Center for Scientific Review
National Institutes of Health

For a listing of the Scientific Review Administrator and membership roster for each study section, click on the study section roster under the study section name within the IRG listed below or go to the study section index (study sections listed alphabetically) and click on the specified roster next to the name of the study section.

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Referral & Review

Oncological Sciences IRG [ONC]

PRINTER FRIENDLY

The Oncological Sciences [ONC] Integrated Review Group (IRG) will consider applications involving basic, translational, and clinical investigations that encompass cancer prevention, initiation, promotion, progression, diagnosis and treatment. Specifically, the ONC IRG reviews research grant applications related to chemical carcinogenesis, cancer genetics, nutritional carcinogenesis, radiation effects, and tumor biology; mechanism of action of cancer therapeutic agents in both *in vitro* and *in vivo* model systems; development and evaluation of experimental therapies of neoplastic diseases, translation of basic research to clinical practice; development or optimization of treatment modalities; chemoprevention; and development of biomarkers/signatures for tumor detection and diagnosis.

The following Study Sections are included within the ONC IRG:

Cancer Etiology Study Section [CE]
Cancer Genetics Study Section [CG]
Cancer Molecular Pathobiology [CAMP]
Tumor Cell Biology Study Section [TCB]
Tumor Microenvironment Study Section [TME]
Tumor Progression and Metastasis Study Section [TPM]
Chemo/Dietary Prevention Study Section [CDP]
Cancer Biomarkers Study Section [CBSS]
Radiation Therapeutics and Biology Study Section [RTB]
Cancer Immunopathology and Immunotherapy Study Section [CII]
Drug Discovery and Molecular Pharmacology Study Section [DMP]
Developmental Therapeutics Study Section [DT]
Basic Mechanisms of Cancer Therapeutics Study Section [BMCT]
Clinical Oncology Study Section [CONC]
Oncological Sciences Small Business Activities [SBIR/STTR] Special Emphasis Panels [ONC Small Business SEPs]
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Cancer Etiology Study Section [CE]

[CE Roster**]**

The Cancer Etiology Study Section reviews grant applications related to the causal agents, processes, and cells involved in tumor pathogenesis. The areas included within CE involve the conversion of normal cells to cancer cells, including neoplastic lesions and events leading to the tumor becoming invasive. Organ-specific oncogenesis is included in this study section. Tools often utilized in these studies include: animal models (e.g., knockouts and transgenics), in vitro models (e.g., cell lines and explant cultures), functional imaging (e.g., Fluorescence Resonance Energy Transfer- FRET), and structural biology.

Specific areas covered by CE include:

- Signal transduction: including growth factors, cytokines, receptors, post-translational modifications and intracellular mediators (such as arachidonic acid and transcription factors)
- Protein degradation and stability (including ubiquitination)
- Gene regulation: including transcription factors, RNA stability and processing, as they contribute to oncogenesis
- Immortalization and senescence: including the action of telomerase
- Differentiation/transdifferentiation in oncogenesis
- Cell cycle/checkpoints (as related to initiation events)
- Chemical- and radiation-induced mutagenesis
- Processes involved in chemical carcinogenesis leading to damage to the genome (including DNA adduction, xenobiotic metabolism, and identification of causal agents)
- Viral carcinogenesis
- Metabolism: including metabolism of endogenous compounds
- Stress responses: including oxidative stress and reactive oxygen species

CE has the following shared interests within the ONC IRG:

- **With Cancer Genetics [CG]** regarding hereditary tumors, gene polymorphisms and pathogen-associated tumors. In general, genetic studies could be assigned to CG; if emphasis is on the etiology of disease, studies could be assigned to CE.

- **With Cancer Molecular Pathobiology [CAMP]** in signal transduction, protein degradation, cell cycle checkpoint, etc: In general, CAMP reviews studies related to participation in oncogenesis while CE is more involved in understanding fundamental processes.

- **With Cancer Biomarkers [CBSS]** regarding discovery and evaluation of genetic and epigenetic abnormalities in tumors that may serve as clinical biomarkers for disease prognosis or predicting response to therapy. When the focus is on identification of markers for clinical applications, the proposal could be assigned to CBSS; when the focus is on understanding the disease process, the applications could be assigned to CE.

- **With Radiation Therapeutics and Biology [RTB]** regarding oxidative stress, reactive oxygen species, cell cycle/checkpoints, and signal transduction: studies related to modulation of radiation response or mechanisms of action could be assigned to RTB; broader studies could be assigned to CE.

- **With Drug Discovery and Molecular Pharmacology [DMP]** as it relates to processes and targets involved in oncogenesis. Studies relating to drug discovery and development could be assigned to DMP, more basic studies of cancer processes and targets could be assigned to CE.

