Immuno-Oncology Translational Network (IOTN)

BRP Immunotherapy and Prevention Working Group

Recommendation - Accelerate translation of basic discoveries to clinical applications to improve immunotherapy outcomes for both “hot” and “cold” cancers - and to prevent cancers before they occur.

BSA Presentation
June 20th, 2017
Immuno-Oncology Translational Network (IOTN)

Adult Immunotherapy Implementation Team

**Implementation Plan** – Leverage the expertise and resources of a collaborative network of investigators to develop improved immunotherapy approaches including novel combinations.
Immuno-Oncology Translational Network (IOTN)

(A) Cancer Immunotherapy Consortium

- Pancreatic
- Lung
- Ovarian
- Breast
- Colorectal

(B) Cell Therapy - Data Registry & Biorepository

*GBM, Head & Neck, etc.

* Sync’d with Tumor Atlas Group

** FY17 Cancer Moonshot program
Cancer Immunotherapy Consortium

**Organ Site-specific Sub-networks**

**Goal:** Develop improved tumor-specific immunotherapy approaches.

**Objectives:**
- Define immune interactions in the tumor microenvironments.
- Identify tumor-specific T cell receptors and their cognate tumor targets (neoantigens).
- Uncover intrinsic and extrinsic (immunosuppression) resistance pathways.
- Test cancer vaccines, combination therapies, and engineered T cell approaches.
- Studies will be largely pre-clinical including animal models, but with human endpoints and potential for rapid translation into early phase clinical testing.
Cancer Immunotherapy Consortium

**Goal:** Identify actionable targets arising in pre-cancerous lesions; develop and validate early intervention vaccines based on these targets.

**Objectives:**
Focus on cancers that occur in specific organ sites in high-risk cohorts.

- Frameshift Peptides - Lynch S. (colon cancer)
- Fusobacterium nucleatum (colon cancer)
- HER2 (breast cancer)
- EGFR (lung cancer)
- KRAS (lung cancer)
- BRCA1/2 (breast & ovary)
- NF and TSC (neurologic and other cancers)
- Etc.
Cancer Immunotherapy Consortium

The Network will be supported by a Data Management and Resource-sharing Center (DMRC), using a U24 mechanism, with the following components:

**Network Coordinating Center:**
- Provide overall administrative support
- Developing a website for consortium members and an outfacing portal for the cancer community.

**Resource Sharing Center:**
- Oversee the tracking and distribution of network biospecimens, models, and resources.

**Data Sharing Center:**
- Centralized bioinformatics support.
- Establish SOPs and quality control for all network generated data - including genomic data, tumor targets, and cellular analyses to appropriate databases.
  - Coordinate with Cancer Moonshot components (Tumor Atlas, Data Ecosystems, Cancer Immunologic Data Commons, others)

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**CIC Sub-Networks** | **U01 mechanism**
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**ImPr Sub-Network** | **U01 mechanism**
**DMRC** | **U24 mechanism**
Cell Therapy - Data Registry and Biorepository

(A) Cancer Immunotherapy Consortium

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Immuno-prevention
Partnerships*

Data Management and Resource-sharing Center

*GBM, Head & Neck, etc.

Sync’d with Tumor Atlas Group
FY17 Cancer Moonshot program

(B) Cell Therapy - Data Registry & Biorepository
**Goal:** Accelerate optimization of cell-based immunotherapies; High impact for cancers with **low mutation burden**.

**Objectives:**
- **Data Registry** collects baseline patient data, treatment outcomes, and long term follow-up.
- **Biorepository** collects patient normal (PBMCs) and tumor tissue - compare genomic data with clinical outcomes.
- Utilize the **U24 mechanism** to leverage a pilot study through the Center for International Bone Marrow Transplant Registry (CIBMTR).
- Will support all NCI Clinical Trial Networks.
Text mining of the NCI portfolio for “translational immunotherapy” grants across Lung, Ovary, Breast, Colorectal, and Prostate organs - cross-checked by subject matter experts identified approximately 130 grants.

- Variety of different mechanisms - and no integration of effort.
- Few have combination therapy approaches as primary endpoints.

A network will foster collaborative approaches to enable rapid translation of discoveries to clinical application.
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<th>Mechanism</th>
<th>Number of Awards</th>
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<th>FYs</th>
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- Estimated Total Costs FY18: $13.0 M
- Estimated Total Costs FY18-22: $65 M

$7.81 M
Evaluation Criteria

- Accelerated translation of novel discoveries through collaboration.
- Demonstrate conversion of cold tumors to hot tumors.
- Validated vaccine approaches for therapeutic or early intervention.
- Novel immunotherapy agents and combination approaches have advanced to early stage clinical application.
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- Prostate
- Breast
- Colorectal

Steering Committee
(PIs, Patient Advocates, NIH Staff)

(B) Cell Therapy Data Registry & Biorepository

NCI PREVENT & Early Clinical Trials, ETCTN, NCTN & others
Immuno-Oncology Translational Network (IOTN)

(A) Cancer Immunotherapy Consortium
- Canine Immunotherapy Trials
- Cancer Immunotherapy Trials Network (CITN)
- Cancer Immune Data Commons and Monitoring & Analysis Centers
- Partnerships*
- Immuno-prevention
- Data Management and Resource-sharing Center
- Steering Committee (PIs, Patient Advocates, NIH Staff)
- Pancreatic
- Lung
- Ovarian
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(B) Cell Therapy Data Registry & Biorepository
- NCI PREVENT & Early Clinical Trials, ETCTN, NCTN & others
- Immune-related Adverse Events ir(AE) Supplements

Technology Enrichment Supplements
- Human Tumor Atlas
- Pediatric Immunotherapy Discovery & Development Network
Acknowledgments

BSA Subcommittee Reviewers
Ian Thompson (Chair), Luis Parada, and Mary Lou Smith
- Importance of including animal models in preclinical studies and that immunoprevention is addressed.
- To include patient advocates in the governance of the Network.
- Provide supplement programs in future years to encourage cross-Network collaborations
- Support efforts to address adverse effects associated with immunotherapy.
- Encourage multi-PI and multi-Institution applications.

Adult Immunotherapy Implementation Team
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Questions