CRI Cancer Research Institute™

2025 CRI INVESTIGATORS

Clinic & Laboratory Integration Program

CRI Clinic & Laboratory Integration Program

The Cancer Research Institute (CRI) Clinical & Laboratory Integration Program (CLIP) is designed to accelerate the translation of promising scientific findings into real-world cancer treatments. Since its launch in 2012, CLIP has empowered innovative investigators working at the vital crossroads of laboratory and clinical research, where fundamental insights into cancer immunology can be transformed into therapies that directly benefit patients.

By funding projects that explore the dynamic interplay between lab-based research and clinical application, CLIP ensures that new breakthroughs don't remain confined to the lab. Instead, these ideas are tested, refined, and brought into the clinic to address urgent questions about how and why immunotherapies work in specific patient populations. CLIP also supports research that brings insights from clinical observations back into the lab, helping to uncover the mechanisms that drive treatment response or resistance.

To date, CRI's CLIP includes 137 scientists from 84 organizations in 21 U.S. states and 12 countries in Asia, Australia, and Europe. New awards of $300,000 are made annually, with a total of $32+ million invested so far. With the 2025 CLIP awards, CRI is investing in the future of immunotherapy – one that is smarter, faster, and more deeply informed by science.

A Letter from Our CEO

At CRI, we believe the future of cancer treatment lies at the intersection of People x Biology x Data. Nowhere is that vision more clearly embodied than in CLIP, which bridges the gap between laboratory discoveries and patient care. This program enables scientists to translate bold ideas into real-world impact that improves patients' lives.

This year's CLIP investigators are pushing boundaries across a range of cancer types – from rare tumors like chordoma to treatment-resistant giants like glioblastoma and renal cell carcinoma. What unites these investigators is a shared commitment to overcoming immunotherapy resistance and delivering more effective, precise treatment options to patients who urgently need them.

Whether developing new T-cell therapies, identifying predictive biomarkers, or targeting the tumor microenvironment, these researchers are laying the groundwork for breakthroughs that could reshape the standard of care.

We're proud to support their work and deeply grateful to the donors and partners, in particular the Chordoma Foundation and the Kidney Cancer Association, who make this progress possible.

With gratitude,

Alicia Zhou, PhD
Chief Executive Officer
Cancer Research Institute

CLIP Investigator

David Braun, MD, PhD

Yale University

Development of antigen-directed therapies for renal cell carcinoma

Research focus:
Kidney cancer, tumor microenvironment, T cells

Immune checkpoint inhibitors are a common treatment for solid tumors, but for many patients, these drugs don't work or stop working over time. This can happen when the tumor becomes resistant, or no longer responds to treatment. Recruiting T cells to the tumor can be effective in many cancer types, but most kidney cancers are already flooded with T cells, leading scientists to look for different approaches.

Dr. David Braun's research is designed to get a complete picture of what is happening in the kidney tumor microenvironment. First, he will map the unique "flags" (or antigens) that kidney cancer cells display. Then, he will test to see what specific types of immune cells actually make it into tumors and are able to recognize and attack those targets.

The ultimate goal is to design smarter, more precise immunotherapies that steer the immune system directly toward cancer cells. Dr. Braun hopes to quickly move these insights into clinical trials, bringing new hope to patients with advanced kidney cancer.

CLIP Investigator

Peiwen Chen, PhD

Cleveland Clinic

Targeting ferroptosis-linked MDSCs to improve immunotherapy in *PTEN*-deficient glioblastoma

Research focus:
Glioblastoma, *PTEN* mutations, myeloid cells

Glioblastoma (GBM) is one of the most aggressive, treatment-resistant cancers and has seen little improvement in patient survival over the past four decades. Dr. Peiwen Chen's research could uncover a powerful new strategy to overcome resistance in GBM and offer hope to patients with this deadly cancer.

Dr. Chen's team uncovered that GBM tumors with mutations in the *PTEN* gene or that lack the *PTEN* gene entirely produce high levels of galanin (GAL). GAL is a neuropeptide that attracts immunosuppressive myeloid cells, like macrophages, microglia, and myeloid-derived suppressor cells (MDSCs), that block effective immune responses.

Cell signaling through the GAL protein receptor called GALR3 shields MDSCs from iron-dependent cell death or "ferroptosis", reinforcing the tumor's defenses against immunotherapy.

Dr. Chen is now investigating the GAL-GALR3 signaling pathway to understand how it drives MDSC infiltration and survival. The ultimate goal is to block MDSC recruitment to the GBM tumor microenvironment and induce their destruction, weakening the tumor's shield and enabling anti-PD-1 immunotherapy to be effective.