- **With Developmental Therapeutics [DT]** in studies of signal transduction, cell cycle regulation, apoptosis, and differentiation. Therapeutically oriented studies, could be assigned to DT, more basic studies could be assigned to CE.

CE has the following shared interests outside the ONC IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] IRG:** In general, molecular studies not focused on the etiology of cancer could be assigned to BCMB; if the study is focused on the etiology of cancer, it could be assigned to CE.

- **With the Genes, Genomes and Genetics [GGG] IRG:** In general, gene function studies not uniquely relevant to the etiology of cancer could be assigned to GGG; studies focused on the etiology of cancer could be assigned to CE.

- **With the Cell Biology [CB] IRG:** In general, if the findings could also be relevant to another area of biomedical research, the application could be assigned to CB; cell studies uniquely relevant to the etiology of cancer could be assigned to CE.

- **With the Health of the Population [HOP] IRG:** In general, if an epidemiological approach is central to the study, review could be in HOP; studies of cancer etiology could be assigned to CE.

- **With the Infectious Diseases and Microbiology [IDM] IRG:** In general, studies of infections as a trigger of cancer could be assigned to CE or IDM depending on the emphasis of the study; studies of the etiology of cancer could be assigned to CE.

- **With the AIDS and Related Research [AARR] IRG:** In general, studies of the etiology of HIV/AIDS-associated cancers could be assigned to AARR.

- **With the Hematology [HEME] IRG:** In general, applications that focus on normal development or the etiology of abnormal development of hematological cells (including red blood cell malignancies) and other pathologies could be assigned to HEME; applications that are exclusively focused on the etiology of leukemia or lymphoma could be assigned to CE.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** In general, studies of pre-neoplastic, dysplastic and hyperplastic disorders of the reproductive organs could be assigned to EMNR. Studies of the etiology of endometrial hyperplasia; trophoblast neoplasia; germ cell tumors; pituitary adenomas; as well as thyroid, parathyroid, and adrenal tumors could be assigned to EMNR; studies of the etiology of tumors of reproductive organs could be assigned to CE.

- **With the Musculoskeletal, Oral, and Skin Sciences [MOSS] IRG:** In general, studies of pre-neoplastic skin disorders could be assigned to MOSS; studies of the etiology of oral, head and neck cancer, and bone tumors could be assigned to CE.

- **With the Digestive Sciences [DIG] IRG:** In general, studies of pre-neoplastic conditions

as a consequence of chronic esophageal or gastrointestinal infection or inflammation, and pre-neoplastic conditions of the liver or pancreas could be assigned to DIG.

- **With the Renal and Urological Sciences [RUS] IRG:** In general, studies related to differentiation in the context of urinary tract or kidney development or other diseases, or studies focused on benign processes in the kidney, urinary tract, or male genital system could be assigned to RUS; studies of early events in malignant transformation focused on the neoplastic process could be assigned to CE.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, studies of malignant transformation and progression in the context of specific brain tumors could be assigned to BDCN; studies of malignant transformation or progression more broadly applicable to neoplastic processes could be assigned to CE.

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Cancer Genetics Study Section [CG]

[CG Roster**]**

The Cancer Genetics [CG] Study Section reviews grant applications related to the causal agents and target genes involved in tumor pathogenesis. Organ-specific carcinogenesis is included in this study section. Studies using both mammalian and non-mammalian models are included.

Specific areas covered by CG include:

- Oncogene discovery, genomics, and proteomics (including molecular and biochemical profiling)
- Positional cloning
- Animal models for gene discovery
- Cancer genetics: including hereditary and somatic DNA alterations, allelic imbalance/LOH
- Epigenetics: including DNA methylation and imprinting
- Metabolizing enzyme polymorphisms and mutations
- Genomic instability: including microsatellite and chromosomal instability
- Susceptibility/modifier genes that modify susceptibility to cancer without allelic loss including low penetrance genes identified in human and animal models

CG has the following shared interests within the ONC IRG:

- **With Cancer Etiology [CE]** in development of early biomarkers and in organ-specific carcinogenesis. If emphasis is in the etiology of disease, the application could be assigned to CE, in general other genetic studies could be assigned to CG.

- **With Tumor Progression and Metastasis [TPM]** as it relates to tumor progression. If genetic control of tumor progression is the central focus, the application could be assigned to TPM.

- **With Cancer Biomarkers [CBSS]** regarding discovery and evaluation of genetic and epigenetic abnormalities in tumors that may serve as clinical biomarkers. When the focus

is on identification of biomarkers for clinical applications, the proposal could be assigned to CBSS; when the focus is on understanding the disease process, the applications could be assigned to CG.

- **With Radiation Therapeutics and Biology [RTB]** in genomic instability: If the instability relates to radiation effects, the application could be assigned to RTB; other examples of genomic instability could be assigned to CG.

