Cellular Immunotherapy of Cancer (CIC)

The Cellular Immunotherapy of Cancer study section will focus on the many approaches to cellular therapy, including stem cell transplantation, adoptive cellular therapies and their toxicities, as well as therapeutic combinations that employ adoptive and allogeneic cell transfer.

Topics include:

- Hematopoietic stem cell transplantation (allogeneic, autologous).
- Adoptive cellular therapies (TILs, CAR- and TCR-engineered T cells, NK/NKT cells) using immune cells as cancer treatment.
- Associated immune toxicities including graft-versus-host disease and cytokine release syndrome.
- Cellular therapies including dendritic cells and mononuclear phagocytes.
- Combination therapies that contain cell therapies

Shared Interests and overlaps:

There are shared interests with **Transplantation, Tolerance and Tumor Immunology (TTT)** in transplantation and graft vs. host disease. Applications that focus on the basic transplantation immunology and immune mechanism of development and strategies for prevention of graft vs. host disease may be reviewed in TTT; applications that include the promotion of graft vs. tumor effects may also be reviewed in TTT. Applications that focus on the hematopoietic stem cell transplantation as a part of cancer treatment and the immune toxicities associated with graft vs host disease may be reviewed in CIC.

There are shared interests with **Clinical Oncology (CONC)** in the area of adaptive cellular therapies. Applications that focus on the cellular immunotherapy clinical trials and correlative studies may be reviewed in CONC. Applications that focus on involving preclinical cellular immunotherapy and combination with immunotherapy/chemotherapy may be reviewed in CIC.

There are shared interests with **Translational Immuno-Oncology (TIO)** study section in antibodies engineering such as single chain Fc for cancer therapy. Applications that focus on using the engineered antibody as standalone or combined with other therapeutics may be reviewed in TIO. Applications that focus on engineering the antibody for generating CAR-T cells and evaluation of their antitumor effects may be reviewed in CIC.

There are shared interests with **Therapeutic Immune Regulation (TIR)** in the areas of therapeutic responses and combination therapies for cancer. Applications that focus on mechanisms of tumor resistance to cellular therapies such as CAR-T cells may be reviewed in TIR. Applications that focus on developing CAR-T and other cellular therapies and evaluating their antitumor effects and associated toxicities may be reviewed in CIC.

There are shared interests with **Clinical Neuroimmunology and Brain Tumors (CNBT)** in the areas of neural and brain tumors. Applications focused on immunological aspects of neural tissues and diseases unrelated to tumors may be reviewed in CNBT. Applications studying the immunopathology and immunotherapy of central nervous system tumors (glioma, medulloblastoma, etc.) may be reviewed in either CNBT or CIC (if focus is on cellular therapies).

Translational Immuno-oncology (TIO)

The Translational Immuno-oncology study section will focus on the discovery and use of therapeutic reagents, including large proteins such as antibodies, immune check point inhibitors, immune-conjugates, cytokines and tumor vaccines for prevention and treatment. Viral oncolytic therapies will also be reviewed here. Predictive biomarkers of therapeutic benefit will be evaluated here as well.

Topics include:

- Antibodies and antibody-like constructs that bind tumor cells or the tumor vasculature/microenvironment, to either directly modulate tumor cell biology (e.g., receptor agonists or antagonists), activate direct anti-tumor immune effector functions (complement, ADCC, phagocytosis), or antibody delivered cytotoxic payloads (e.g., drugs, toxins, radionuclides, liposomes or nanoparticles).
- Antibody-based constructs and other strategies to deliver immune stimulatory signals or to block immune suppressive receptors and cytokines, in order to promote endogenous anti-tumor immunity.
- Tumor vaccines of all types (protein/peptide, viral, DNA/RNA, dendritic cell, tumor cell) and formulations to induce or amplify tumor-specific immunity.
- Predictive biomarkers of an individual patient's or tumor's clinical response to immunotherapies.
- Oncolytic viruses that incorporate immunomodulatory transgenes to modulate tumor immunity and increase efficacy as well as reduce systemic side effects.
- Immune checkpoint inhibitors including biologics and small molecule drugs for well-known immune checkpoints such as PD1/PD-L1, CTLA-4, OX40 as well as other emerging immune checkpoints.
- Data mining and computational approaches for new target discovery, novel technologies for studying cancer immunobiology

Shared Interests and overlaps:

There are shared interests with **Molecular Cancer Diagnosis and Combination (MCDC)** in monitoring the clinical response. Applications that focus on the general area of cancer biomarkers in early diagnosis and in response to non-immunologic therapy of cancers may be reviewed in MCDC. Applications that focus on the predictive biomarkers of patients' clinical response to immunotherapies may be reviewed in TIO.

There are shared interests with **Developmental Therapeutics (DT)** in the areas of oncolytic virotherapy and chemoimmunotherapy. Applications that are more focused on the non-immunological aspects such as gene therapy may be reviewed in DT. Applications that focus on the immunological aspects of virotherapy may be reviewed in TIO.

There are shared interests with **Transplantation, Tolerance and Tumor Immunology (TTT)** in tumor vaccines. Applications that focus on immune modulation strategies of early-stage development of tumor vaccines in animal models and non-human primates may be reviewed in TTT. Applications that focus on cancer vaccines and their formulations to induce or amplify tumor-specific immunity may be reviewed in TIO.

