A Recommendation of the Cancer Moonshot Blue Ribbon Panel

THE IMMUNO-ONCOLOGY TRANSLATIONAL NETWORK

Advancing Research Progress to Improve Immunotherapy and Immunoprevention

Blue Ribbon Panel’s Recommendation:

Create A Translational Science Network Devoted to Immunotherapy

Immunotherapies leverage the ability of the immune system to recognize tumors as “foreign” and kill them. Immunoprevention approaches enhance immunity to prevent the development of cancer.

Despite advances in immunotherapy and immunoprevention that have been reported over the last decade, several research challenges need to be addressed to improve their effectiveness for diverse populations of cancer patients. To overcome these challenges, researchers need to understand the basic mechanisms of tumor immunity and effective immuno-oncology approaches, which can lead to the successful development of preclinical immunotherapeutic and immunoprevention strategies.

To address research challenges in immunotherapy and immunoprevention, the Cancer Moonshot Blue Ribbon Panel recommended the creation of a translational science network to advance immunotherapy for adult cancer patients. In response to this recommendation, the Immuno-Oncology Translational Network (IOTN) was formed. This collaborative network of researchers is performing preclinical studies to
1) increase the understanding of the immune system that will improve the efficacy, durability, and safety of immunotherapies across the spectrum of adult cancers, and to 2) design immune-based approaches to prevent cancers before they occur. The IOTN ultimately aims to translate immuno-oncology findings into clinically effective immunotherapy and immunoprevention approaches.

WHY DO WE NEED AN IMMUNOTHERAPY NETWORK?

- To understand complex tumor-immune system interactions
- To identify immunological targets expressed by tumors
- To determine mechanisms of effective immunotherapies
- To examine the biology of side effects from immunotherapy
- To develop immuno-oncology approaches to prevent cancer

U.S. Department of Health & Human Services | National Institutes of Health
The Power of Collaboration and Immunology

Multidisciplinary researchers are working together in the IOTN consortium to improve immunotherapy and immunoprevention strategies for many different types of cancers.

**OUR GOALS**
- Increase understanding of tumor immunity and identify new targets
- Develop improved immunotherapy and immunoprevention strategies
- Advance cancer research by sharing data, knowledge, and resources
- Mitigate harmful side effects caused by immunotherapies
- Accelerate immuno-oncology through collaboration

**HOW WE CONTRIBUTE TO THE CANCER MOONSHOT**

The IOTN is part of the Cancer Moonshot, which aims to accelerate progress in cancer research, encourage collaboration, and enhance data sharing. The IOTN is contributing to these goals by advancing research to improve the effectiveness of immunotherapy and immunoprevention for diverse cancer patient populations.

Researchers, patient advocates, staff from the National Institutes of Health, and the IOTN are collaborating and sharing resources to accelerate preclinical research progress in immuno-oncology across the spectrum of cancers. Additionally, groups within the IOTN are working together to identify barriers for IOTN research in different scientific areas and to develop approaches to overcome these barriers.

Along with interactions within the network, the IOTN is collaborating with other Cancer Moonshot initiatives and NCI programs investigating tumor immunity to enhance the design of successful immunotherapy and immunoprevention strategies.

Further, the IOTN is sharing data, knowledge, and resources with the broader research community to accelerate studies of cancer. Ultimately, the findings from the IOTN could be translated into the development of safer and more effective clinical immunotherapies and the design of successful immune-based approaches to prevent cancers.

The IOTN is working to extend early successes in cancer immunotherapy to virtually all tumor types through improved understanding of the mechanisms that enable and limit immunotherapy.

Douglas R. Lowy, M.D.
Acting Director
National Cancer Institute
The IOTN is studying immuno-oncology in cancers across different organs of the body. To target this spectrum of tumors, our network is integrating a wide range of preclinical approaches to understand mechanisms of tumor immunity and effective immunotherapy and immunoprevention approaches. Additionally, the IOTN is working to reduce health disparities, enhance data sharing, and encourage collaborations.

- antibody engineering
- B cells
- cancer vaccine
- CAR T cells
- cell therapy
- checkpoint blockade
- collaboration
- combination therapy
- data sharing
- exosomes
- genomics
- health disparities research
- immune evasion
- immune microenvironment
- immune modulators
- immuno-radiotherapy
- immunoprevention
- immunosuppression
- inflammation
- lymphocyte trafficking
- metabolism
- mitigating adverse events
- multidisciplinary research
- neoantigen
- NK cells
- overcoming resistance
- stem cell transplantation
- TCR discovery
- technology
- translation