- **With Drug Discovery and Molecular Pharmacology [DMP]** in studies of processes and targets involved in oncogenesis. Pharmacological studies could be assigned to DMP while studies focused on cancer genetics could be assigned to CG.

CG has the following shared interests outside the ONC IRG:

- **With the Genes, Genomes and Genetics [GGG] IRG:** In general, if the findings could also be relevant to another area of biomedical research, the study could be assigned to GGG; fundamental genetic and gene function studies uniquely relevant to oncology could be assigned to CG.

- **With the Hematology [HEME] IRG:** In general studies of the genetics of lymphoma and leukemia could be assigned to CG.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** In general, studies of the genetics of endometrial hyperplasia; trophoblast neoplasia; germ cell tumors; pituitary adenomas; as well as thyroid, parathyroid, and adrenal tumors could be assigned to EMNR; studies of genetics of reproductive organ tumors could be assigned to CG.

- **With the Digestive Sciences [DIG] IRG:** In general, genetic studies of the pre-neoplastic stages of GI, liver, or pancreas could be assigned to DIG; genetic studies of GI, liver, or pancreatic cancers could be assigned to CG.

- **With the Renal and Urological Sciences [RUS] IRG:** In general, genetic studies focused on the malignant transformation in the context of urinary tract or kidney development or other diseases; or studies focused on benign processes in the kidney, urinary tract, or male genital system could be assigned to RUS; genetic studies of malignant transformation focused on the neoplastic process could be assigned to CG. Studies of genes and their products that are involved in both neoplastic and normal developmental processes (e.g., WT1 and VHL) could be assigned to RUS or CG, depending on the focus of the study.

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Cancer Molecular Pathobiology Study Section [CAMP]

[CAMP Roster**]**

The Cancer Molecular Pathobiology [CAMP] Study Section reviews applications involving the biology of the malignant cell, as it relates to early (initiating) events in transformation. Emphasis is on control of cell growth and death, and the molecular events in gene regulation and protein modification and turnover that underlie this control.

Specific areas covered by CAMP include:

- Gene regulation relevant to cancer, including chromatin structure and remodeling, RNA stability, and translation.
- Alterations in protein stability that are important in the development of malignant phenotypes such as post-translational modifications and abnormal degradation.
- Signaling transduction pathways related to oncogenesis.
- Cell cycle pathways and checkpoints that are altered in malignant cells.
- Cell death pathways (both apoptotic and non-apoptotic) in cancer and the role of caspases.
- Cellular immortalization and senescence pathways (including those mediated through telomeres and telomerase).
- Oncogenes and tumor suppressor genes as they relate to the onset of oncogenesis.

CAMP has the following shared interests within the ONC IRG:

- **With Tumor Cell Biology [TCB]:** Applications focused on signal transduction primarily related to cell cycle/checkpoints and/or apoptosis could be assigned to CAMP. Other growth factor/signaling applications could be assigned to TCB.

- **With Cancer Biomarkers [CBSS]** relating to the development of novel biomarkers, signatures, and patterns of tumors. If the focus is on mechanisms, it could be assigned to CAMP.

CAMP has the following shared interests outside the ONC IRG:

- **With the Genes, Genomes and Genetics [GGG] IRG:** In general, studies of normal regulatory processes could be assigned to GGG, whereas gene regulation processes critical for transformation and/or tumor progression could be assigned to CAMP. Studies that combine both normal regulatory processes and processes critical for transformation and/or tumor progression could be assigned to an IRG according to the main focus of the research.

- **With the Cell Biology [CB] IRG:** In general, studies of normal cell biology processes could be assigned to CB and processes of cell biology that are critical for transformation and/or tumor progression could be assigned to CAMP. Studies that combine both normal cell biological processes and processes critical for transformation and/or tumor progression could be assigned to an IRG according to the main focus of the research.

- **With the Organ-system IRGs:** In general, studies of normal cell biology processes unique to a specific organ system could be assigned to the appropriate organ-system IRG and studies of cell biology directed toward understanding carcinogenesis could be assigned to CAMP.

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Tumor Cell Biology Study Section [TCB]

[TCB Roster**]**

The Tumor Cell Biology [TCB] Study Section reviews applications focusing on signal transduction and growth factor regulation of neoplastic transformation and progression.

Specific areas covered by TCB include:

- Signaling by cell surface receptors, growth factors, or cytokines, mediated by protein kinases, phosphatases, or other processes. This includes the analysis of the composition, formation, and functioning of signaling complexes.
- Analysis of cross-talk among signaling pathways.
- Pathways regulated by oncogenes and tumor suppressor genes. How these genes alter signaling in neoplasms and the consequences of these alterations on tumor cell function.
- Hormonal modulation of carcinogenesis, including endocrine signaling as it relates to tumorigenesis, steroid metabolism, and nuclear hormone receptors.
- Differentiation and transdifferentiation in oncogenesis

TCB has the following shared interests within the ONC IRG:

- **With Cancer Molecular Pathobiology [CAMP]:** Applications focused on signal transduction primarily related to cell cycle/checkpoints, apoptosis, or initiating events in oncogenic transformation could be assigned to CAMP. Other growth factor/signaling applications could be assigned to TCB.