There are shared interests with **Cellular Immunotherapy of Cancer (CIC)** in antibodies engineering such as single chain Fc for cancer therapy. Applications that focus on engineering the antibody for generating CAR-T cells and evaluation of their antitumor effects may be reviewed in CIC. Applications that focus on using the engineered antibody as standalone or combined with other therapeutics may be reviewed in TIO.

There are shared interests with **Therapeutic Immune Regulation (TIR)** in developing non-cellular immunotherapeutics for cancer treatment. Applications that focus on understanding the mechanism of tumor resistance to the immunotherapeutics or developing methods and models of immune response to cancer may be reviewed in TIR. Applications that focus on developing therapeutics including antibody, virus-based agents, vaccines and small molecule immune checkpoint inhibitors and evaluation of their antitumor immune responses may be reviewed in TIO.

There are shared interests with **Gene and Drug Delivery Systems (GDD)** in the areas of therapeutic delivery strategies and methods. Applications that focus more on the design and delivery of novel vehicles, vectors, or payloads may be reviewed in GDD. Applications that focus on cancer immunotherapy using delivery vehicles such as antibody, nanoparticles, vesicles may be reviewed in TIO.

There are shared interests with **Cancer Prevention Study Section (CPSS)** in the areas of tumor vaccines and immune-stimulatory natural products. Applications that focus on vaccines or immune-modulating natural products that are primarily applied to prevent emergence of tumors or premalignant lesions may be reviewed in CPSS. Applications that focus on vaccines and natural products intended as immunotherapeutic interventions (after development of disease) may be reviewed in TIO.

There are shared interests with **Clinical Neuroimmunology and Brain Tumors (CNBT)** study section. Applications that focus on the immunological aspects of neural tissues and diseases unrelated to tumors may be reviewed in CNBT. Applications that focus on the immunopathology and immunotherapy of central nervous system tumors (glioma, medulloblastoma, etc.) may be reviewed in either CNBT or TIO (if focus is on non-cellular therapeutics).

Therapeutic Immune Regulation (TIR)

The Therapeutic Immune Regulation study section will focus on preclinical and early clinical studies of immunotherapy strategies. The applications will emphasize identification of strategies to overcome resistance to the immunotherapy, including those that are not traditionally viewed as immune modulating.

Topics include:

- Abscopal effects of local tumor treatments like radiation, intra-tumoral injections and mechanical ablation that promote systemic anti-tumor immune responses.
- Development and testing of methods and models of immune responses to cancer and assessing such responses in cancer patients.
- Mechanisms of tumor resistance to immunotherapies and/or tumor escape from immune recognition and killing, including modulation of tumor antigen processing and presentation, alteration of tumor susceptibility to innate and adaptive immune responses, tumor-induced immune suppression, and immune effector cell tolerance/exhaustion.
- Preclinical studies of combinations to improve the efficacy of immunotherapies.

Shared Interests and overlaps:

There are shared interests with **Tumor Host Interactions (THI)** in the area of the tumor microenvironment**.** Applications that focus on proposing studies on tumor cell interactions with immune cells and the immune microenvironment that promote tumorigenesis may be reviewed in THI. Applications that focus on antitumor immune regulation, immunotherapy and responses to immunotherapy may be reviewed in TIR.

There are shared interests with **Mechanisms of Cancer Therapeutics B (MCTB)** in the area of therapeutic resistance. Applications that focus on mechanisms of resistance to cancer therapeutics and strategies to circumvent intrinsic and extrinsic resistance mechanisms may be reviewed in MCTB. Applications that focus on mechanisms of tumor resistance to immunotherapies and/or tumor escape from immune recognition and killing may be reviewed in TIR.

There are shared interests with **Radiation Therapeutics and Biology (RTB)** in the area of radiolabeled antibodies/antibody constructs, the abscopal immunological effects of radiation therapy, and in vivo imaging to assess response to therapy. Applications with a major focus on radiation physics, radionuclide chemistry, radiation dosimetry, and direct effects of radiation on tumor cells may be reviewed in RTB. Applications more focused on immunological aspects of the therapy may be reviewed in TIR.

There are shared interests with **Clinical Neuroimmunology and Brain Tumors (CNBT)** in the area of brain tumor therapy. Applications that focus on the immunological aspects of neural tissues and diseases unrelated to tumors should be reviewed in CNBT. Applications that focus on the immunopathology and immunotherapy of central nervous system tumors (glioma, medulloblastoma, etc.) may be reviewed in either CNBT or TIR (if focus is on therapeutic immune regulation and resistance).

There are shared interests with **Therapeutic Immune Regulation (TIO)** in developing non-cellular immunotherapeutics for cancer treatment. Applications that focus on developing therapeutics including antibodies, virus-based agents, vaccines, and immune checkpoint inhibitors and evaluation of their antitumor immune responses may be reviewed in TIO. Applications that focus on understanding the mechanism of tumor resistance to the immunotherapeutics or developing methods and models of immune response to cancer may be reviewed in TIR.

There are shared interests with **Cellular Immunotherapy of Cancer (CIC)** in areas of therapeutic responses and combination therapies for cancer. Applications that focus on developing CAR-T and other cellular therapies and evaluating their antitumor effects and associated toxicities may be reviewed in CIC. Applications that focus on mechanisms of tumor resistance to cellular therapies such as CAR-T cells may be reviewed in TIR.

There are shared interests with **Clinical Oncology (CONC)** in the area of cancer clinical trial. Applications that focus on therapeutic clinical trials including combined modality therapy may be reviewed in CONC. Applications that focus on preclinical and early clinical studies of immunotherapy strategies may be reviewed in TIR.