CRI-Kidney Cancer Association CLIP Investigator

Sidi Chen, PhD

Yale University

Initial development of CAR-T-drug conjugate against solid tumor and application in kidney cancer

Research focus:
Kidney cancer, CAR T cells, combination therapy

CAR T-cell therapy has revolutionized blood cancer treatment, but it hasn't yet cracked the code for solid tumors like kidney cancer. Solid tumors create tough environments that block immune responses, hide behind varied antigens, and prevent immune cells from getting inside. This often reduces the effectiveness of CAR T-cell therapy and leads to resistance or relapse.

Dr. Sidi Chen is taking a new approach to CAR T-cell therapy and doubling the number of ways in which it can fight against late-stage kidney cancer. He has created CAR-T-drug conjugates that seek out and destroy cancer cells and also deliver chemotherapy drugs precisely where they are needed – right to the tumor itself – by using a clever "click" chemistry that attaches drugs directly to CAR T-cells.

Dr. Chen's team is now working to refine this strategy, testing new combinations of CAR T-cell therapies and chemotherapy drugs and validating the results in animal models. If successful, this innovative approach could finally bring the power of CAR T-cell therapy to solid tumors and change the game for patients with difficult-to-treat kidney cancer.

CLIP Investigator

Michael Curran, PhD

The University of Texas MD Anderson Cancer Center

Breathing new life into tumor immunity through selective OxPhos inhibition

Research focus:
Tumor metabolism, immune responses, cell adaptations

Unlike normal cells, which grow in a controlled and orderly fashion, tumors grow rapidly and chaotically. To fuel this growth, they promote the creation of new blood vessels, but the result is often a tangled, dysfunctional system that fails to deliver enough oxygen. Insufficient oxygen or "hypoxia" makes tumors more aggressive and resistant to treatment. Dr. Michael Curran's research focuses on how tumors adapt to these hostile conditions to suppress immune responses and protect themselves.

To survive under hypoxia, tumors rely on a process called oxidative phosphorylation (OxPhos) to produce energy, which generates reactive oxygen species (ROS) as a byproduct. While tumors can tolerate high levels of ROS, immune cells cannot – they are hindered by poor blood flow, deprived of oxygen, and become damaged.

Previous attempts to block OxPhos have failed because treatments were too toxic for healthy cells. Dr. Curran's team has identified tumor-specific OxPhos proteins that are not essential for immune cells or normal tissue. This study will selectively target those proteins, starving tumors of energy while preserving immune function and offering a novel way to tip the balance in favor of the immune system.

CLIP Investigator

Yubin Kang, MD

Duke University

Targeting sphingosine kinase 2 to enhance CAR T-cell therapy efficacy in multiple myeloma

Research focus:
Multiple myeloma, CAR T-cell therapy, combination therapy

CAR T-cell therapy has revolutionized treatment for blood cancers like multiple myeloma by engineering a patient's own T cells to recognize and destroy cancer. While this approach often yields strong initial responses, many patients relapse, highlighting the need to improve longevity and potency of these therapies. Dr. Yubin Kang is investigating a promising new strategy to strengthen CAR T-cell performance by targeting an enzyme called sphingosine kinase-2 (SK2), which appears to regulate T-cell activity.

Preliminary data from Dr. Kang's lab shows that blocking SK2 can make T cells more robust. Building on this insight, his team will evaluate whether combining SK2 inhibitors with CAR T-cell therapy can extend the durability of treatment responses.

Dr. Kang's team will also test an optimized CAR T-cell construct in both *in vitro* cell culture systems and *in vivo* animal models to assess its effectiveness. If successful, this work could lead to a new generation of CAR T-cell therapies with improved persistence and impact, offering renewed hope to patients with relapsed or treatment-resistant multiple myeloma.

CLIP Investigator

Laura Mackay, PhD

The University of Melbourne

Uncoupling tissue-resident memory T cells and exhausted T cells in tumors

Research focus:
Breast cancer, T cells, solid tumors

T cells are central to controlling cancer, and immunotherapies that activate them have transformed treatment over the last decade. But, these therapies don't work for everyone, and better strategies are urgently needed. Dr. Laura Mackay is exploring a powerful but underused ally in the fight against cancer: tissue-resident memory (TRM) T cells.

Dr. Mackay's research has shown that TRM T cells, a unique type of T cell that takes up long-term residence in tissues, play a key role in protecting against solid tumors like breast cancer. While patients with more TRM cells in their tumors tend to live longer, scientists still do not fully understand how these cells develop or how they work to stop cancer.

