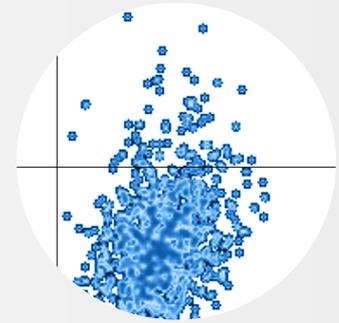


## Flow Cytometry Services



### Overview

The rapidly advancing field of cancer immunology has tremendously supported the development of cancer immunotherapies. To translate the knowledge derived from basic cancer immunology research into drug development it is significant to have access to high-quality grade clinical samples. Indivumed has established a wide clinical network,

which enables translational researchers to access high-quality cancer biospecimens to support cancer drug and immunotherapy development. Moreover, Indivumed has built a team of experienced R&D scientists in cell and molecular biology to offer Contract Research Services according to our customer's needs.

### Development of customer-specific analysis

Via Flow Cytometry, Indivumed's Research Service established multi-color analysis to be able to characterize the complexity of these samples such as the immune status of an individual tumor. Biospecimens such as PBMCs or dissociated tumor tissue (including TILs) are heterogeneous and therefore of interest to analyze. Using the CyFlow® Space (Sysmex) Flow Cytometer, which is

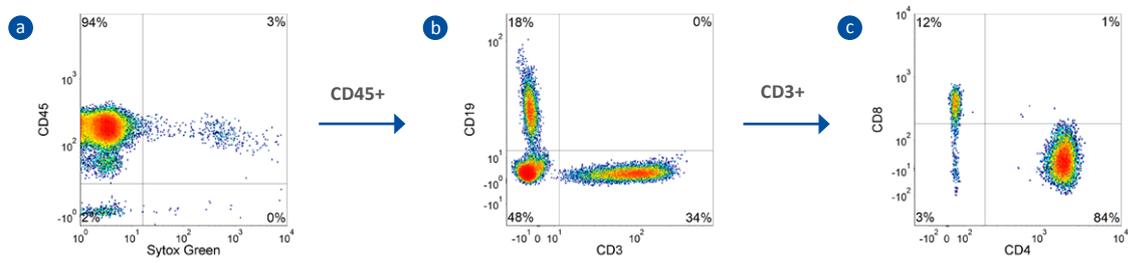
equipped with four lasers and 12 detection channels, we can ensure high measurement sensitivity. This enables us to develop customer-specific multiplex panels with up to eight markers simultaneously. Furthermore, Indivumed's well established immune cell panel (CD45 / CD3 / CD19 / CD4 / CD8 / viability marker) can easily be extended to meet customer-specific demands.

### Your Benefits

- Easy access to ISO-certified IRB approved and consented tissue collection
- Broad availability of fresh and viable tumor tissue and autologous peripheral blood mononuclear cells (PBMCs)
- Flexible multi-color analysis with up to eight colors simultaneously, including customized multiplex panel development
- Prospective, customized ISO-certified tissue collection according to customers' needs
- Established panel for immune cell characterization, e.g. regulatory T cells
- Established method for surface marker quantitation
- Experienced R&D scientists to support you from tissue collection to flow cytometry analysis

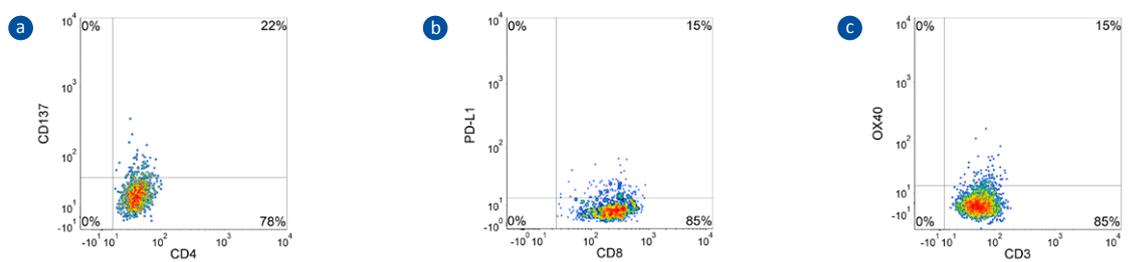
## Development of a customized multiplex flow cytometry panel

### Identifying immune cell fractions



**Figure 1:** Flow cytometry analysis of PBMCs. **a)** After exclusion of dead cells via SYTOX™ dye, **b)** CD45<sup>+</sup> leukocytes were analyzed for CD3<sup>+</sup> T cells and CD19<sup>+</sup> B cells, and **c)** T cells were further analyzed for CD4<sup>+</sup> T helper cells and CD8<sup>+</sup> cytotoxic T cells.

### Analysis of T-cell expression markers



**Figure 2:** Flow cytometry analysis of dissociated tumor cells. **a)** CD137 expression on CD4<sup>+</sup> T helper cells, **b)** PD-L1 expression on CD8<sup>+</sup> cytotoxic T cells, and **c)** OX40 expression on CD3<sup>+</sup> T cells in tumor samples from colon cancer patients.

## Complementary Services

- Magnetic cell separation and flow cytometry analysis of different cell subsets, e.g. tumor-infiltrating lymphocytes
- Drug Profiling Services in combination with flow cytometry analysis

## About Indivumed

Indivumed GmbH is a physician-led, integrated global oncology company for personalized medicine with the world's premier high-content tumor database and highest quality biobank. Indivumed's standard operating procedures are trusted as the global benchmark for biospecimen and clinical data collection.

Our long-standing biobanking expertise is ISO 9001-certified and includes strict protocols for tissue sampling and processing with regard to crucial parameters such as tumor region, ischemia time, and information management.

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