Gene Regulation in Cancer (GRIC)

The Gene Regulation in Cancer (GRIC) study section reviews applications aimed at understanding how dysregulated gene expression at the levels of transcription, RNA metabolism, epigenetics or translation contributes to cancer development.

Topics include:

- Gene regulation mechanisms including transcriptional and post-transcriptional regulation, RNA splicing, modifications, and stability during tumorigenesis.
- Chromatin remodeling and epigenetics in tumorigenesis.
- Translational regulation in tumorigenesis.
- Role of microRNAs and other noncoding RNAs and their biogenesis in tumorigenesis.
- Role of oncogenes and tumor suppressors in gene regulation.

Shared Interests and overlaps:

There are shared interests with **Biochemical and Cellular Oncogenesis (BCO)** in the role of oncogenes and tumor suppressors in tumorigenesis. Applications that focus on tumor initiation, signal transduction and post-translational modifications may be reviewed in BCO. Applications that focus on gene regulatory mechanisms or later events in tumorigenesis may be reviewed in GRIC.

There are shared interests with **Cancer Genetics (CG)** in the chromatin remodeling and epigenetics in tumorigenesis. Applications that focus on chromatin remodeling and epigenetics on a global scale may be reviewed in CG. Applications that focus on identified targets and pathways in tumorigenesis may be reviewed in GRIC.

There are shared interests with **Cancer Cell Biology (CCB)** in basic mechanisms of tumorigenesis. Applications that focus on mechanisms involved in metabolism, cell death, redox and stress may be reviewed in CCB. Applications that focus on gene regulatory mechanisms in cancer may be reviewed in GRIC.

There are shared interests with **Mechanisms of Cancer Therapeutics A, B, C** in gene regulatory mechanisms in oncology. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents as therapeutics on gene regulation may be reviewed in the MCTs. Applications that focus on the use anti-neoplastic agents as tools to examine basic mechanisms involving gene regulation in cancer may be reviewed in GRIC.

There are shared interests with the **Molecular Genetics (MG)** in the areas of transcriptional regulation and epigenetics. Applications that focus on the use cancer cells as a model to understand basic mechanisms of gene regulation may be reviewed in MG. Applications that focus on gene regulation in cancer development may be reviewed in GRIC.

Biochemical and Cellular Oncogenesis (BCO)

The Biochemical and Cellular Oncogenesis (BCO) study section focuses on the proteins and signal transduction pathways that drive the initiation or early stages of human cancer. A distinguishing characteristic of applications are the use of multidisciplinary approaches to characterize the structure, function, and modulation of oncogenic proteins that participate in and integrate diverse signaling networks.

Topics include:

- Characterization of oncogenes and tumor suppressors in tumor initiation and transformation.
- Effects of post-translational modifications on protein stability, structure and function in the context of cancer.
- Integration of aberrant or deregulated protein signaling pathways in tumor initiation, including dissection of protein complexes and signaling networks.
- Protein target discovery within oncogenic signaling pathways.
- Chemical biology and genetic approaches to interrogate protein-protein interactions or signaling pathway function in early tumorigenesis.
- Role of cell cycle pathways in early tumorigenesis.

Shared Interests and overlaps:

There are shared interests with **Gene Regulation in Cancer (GRIC)** in the role of oncogenes and tumor suppressors in tumorigenesis. Applications that focus on gene regulatory mechanisms and epigenetics may be reviewed in GRIC. Applications that focus on tumor initiation, signal transduction and post-translational modifications may be reviewed in BCO.

There are shared interests with **Cancer Etiology (CE)** in the investigation of post-translational modifications. Applications that focus on post-translational modifications in the context of DNA damage/repair may be reviewed in CE. Applications that focus on post-translational modification processes that contribute to cellular transformation and early oncogenesis may be reviewed in BCO.

There are shared interests with **Cancer Cell Biology (CCB)** in basic mechanisms of cell cycle pathways, signal transduction and tumorigenesis. Applications that mainly focus on mechanisms associated with tumor metabolism, stress and cell death may be reviewed in CCB. Applications that mainly focus on tumor initiation and post-translational modifications may be reviewed in BCO.

There are shared interests with **Mechanisms of Cancer Therapeutics A, B, C** in mechanisms involved in early stages of tumorigenesis. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents as therapeutics on early tumorigenesis may be reviewed in the MCTs. Applications that focus on using anti-neoplastic agents as tools to examine basic mechanisms involved in early tumorigenesis may be reviewed in BCO.

There are shared interests with **Cellular Signaling and Regulatory Systems (CSRS)** in cell cycle and signaling pathways. Applications that focus on the normal, or cancer cells as a model to understand basic mechanisms underlying these processes are reviewed in CSRS. Applications that focus on oncogenic transformation and tumor initiation may be reviewed in BCO.

Cancer Cell Biology (CCB)

The Cancer Cell Biology Study Section focuses on applications investigating basic mechanisms of cell biology that are appropriated and dysregulated in cancer, leading to phenotypic changes that impact tumorigenesis. Topics include tumor cell-intrinsic biological mechanisms regulating cell death, proliferation, survival, redox, metabolism, stress, and intercellular communication.