Dr. Mackay's team will investigate what molecules are responsible for the development and activation of TRM cells and how their cancer-fighting abilities can be enhanced. The answers could lead to therapies that activate or expand TRM cells directly in the tumor, adding a powerful new layer to breast cancer treatment and potentially to other solid tumors as well.

CLIP Investigator

Allison May, MD

University of Virginia

Evaluation of the epithelial-to-mesenchymal transition in shaping the immune properties and immunotherapy responsiveness of renal cell carcinoma

Research focus:
Kidney cancer, immune checkpoint inhibitors, biomarker signature

Renal cell carcinoma (RCC) is the most common type of kidney cancer and often treated with surgery (nephrectomy), but up to half of patients experience recurrence. Immune checkpoint inhibitors (ICIs) have improved durability yet many patients still don't respond, and the reasons why remain unclear. Dr. Allison May is investigating a potential link between tumor biology and immune response that could help explain this variability.

Dr. May's research focuses on epithelial-to-mesenchymal transition (EMT), a process that makes cancer cells more aggressive. Her team has identified a "hybrid" EMT state in RCC tumors that is associated with both tumor progression and increased immune activity.

These hybrid EMT cells may attract immune cells while simultaneously protecting themselves by upregulating immune checkpoints, making them potentially more responsive to ICIs.

Dr. May will use single-cell spatial transcriptomics to define the molecular features of this hybrid EMT state and its impact on the tumor immune environment. Her goal is to develop a biomarker signature to predict recurrence and ICI response, which could lead to more personalized treatment strategies in kidney cancer.

CRI-Chordoma Foundation CLIP Investigator

Ke Pan, PhD

The University of Texas MD Anderson Cancer Center

Engineered T cells targeting Brachyury as the novel immunotherapeutic approach for chordoma

Research focus:
Chordoma, T-cell receptor-based therapy, oncolytic viruses

Chordoma is a rare and difficult-to-treat bone cancer whose growth and metastasis is driven in part by the Brachyury protein. Brachyury is highly expressed in chordoma, but largely absent from normal adult tissues, making it an attractive target for tumor-specific immunotherapies.

Effectively directing T cells to recognize and destroy Brachyury-expressing tumors remains a major challenge though. Key hurdles include identifying the right protein fragments (called MHC peptides) to activate T-cell responses and overcoming the tumor's immunosuppressive environment.

Dr. Ke Pan has made significant progress on this endeavour by using mass spectrometry to identify MHC peptides from Brachyury that cover roughly 80% of human HLA alleles. This has enabled him to generate T cells that recognize and kill Brachyury-expressing tumors, including chordoma and certain lung cancers.

Building on these findings, Dr. Pan is now developing a T-cell receptor-based therapy designed to enhance T-cell reactivity. He will test the effectiveness of these engineered T cells in combination with an oncolytic virus (Delta-24-RGD) that destroys tumor cells and stimulates inflammation. This innovative dual-approach lays the groundwork for a promising new immunotherapeutic strategy for a devastating disease.

CLIP Investigator

Filipe Pereira, PhD

Lund University

Engineering synthetic tertiary lymphoid structures in melanoma with dendritic cell reprogramming

Research focus:
Melanoma, gene therapy, "cold" tumors

Melanoma is a skin cancer whose incidence has risen by 27% annually over the past decade. While immunotherapy has revolutionized melanoma treatment, many melanomas, particularly those that are "cold", or treatment-resistant, fail to respond to current therapies. Dr. Filipe Pereira's research focuses on novel strategies to overcome resistance in these cold tumors and enhance the effectiveness of immunotherapy.

Dr. Pereira's approach relies on tertiary lymphoid structures (TLS), which are specialized immune cell clusters that form within tumors and act as local immune centers. His team recently developed a novel mechanism by which to create TLS – by reprogramming cancer cells into dendritic cells – and changed "cold" tumors into "hot" tumors that were more responsive to immunotherapy.

In this project, Dr. Pereira's team will investigate whether this reprogramming strengthens anti-tumor immunity and promotes TLS formation as well as identify the key cell types and molecular signals involved in TLS development. His long-term goal is to develop a dual-action gene therapy that combines immune cell activation with immune center coordination to shift the balance in favor of the immune system's fight against cancer.

CLIP Investigator

Giorgio Trinchieri, MD

National Cancer Institute,
National Institutes of Health

Gut microbiome, systemic inflammation, and response to immunotherapy

Research focus:
Melanoma, lung cancer, gut microbiome

In many patients, cancer disrupts the gut microbiome, leading to chronic inflammation and an immunosuppressive tumor microenvironment that can reduce the effectiveness of treatment. Dr. Giorgio Trinchieri's research investigates how the gut microbiome shapes immune responses to cancer and how it might be modulated to improve outcomes with immunotherapy.

