for the HERA trial - one of the largest HER2 directed adjuvant breast cancer therapy trials. Since then we supported the increasingly complex biomarker analysis in more than 500 targeted therapy trials in which we could position ourselves as one of the key European US-CAP/CLIA accredited laboratories with special expertise in tissue biomarker diagnostics, development and training.

Recently, immuno-oncology has opened completely new avenues of cancer therapy which in turn needs entirely new tools of biomarker driven diagnostics. This spans from multiplexing assays to unravel the biology of cancer immune response to the extent of digital imaging and image analysis to investigate the complex tumor immune reaction in situ.

Herein we want to provide you with an update of Targos current capabilities and want to highlight our new partnership with Definiens. It is a pleasure for us taking you along to the journey into this exciting new times of biomarker driven cancer therapy.

Dr. Thomas Henkel
CEO

Prof. Dr. Josef Rüschoff
CMO

DEFINIENS Team Meeting



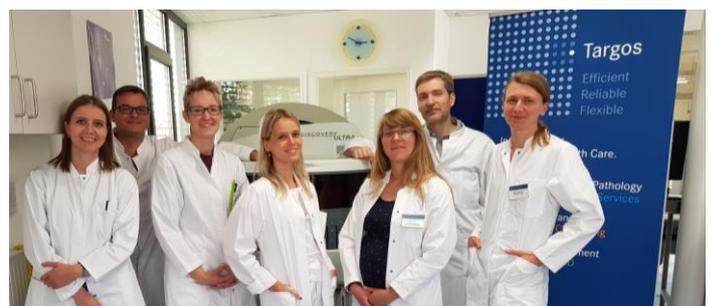
Partnership in Immuno-Oncology Competency

Targos & Definiens

The core of this collaboration melts the power of Definiens' AI-based image analysis and data mining expertise with Targos' vast experience in tissue-based biomarker analysis in global clinical trials. Furthermore, developing novel multiplexed immunohistological protocols under GCP guidance together with Definiens' unique ability to integrate spatial immune cell distribution and multi-omics analytics will provide new innovative tools spanning from research to the development of new companion diagnostics in immuno-oncology.

This partnership amplifies the complementary strengths of both companies in research and clinical assay development. Definiens and Targos both share a common vision of providing valuable information to better understand and predict cancer and its treatment options in this fascinating new era of targeted immune therapy and precision medicine.

Targos Assay Development Team Meeting



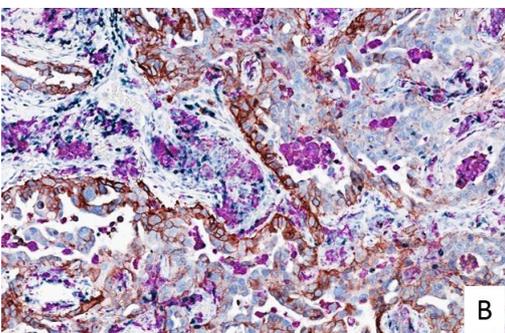
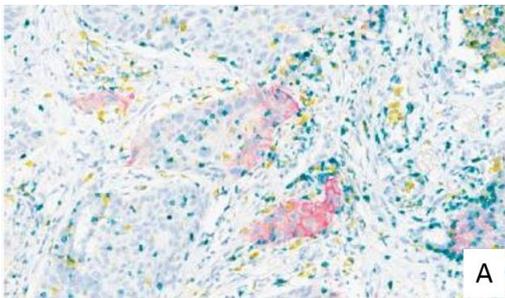
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Immune Monitoring for Cancer Immunotherapies

Background

With the introduction of checkpoint-directed immunotherapies, extensive analysis of the tumor microenvironment can provide insights into a potential predictor for therapy response.

Multiplex Assay Development (Targos)



Triplex immunostained NSCLC using different protocols

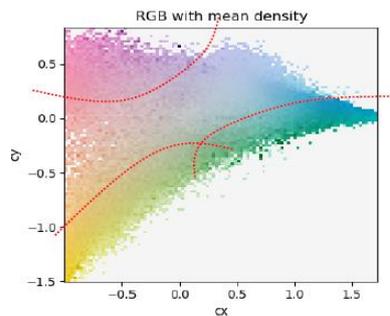
A: Immune status marker – Immune cell marker 1 – Immune cell marker 2
B: -Immune status marker – Immune cell marker 1 – Immune cell marker 2

Protocols generated are robust and applicable to other

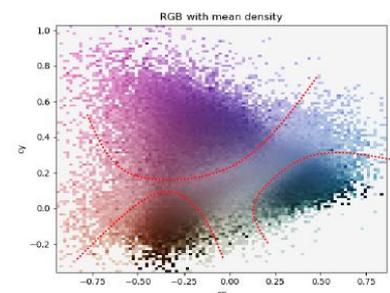
Validated Multiplex-Immune Panels

Protocols of multiplexed panels can be developed and validated with robustness and - reliability by image analysis (IA). Different staining dyes yield distinct results by color deconvolution. Both, staining protocols and IA have to be aligned to reach highest information.

Multiplex Assay Assessment by Color Deconvolution Method (DEFINIENS)



A: Weak staining causes a non-homogenous distribution of the signal leading to challenges in differentiating cells for instance macrophages from T-cells.



B: Perfect staining results in a homogenous distribution of the biomarker signals ideal for obtaining reliable quantitative results by using image analysis.

Combination of - standardized assay development and AI-based image analysis allows - profiling of the cancer microenvironment by immune cell density, composition and spatial distribution.

Such assays have the potential to be applied within prospective clinical trials to further specify subgroups that show response or resistance to checkpoint-based mono- and/or combination therapies.

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