Topics include:

- Role of stress pathways during tumor growth and suppression.
- Mechanisms of cell death pathways and autophagy in tumor growth or suppression.
- Mechanisms and/or alterations in cell cycle pathways and proliferation in oncogenesis.
- Tumor metabolism: Characterization, mechanisms, regulation, and consequences of tumor cell metabolism including oncogenic metabolic adaptations and therapeutic vulnerabilities.
- Organelle biology as related to cancer growth and progression.
- Redox biology in the regulation of tumor cell signaling and phenotypes.
- Dynamics of tumor cell-intrinsic mechanisms involved in intercellular communication and function of extracellular vesicles/exosomes.
- Signaling pathways in tumorigenesis.

Shared Interests and overlaps:

There are shared interests with **Gene Regulation in Cancer (GRIC)** in basic mechanisms of tumorigenesis. Applications that focus on gene regulatory mechanisms may be reviewed in GRIC. Applications that focus on mechanisms involved in metabolism, cell death, redox and stress may be reviewed in CCB. There are shared interests with **Biochemical and Cellular Oncogenesis (BCO)** in basic mechanisms of cell cycle pathways, signal transduction and tumorigenesis. Applications that focus on tumor initiation and post-translational modifications may be reviewed in BCO. Applications that mainly focus on mechanisms associated with tumor metabolism, stress and cell death may be reviewed in CCB.

There are shared interests with **Tumor Evolution, Heterogeneity and Metastasis (TEHM)** and **Tumor Host Interactions (THI)** in tumor metabolism and intercellular communications. Applications that focus on mechanisms associated with tumor cell migration, invasion and metastasis may be reviewed in TEHM. Applications that focus on interactions between tumor cells and cells in the surrounding microenvironment may be assigned to THI. Applications that focus on cell-intrinsic mechanisms associated with metabolism and intercellular communications may be reviewed in CCB.

There are shared interests with **Mechanisms of Cancer Therapeutics A, B, C** in mechanisms involved in tumor metabolism, stress and cell death. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents on tumor metabolism, stress and cell death may be reviewed in the MCTs. Applications that focus on using anti-neoplastic agents as tools to examine basic mechanisms may be reviewed in CCB.

There are shared interests with **Cellular Signaling and Regulatory Systems (CSRS)** in cell cycle, cell death, and signaling pathways. Applications that focus on normal, or cancer cells as a model to understand basic mechanisms underlying these processes maybe be reviewed in CSRS. Applications that emphasize mechanisms that lead to cancer cell phenotypes maybe be reviewed in CCB.

Tumor Evolution, Heterogeneity and Metastasis (TEHM)

The Tumor Evolution, Heterogeneity, and Metastasis Study Section focuses on applications investigating cancer progression encompassing tumor growth, loco-regional invasion, angiogenesis and metastasis to additional organ sites. Applications evaluated here also explore underlying mechanisms of molecular and phenotypic diversity that contribute to cancer cell heterogeneity and disease recurrence.

Topics include:

- Identification and characterization of tumor initiating cells, including stem cells, in tumor evolution and metastasis.
- Molecular and cellular aspects of tumor cell heterogeneity, plasticity and epithelial-mesenchymal transitions (EMT).
- Mechanisms of tumor dormancy and recurrence.
- Tumor cell adhesion, invasion/migration, extracellular matrix remodeling, metastatic dissemination and growth at distant sites.
- Role of stress in tumor metastasis and angiogenesis.

Shared Interests and overlaps:

There are shared interests with **Tumor Host Interactions (THI)** in the areas of the extracellular matrix, angiogenesis and the metastatic niche. Applications that focus on interactions between tumor cells and cells in the tumor microenvironment may be reviewed in THI. Applications that mainly focus on tumor cell intrinsic processes may be reviewed in TEHM.

There are shared interests with **Cancer Cell Biology (CCB)** in mechanisms of tumor metabolism and stress involved in tumor metastasis. Applications that focus mainly on cell-intrinsic mechanisms associated with metabolism may be reviewed in CCB. Applications that emphasize mechanisms associated with tumor cell migration, invasion and metastasis may be reviewed in TEHM.

There are shared interests with **Mechanisms of Cancer Therapeutics A, B, C (MCT)** in mechanisms involved in tumor cell migration, invasion and metastasis. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents as therapeutics on tumor cell migration, invasion and metastasis may be reviewed in the MCTs. Applications that focus on anti-neoplastic agents as tools to examine basic mechanisms may be reviewed in TEHM.

Tumor Host Interactions (THI)

The Tumor-Host Interactions Study Section evaluates applications examining the interplay between molecular and cellular components of tumor microenvironments and extracellular matrices, as well as organismal effects on tumor growth that include inputs from hormones, ligands, immune cells and microbiomes. This panel also focuses on proposals to explore interactions between metastases and their organ-specific niches.

Topics include:

- Molecular and cellular aspects of interactions between tumors, stromal cells (including fibroblasts, glial cells, adipocytes, immune cells, vascular and bone marrow components) and extracellular matrix with an emphasis on tumor cell biology in tumorigenesis and metastatic niches.
- Exploration of physiologically responsive in vitro 3D systems, organotypic and new model organisms or model systems to study tumor cells in the context of a tissue-like and in vivo environment.
- Investigation of interactions between metastatic tumor cells and site-specific organs such as the bone/bone marrow microenvironment, lung and brain, and to study the cancer stem cell niche and tumor cell dormancy.
- Organismal physiology, endocrine, obesity, immunology and microbiome effects on tumor growth.
- Cancer immunobiology, immune signaling pathways, and immune response to cancer.
- Cachexia as a consequence or reflection of tumor-host interactions.