Clinical trials using single bacterial species or defined microbial consortia have shown limited benefit, but fecal microbiota transplants (FMT) from healthy donors or immunotherapy-responders have yielded more promising results. In this project, Dr. Trinchieri's team will evaluate the gut microbiome, inflammation, and immune biomarkers in two groups of patients with melanoma treated with anti-PD-1 immunotherapy: those with exceptional, durable responses ("elite responders") and those with early disease progression ("early progressors").

His team will also analyze the gut microbiome and immune profiles in patients with melanoma, lung, and other cancers treated with various therapies alone or in combination, including anti-PD-1, anti-LAG3, anti-CTLA-4, chemotherapy, CpG-ODN, and FMT. These findings could help guide personalized microbiome-based strategies to enhance the effectiveness of cancer immunotherapy.

CLIP Investigator

Nicolas Vabret, PhD

Icahn School of Medicine at Mount Sinai

Reverse transcriptase inhibition to deter pro-tumorigenic myelopoiesis in patients with solid tumors

Research focus:
Lung cancer, colorectal cancer, aging

As people age, changes in the immune system can fuel tumor growth and reduce the body's ability to respond to immunotherapy. One key contributor is the reactivation of transposable elements (TEs) – "jumping" segments of DNA that are normally inactive and have no function. In cancer, TEs can trigger inflammation and promote immune-suppressing cells, weakening the body's defenses. Dr. Nicolas Vabret is investigating how TE-driven inflammation contributes to cancer progression and resistance to immunotherapy, particularly in older individuals.

Dr. Vabret's research has shown that lamivudine, an FDA-approved drug used to treat HIV and hepatitis B, can block TE activity. In animal models of lung and colorectal cancer, lamivudine reduced harmful immune responses, slowed tumor growth, and improved survival. His ongoing clinical trial is testing lamivudine in combination with immune checkpoint inhibitors in patients with advanced cancers who are no longer responding to standard treatment.

This project will examine how lamivudine affects immune-suppressing cells and TE activity, providing valuable insights into TE-driven inflammation and offering potential strategies to enhance existing immunotherapy treatments.

CLIP Investigator

Roberta Zappasodi, PhD

Weill Cornell Medicine

Mechanisms of "fragile" intratumoral regulatory T cells supporting anti-tumor immunity

Research focus:
T cells, metabolism, anti-tumor immunity

A common feature of tumors that respond to immunotherapy is the presence of effector T cells (Teff), which help attack cancer. However, Teff often struggle to function in tumors because cancer cells consume key nutrients like glucose that Teff need to function.

Dr. Roberta Zappasodi's previous research revealed that tumor cells not only deplete glucose rapidly but also disrupt nearby blood vessels, limiting access to oxygen and nutrients. This creates a hostile, nutrient-poor environment that weakens Teff responses. Surprisingly, regulatory T cells (Tregs), which suppress immune activity, thrive under these conditions and accumulate in tumors.

Dr. Zappasodi's preliminary data show that reducing the amount of glucose used by tumor cells improves immunotherapy responses by converting Tregs into Teff-like cells and restoring functional blood vessels. She will now investigate how this metabolic reprogramming occurs and how the converted Tregs contribute to anti-tumor immunity. These findings could reveal new ways to reprogram suppressive immune cells into cancer-fighting allies, potentially enhancing the effectiveness of immunotherapy.

About CRI

The Cancer Research Institute (CRI) is a nonprofit organization dedicated to advancing the field of cancer immunotherapy through rigorous scientific research and global collaboration. Since 1953, CRI has been instrumental in uncovering the fundamental biology of the immune system and its application to cancer treatment, laying the groundwork for breakthroughs such as checkpoint blockade, cancer vaccines, and engineered cell therapies.

CRI's mission is to create a world immune to cancer by driving scientific discovery, accelerating collaboration, and turning breakthroughs into life-saving treatments. Our work bridges the gap between discovery and patient impact, ensuring that scientific innovation translates into real-world treatments.

To date, CRI has committed over $560 million to research impacting more than 30 cancer types. Our funding strategy is built on the framework of People × Biology × Data: supporting world-class scientists, deepening understanding of tumor–immune system interactions, and harnessing data to guide discovery and translation. By uniting these elements, CRI catalyzes innovation through our global research ecosystem to drive the next generation of discoveries forward.

CRI Cancer Research Institute™

Contact Us
Cancer Research Institute
29 Broadway, Floor 4
New York, NY 10006-3111
800-992-2623 | 212-688-7515

info@cancerresearch.org

Learn more at **cancerresearch.org**