Immune Function Profiling in Cancer Research

Cancer drugs that harness the power of the patient's immune system have altered the paradigm of cancer care in the past few years. Antibody-based therapies against specific cell surface targets can directly modulate the activity of T cells, reawakening their ability to bind to and kill cancer cells. CD3-targeted bispecific antibodies bring T cells and tumor targets in close proximity, facilitating T cell mediated killing. Cell-based therapies such as CAR-T, use genetic modifications to redirect T cells to bind to tumor associated antigens, resulting in T cell expansion and enhanced tumor killing.

References:

Additional Immunomodulators

Also being developed for cancer therapy include:

Challenges of Immune Profiling

- Large data set analysis
- Resource constraints
- Low throughput
- Biological complexity
- Physiological relevance
- Time-consuming

Immune Function Profiling Assays

There are numerous areas within the cancer research workflow where these assays are used:

Traditional Technologies Used to Evaluate Immune Function

- Flow Cytometry
- Immunohistochemistry
- Western blotting
- ELISA
- Radioligand binding

Transform Your Immune Cell Profiling

- Advanced flow cytometry platform:
  - High throughput
  - Detailed biological insights
  - Simplified data analysis enables faster time to result
  - Assess multiple cell types simultaneously in a single well
  - Miniaturization

- Advanced phenotyping platforms:
  - Developing novel biomarkers
  - Identifying novel targets
  - Monitoring drug efficacy

- Advanced functional assays:
  - Characterizing novel cellular interactions
  - Evaluating drug efficacy in complex cellular models
  - Identifying novel targets

- Advanced analytical tools:
  - Data analysis
  - Data interpretation
  - Data presentation

- Advanced computational tools:
  - Data analysis
  - Data interpretation
  - Data presentation