Shared Interests and overlaps:

There are shared interests with **Tumor Evolution, Heterogeneity and Metastasis (TEHM)** in extracellular matrix, angiogenesis and the metastatic niche. Applications that focus on tumor cell intrinsic processes may be reviewed in TEHM. Applications that focus on interactions between tumor cells and cells in the tumor microenvironment may be reviewed in THI.

There are shared interests with **Cancer Cell Biology (CCB)** in tumor cell metabolism and intercellular communications. Applications that focus on cell-intrinsic mechanisms associated with metabolism and intercellular communications may be reviewed in CCB. Applications that focus on interactions between tumor cells and cells in the surrounding microenvironment may be reviewed in THI.

There are shared interests with **Transplantation, Tolerance and Tumor Immunology (TTT)** in tumor immunology. Applications that focus on understanding immune cell functions in the context of immunotolerance, graft versus host disease (GVHD) or cancer may be reviewed in TTT. Applications that focus on interactions between tumor cells and immune cells in the tumor microenvironment, tumor immunology and immune responses to cancer may be reviewed in THI.

There are shared interests with **Mechanisms of Cancer Therapeutics A, B, C** in studies involving the tumor microenvironment. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents as therapeutics in the context of the tumor microenvironment may be reviewed in the MCTs. Applications that focus on the use anti-neoplastic agents as tools to examine basic mechanisms may be reviewed in THI.

Clinical Oncology (CONC)

The Clinical Oncology Study Section reviews application in the areas of clinical patient-oriented research and therapeutic trials. This includes cancer clinical trials with therapeutic intent using drugs, radiation, surgery, biological agents, including immunotherapy. The study section also reviews applications on cancer biomarkers using large cohorts of clinical samples to validate for cancer detection, progression, and response to therapy.

Topics include:

- Therapeutic clinical trials including surgery, chemotherapy, radiation therapy and radiopharmaceuticals, and combination therapies.
- Treatment modalities include immunotherapy, vaccines therapeutics and prevention, gene therapy, and small molecular/targeted therapy.
- Pharmacologic and toxicological studies of new modalities in patients and correlative studies relevant to therapeutics clinical trials.
- Non-behavioral alternative cancer therapies, and the therapy and care of older cancer patients with age-specific issues.
- Validation of prognostic and/or predictive biomarkers/molecular signatures using large scale clinical samples.
- Cancer detection, monitoring of its progression or response to therapy using available medical imaging approaches including but not limited to MRI, PET, MRS, fluorescence, and immunohistochemical assays.

Shared Interests and overlaps:

There are shared interests with **Molecular Cancer Diagnosis and Combination (MCDC)** in the areas of clinical samples to validate for cancer detection and response to therapy. Applications that focus on the predictive and prognostic biomarkers using small scale samples may be reviewed in MCDC. Applications that focus on the validation of prognostic biomarkers using large scale clinical samples may be reviewed in CONC.

There are shared interests with **Cellular Immunotherapy of Cancer (CIC)** in the area of adaptive cellular therapies. Applications that focus on preclinical cellular immunotherapy and combination with immunotherapy/chemotherapy may be reviewed in CIC. Applications that focus on the cellular immunotherapy clinical trials and correlative studies may be reviewed in CONC.

There are shared interests with **Therapeutic Immune Regulation (TIR)** in the area of cancer clinical trial. Applications that focus on preclinical and early clinical studies of immunotherapy strategies may be reviewed in TIR. Applications that focus on therapeutic clinical trials including combined modality therapy may be reviewed in CONC.

There are shared interests with **Developmental Therapeutics (DT)** in early-stage, pilot clinical trials. Applications that focus on the experimental therapy of neoplastic diseases in *in vitro* systems and in vivo model systems, including some pilot clinical trials may be reviewed in DT. Applications that focus on clinical trials with targeted therapy of small molecular inhibitors may be reviewed in CONC.

There are shared interests with **Radiation Therapeutics and Biology (RTB**) in the area of radiation therapy. Applications that focus on therapeutic interactions of ionizing radiation, radionuclides, electromagnetic radiation, and heat at the molecular, cellular, organ and patient levels may be reviewed in RTB. Applications that focus on cancer clinical trials using radiopharmaceuticals or radiotherapy in combination therapy may be reviewed in CONC.

There are shared interests **with Transplantation, Tolerance and Tumor Immunology (TTT)** in immunotherapy and vaccines development. Applications that focus on immune tolerance including human and animal studies of immune-mediated transplant rejection and studies of tumor immunology and vaccine development may be reviewed in TTT. Applications that focus on cancer clinical trials using BMT or GVHD as modalities or cancer vaccine therapy may be reviewed in CONC.

There are shared interests with **Clinical Translational Imaging Science (CTIS)** in imaging modalities. Applications that focus on the imaging system or protocol development in diagnosis of cancer or monitoring progression and response to therapy, the application may be reviewed in CTIS. Applications that focus on using imaging techniques to monitor therapeutic outcomes in clinical trials may be reviewed in CONC.

Molecular Cancer Diagnosis and Classification (MCDC)

The Molecular Cancer Diagnosis and Biomarkers study section reviews applications on the discovery, development, and validation of molecular signatures of cancer. The study section will also review applications on cancer systems biology integrating and translating experimental and computational approaches.

Topics include:

- Development of molecular diagnostics to facilitate understanding of the pathogenesis of neoplasia.
- Strategies for discovering novel cancer signatures such as predictive and prognostic biomarkers.
- Employment of specific analytical techniques and/or global molecular profiling assays to identify novel biomarkers (DNA, RNA, protein, lipids, or metabolites) obtained from tumor tissue or bodily fluids.
- Methods for cancer detection and/or monitoring, including circulating tumor nucleic acids, exosomes, microRNAs, proteins, glycoproteins.
- Validation of new biomarkers using animal models and human materials.
- Development of novel methods for biostatistical analysis, informatics, and modeling that facilitate the discovery, evaluation and use of cancer markers.
- Analysis of cancer through the combination of experimental biology and computational modeling, multi-dimensional data analysis, and systems engineering.

Shared Interests and overlaps:

There are shared interests with **Cancer, Heart, and Sleep Epidemiology A and B (CHSA and CHSB)** in the biomarker area. Applications that focus on testing validated biomarkers in large population samples may be reviewed in CHSA/CHSB. The applications related to the discovery and validation of biomarkers for cancer (pre-epidemiology studies) may be reviewed in MCDC.

There are shared interests with **Clinical Oncology (CONC)** in clinical samples to validate for cancer detection and response to therapy. Applications that focus on the validation of prognostic biomarkers using large scale clinical samples may be reviewed in CONC. Applications that focus on predictive and prognostic biomarkers using small scale samples may be reviewed in MCDC.

There are shared interests with **Translational Immuno-oncology (TIO)** in monitoring the clinical response. Applications that focus on the predictive biomarkers of patients' clinical response to immunotherapies may be reviewed in TIO. Applications that focus on the general area of cancer biomarkers in early diagnosis and in response to non-immunologic therapy of cancers may be reviewed in MCDC.

There are shared interests with **Developmental Therapeutics (DT)** in drug efficacies and toxicities. Applications that focus on translational studies of novel/established antineoplastic agents and pre-clinical drug toxicity, pharmacokinetic/pharmacodynamic studies of anticancer agents may be reviewed in DT. Applications that focus on the development of markers of responses and toxicity of established therapeutic agents may be reviewed in MCDC.

Mechanisms of Cancer Therapeutics A (MCTA)

The Mechanisms of Cancer Therapeutics A study section focuses on investigating the mechanisms-of-action of emerging therapeutics designed to treat human cancer. Studies focus on experimental evaluation of the full spectrum of therapeutic entities from small molecules to biologics to cellular to genetic agents in vitro and/or in vivo, with the goal of achieving proof-of-concept for further development.

Topics include:

- Delineation of the anti-cancer mechanism(s) of action of emerging therapies at molecular, cellular, and organism levels. Entities studied will include small molecules, peptides, protein degraders, proteins, cellular and genetic experimental therapeutics.
- Mechanistic effects of emerging therapies targeting DNA synthesis and repair, epigenetic regulation, cell cycle arrest, cell death, protein stability, RNA processing, translation, post-translational modification, metabolism, migration, metastasis, and other cancer-causing processes.
- Mechanistic validation of and functional evaluation of novel molecular targets, including multidisciplinary studies that span biochemical, structural, cellular, and in vivo characterizations (initial SAR to determine utility/validity of target).
- Mechanistic validation of lead hits identified from screens or structure-based design, including small molecule, computational, or other drug discovery technologies
- Mechanisms of action of drugs targeting organismal conditions related to cancer such as cachexia.

Shared interests and overlaps:

There are shared interests with **Mechanisms of Cancer Therapeutics B (MCTB)** in mechanisms of action of cancer therapeutic agents. Applications that focus on mechanism of action and resistance to established or repurposed cancer

therapeutics may be reviewed in MCTB. Applications that focus on emerging therapeutics and validation of novel molecular targets may be reviewed in MCTA.

There are shared interests with **Mechanisms of Cancer Therapeutics C (MCTC)** in mechanism of action of cancer therapeutic agents. Applications focused mechanism of action of established cancer therapeutics and combination studies that include early pre-clinical drug toxicity, pharmacokinetic/pharmacodynamic may be reviewed in MCTC. Applications that focus on the identification and functional validation of novel molecular targets and therapeutic agents may be reviewed in MCTA.

There are shared interests with **Drug Discovery and Molecular Pharmacology (DMP)** in developing conventional and molecularly targeted agents. Applications that focus on early stages of drug discovery involving synthesis, validation/ optimization of new anti-cancer therapeutic agents and in vivo evaluation of new drugs may be reviewed in DMP. Applications that focus on mechanistic validation of novel agents at the molecular, cellular, or target tissue level may be reviewed in MCTA.

There are shared interests with **Developmental Therapeutics (DT)** in the therapeutic evaluation of the anti-cancer drug effect. Applications that focus on the pre-clinical development and evaluation of anti-cancer therapeutic and rational combinations of cytotoxic drugs with novel agents may be reviewed in DT. Applications that focus on the mechanism of action of novel anticancer agents and the impact of drug properties on anti-cancer drug function may be reviewed in MCTA.

There are shared interests with **Tumor Host Interactions (THI)** in the investigation of the effects of tumor microenvironment. Applications that focus on the basic mechanisms of interactions between tumor and host system may be reviewed in TME. Applications that focus on targeting tumor microenvironment may be reviewed in MCTA.

There are shared interests with **Cancer Cell Biology (CCB)** in the study of the signaling pathways and cancer cell metabolism. Applications that focus on signal transduction mechanisms and modulation of cancer cell metabolism in neoplastic cells may be reviewed in CCB. Applications that focus on targeting tumor metabolomic processes and developing signaling pathway-targeted therapies may be reviewed in MCTA.

There are shared interests with **Tumor Evolution, Heterogeneity and Metastasis (TEHM)** in the investigation of tumor initiating cells and metastasis. Applications that focus on the use of anti-cancer drugs mainly to investigate the role of stem cells in tumor metastasis and to study basic mechanisms of tumor progression and metastasis may be reviewed in TEHM. Applications that involve clinical translational targeting of tumor initiating cells and metastasis may be reviewed in MCTA.

There are shared interests with **Biochemical and Cellular Oncogenesis (BCO)** in identification of novel cancer therapeutic targets. Applications that focus on identification of novel protein targets using therapeutic agents as tool can be reviewed in BCO. Applications that focus on mechanistic validation and functional evaluation of novel molecular targets and therapeutic agents for clinical translation can be reviewed in MCTA.

There are shared interests with **Gene Regulation in Cancer (GRIC)** in gene regulatory mechanisms in oncology. Applications that focus on the use anti-neoplastic agents as tools to examine basic mechanisms involving gene regulation in cancer may be reviewed in GRIC. Applications that focus on mechanistic studies of the effects of novel anti-neoplastic agents on gene regulation may be reviewed in MCTA.

Mechanisms of Cancer Therapeutics B (MCTB)

The Mechanisms of Cancer Therapeutics B study section focuses on investigating the mechanisms-of-action of ca therapeutics across drug classes, and their combinations, in the treatment of human cancer. Studies focus on cellular and in vivo activity studies, including investigations of resistance.

Topics include:

- Evaluation of the mechanism of action of established or repurposed cancer therapeutics (previously tested in model organisms and/or humans), spanning small molecule, peptide, protein, cellular, and genetic experimental therapeutics.
- Studies of the impact of drug treatments and combinations thereof on key oncogenic signaling processes, spanning DNA synthesis and repair, epigenetic regulation, cell cycle arrest, cell death, protein stability, RNA processing, translation, post-translational modification, metabolism, migration, metastasis, and other processes.
- Effect of established cancer therapeutics on the tumor microenvironment and host-cell interactions.
- In vivo studies of the therapeutic window of established cancer therapeutics, including effects on normal host tissues, the microbiome, and delineation of toxicities and their mechanisms.
- Mechanisms of resistance to established cancer therapeutics and strategies to circumvent intrinsic and extrinsic resistance mechanisms, including genetic and chemical screens.

Shared interests and overlaps:

There are shared interests with **Mechanisms of Cancer Therapeutics A (MCTA)** in mechanism of action of cancer therapeutic agents. Applications that focus on the identification and functional validation of novel molecular targets and therapeutic agents may be reviewed in MCTA. Applications focused mechanism of action and or resistance to established or repurposed cancer therapeutics may be reviewed in MCTB.

There are shared interests with **Mechanisms of Cancer Therapeutics C (MCTC)** in mechanisms of action of cancer therapeutic agents. Applications that focus on mechanism of action of established cancer therapeutics and their combination that include early preclinical investigations of efficacy may be reviewed in MCTC. Applications that focus on basic mechanism of action and resistance to established or repurposed cancer therapeutics may be reviewed in MCTB.

There are shared interests with **Drug Discovery and Molecular Pharmacology (DMP)** in developing conventional and molecularly targeted agents. Applications that focus on chemical modification of existing compounds could be reviewed in DMP. Applications that focus on mechanism of action of these compounds at the molecular, cellular, or target tissue level may be reviewed in MCTB.

There are shared interests with **Developmental Therapeutics (DT)** on therapeutic strategies involving combinations of cytotoxic drugs with targeting agents. Applications that focus on advanced animal experiments and pilot clinical trials may be reviewed in DT. Applications that focus on mechanism of action of combination therapies and the effects of drug combination on key oncogenic signaling processes may be reviewed in MCTB.

There are shared interests with **Radiation Therapeutics and Biology (RTB)** in molecular and cellular mechanism of cancer therapy. Applications that focus on DNA damage and other effects of radiation therapy may be reviewed in RTB. Applications that focus on the effects of anti-neoplastic agents on tumor cell anabolic and catabolic processes (DNA damage/repair and gene regulation cell cycle and checkpoint control, apoptotic and non-apoptotic cell death) may be reviewed in MCTB.

There are shared interests with **Therapeutic Immune Regulation (TIR)** in combinations of targeted or conventional therapy with immunotherapy to circumvent chemo drug resistance. Applications that focus on immune mediated mechanisms of the anti-tumor response and resistance may be reviewed in TIR. Applications that focus on the effects on the combination therapy on key oncogenic signaling processes and applications that focus on the immune-mediated response to targeted or conventional therapy may be reviewed in MCTB.

There are shared interests with **Biochemical and Cellular Oncogenesis (BCO)** in regulation of signal transduction mechanisms in neoplastic cells. Applications that focus on the analysis of signaling complexes and their interactions

among different signaling pathways in the context of tumor biology and tumor progression may be reviewed in BCO. Applications that focus on identification of novel protein targets using therapeutic agents as tool can be assigned to BCO. Applications on the effects of anti-neoplastic agents on signaling pathways may be reviewed in MCTB.

There are shared interests with **Cancer Cell Biology (CCB**) in mechanisms controlling, tumor metabolism, cell death and cellular stress pathways. Applications that focus on the use therapeutic agents as tool to study these pathways tumor growth and suppression may be reviewed in CCB. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents on tumor metabolism, stress and cell death may be reviewed in MCTB.

There are shared interests with **Gene Regulation in Cancer (GRIC)** in gene regulatory mechanisms in oncology. Applications that focus on the use anti-neoplastic agents as tools to examine basic mechanisms involving gene regulation in cancer may be reviewed in GRIC. Applications that focus on mechanistic studies of the effects of established anti-neoplastic agents on gene regulation may be reviewed in MCTB.

There are shared interests with **Clinical Neuroimmunology and Brain Tumors (CNBT)** in treatment of glioblastomas, medulloblastomas, neuroblastomas and gliomas. Applications that focus on the central nervous system consequences due to brain tumors may be reviewed in CNBT. Applications that focus on mechanism(s) of action of anti-neoplastic agents in brain tumors may be reviewed in MCTB.

Mechanisms of Cancer Therapeutics-C (MCTC)

The Mechanisms of Cancer Therapeutics C study section focuses on investigating the mechanisms-of-action of cancer therapies across drug classes in the treatment of human cancer. Studies focus on both cellular and in vivo activity studies, including early preclinical investigations of efficacy and toxicity.

Topics include:

- Evaluation of the mechanism of action of cancer therapeutics spanning small molecule, peptide, protein, cellular, and genetic experimental therapeutics.
- Mechanism of action of cancer therapeutics in vitro and/or in vivo, including expansion of animal testing to delineate breadth of anti-cancer efficacy.
- Studies of the impact of cancer therapeutics on key oncogenic signaling processes that include early preclinical investigations of efficacy and toxicity.
- Identification and validation of combination therapies to maximize the efficacy of cancer treatments including rational combinations of conventional and targeted therapies with novel agents.
- Studies of cellular pharmacokinetics and pharmacodynamics of cancer therapeutic agents and the impact of drug properties on anti-cancer drug function.

Shared Interests and overlaps:

There are shared interests with **Mechanisms of Cancer Therapeutics (MCTA)** in mechanism of action of cancer therapeutic agents. Applications that focus on the identification and functional validation of novel molecular targets and therapeutic agents may be reviewed in MCTA**.** Applications focused mechanism of action of established cancer therapeutics and combination studies that include early pre-clinical drug toxicity, pharmacokinetic/pharmacodynamic may be reviewed in MCTC.

There are shared interests with **Mechanisms of Cancer Therapeutics (MCTB)** in mechanisms of action of cancer therapeutic agents. Applications that focus on basic mechanism of action and resistance to established or repurposed

cancer therapeutics may be reviewed in **MCTB**. Applications that focus on mechanism of action of established cancer therapeutics and their combination that include early preclinical investigations of efficacy may be reviewed in MCTC

There are shared interests with **Drug Discovery and Molecular Pharmacology (DMP)** in developing conventional and molecularly targeted agents. Applications that focus on chemical modification of existing compounds could be reviewed in DMP. Applications that focus on mechanism of action of these compounds at the molecular, cellular, or target tissue level may be reviewed in MCTC.

There are shared interests with **Developmental Therapeutics (DT)** on therapeutic strategies involving combinations of cytotoxic drugs with targeting agents. Applications that focus on advanced animal experiments and pilot clinical trials may be reviewed in DT. Applications that focus on mechanism of action of novel therapeutic combination strategies that include efficacy studies may be reviewed in MCTC

There are shared interests with **Therapeutic Immune Regulation (TIR)** in combinations of targeted or conventional therapy with immunotherapy to circumvent chemo drug resistance. Applications that focus on immune mediated mechanisms of the anti-tumor response and resistance may be reviewed in TIR. Applications that focus on the effects on the combination therapy on key oncogenic signaling processes and applications that focus on the immune-mediated response to targeted or conventional therapy may be reviewed in MCTC.

There are shared interests with **Biochemical and Cellular Oncogenesis (BCO)** in regulation of signal transduction mechanisms in neoplastic cells. Applications that focus on the analysis of signaling complexes and their interactions among different signaling pathways in the context of tumor biology and tumor progression may be reviewed in BCO. Applications that focus on identification of novel protein targets using therapeutic agents as tool can be assigned to BCO. Applications on the effects of therapeutic agents on signaling pathways that also include early preclinical investigations of efficacy and toxicity may be reviewed in MCTC.

There are shared interests with **Cancer Cell Biology (CCB)** in mechanisms controlling, tumor metabolism, cell death and cellular stress pathways. Applications that focus on the use therapeutic agents as tool to study these pathways tumor growth and suppression may be reviewed in CCB. Applications that focus on mechanistic studies of the effects of anti-neoplastic agents on tumor metabolism, stress and cell death that also include early preclinical investigations of efficacy and toxicity may be reviewed in MCTC.

There are shared interests with **Gene Regulation in Cancer (GRIC)** in gene regulatory mechanisms in oncology. Applications that focus on the use anti-neoplastic agents as tools to examine basic mechanisms involving gene regulation in cancer may be reviewed in GRIC. Applications that focus on mechanistic studies of the effects of established anti-neoplastic agents on gene regulation that also include early preclinical investigations of efficacy and toxicity may be reviewed in MCTC.

There are shared interests with **Clinical Neuroimmunology and Brain Tumors (CNBT**) in treatment of glioblastomas, medulloblastomas, neuroblastomas and gliomas. Applications that focus on the central nervous system consequences due to brain tumors may be reviewed in CNBT. Applications that focus on mechanisms of action of anti-neoplastic agents in brain tumors as well as early preclinical investigations of efficacy and toxicity may be reviewed in MCTC.