- **With Tumor Microenvironment [TME]:** Applications focused on the effects of extracellular actions of growth factors and other cytokines could be assigned to TME; those focusing on intracellular signaling could be assigned to TCB.

- **With Cancer Biomarkers [CBSS]** relating to the development of novel biomarkers, signatures, patterns and signaling pathways. If related to diagnosis they could be assigned to CBSS; if related to oncogenesis, they could be assigned to TCB.

- **With Developmental Therapeutics [DT]** in studies of signal transduction, cell cycle, and differentiation. If not closely related to drug development, these studies could be assigned to TCB.

TCB has the following shared interests outside the ONC IRG:

- **With the Genes, Genomes and Genetics [GGG] IRG:** In general, studies of how genes alter signaling in normal cells and the consequences of those alterations could be assigned to GGG; studies of how genes alter signaling in neoplasms and the consequences of those alterations could be assigned to TCB. Proposals that combine studies of gene alterations of signaling in both normal and neoplastic cells could be assigned to an IRG according to the main focus of the proposal.

- **With the Cell Biology [CB] IRG:** In general, studies of signaling in normal cells could be assigned to CB; studies of signaling processes during neoplastic transformation and progression could be assigned to TCB. Proposals that combine studies of signaling in both normal cells and in neoplastic cells could be assigned to an IRG according to the main focus of the proposal.

- **With the Organ-system IRGs:** In general, studies of signaling processes unique to cells in a specific organ system could be assigned to the organ-system IRG; studies of signaling directed toward understanding carcinogenesis could be assigned to TCB.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** In general, studies of endometrial hyperplasia; trophoblast neoplasia; germ cell tumors; pituitary adenomas; as well as thyroid, parathyroid, and adrenal tumors could be assigned to EMNR; studies of tumors in reproductive organs could be assigned to TCB. In general, studies of obesity or insulin resistance as a risk factor for cancer could be assigned to EMNR if the focus is on mechanisms of metabolic fuel homeostasis or insulin action on cell growth; studies focusing on the mechanism of oncogenesis could be assigned to TCB.

- **With the Digestive Sciences [DIG] IRG:** Studies of familial adenomatous polyposis (FAP) as well as the pathology and treatment of polyps in the GI system could be assigned to DIG. In general, cell biological studies of GI, liver, or pancreatic cancers could be assigned to TCB. Studies of Barrett's Esophagus could be assigned to DIG or TCB depending on the focus of the study.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, studies of tumor physiology and pathology of the brain could be assigned to BDCN; studies for which a brain tumors is being used as a model system could be assigned to TCB.

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Tumor Microenvironment Study Section [TME]

[TME Roster**]**

The Tumor Microenvironment [TME] Study Section reviews grant applications that deal with basic mechanisms of cancer cell interactions with host systems including: immune, inflammatory, stromal, vascular, and extracellular matrix. Emphasis is on evaluation of the tumor as an organ-like structure with complex, dynamic cross-talk. Included are studies of cell adhesion molecules, cell-cell interactions and alterations of extracellular matrix. Studies of tumor angiogenesis, involvement of tumor lymphatic components, and organ-specific metastasis are assigned to this study section.

Specific areas covered by TME include:

- Molecular and cellular aspects of tumor cell biology (including gap junctions, adherens, and tight junctions) and cross-talk with host cells (including connective tissue cells, immune cells, inflammatory cells, and vascular compartments).
- Bi-directional interactions (feedback) during neoplastic progression, angiogenesis and metastasis.
- Cellular and molecular aspects of epithelial-mesenchymal transition and transactivation as it relates to tumor progression.
- Development and exploration of physiologically responsive organotypic models, and models of other tissue-like processes such as angiogenesis, that allow investigation of tumor cells in the context of a tissue-like environment.
- Evaluation of cell-matrix adhesion and its dynamic changes during tumor progression. Dynamics of cell-cell communication for cell survival, growth, and invasion. Included are studies of inter-cellular signaling and production of paracrine factors (including TGF-beta) that regulate matrix formation and remodeling.
- Development and investigation of models for studying organ-specific metastases, including crucial interactions between metastatic cells and bone/bone marrow

microenvironment or with other site-specific organs.

TME has the following shared interests within the ONC IRG:

- **With Tumor Cell Biology [TCB]:** Growth factors in the context of intracellular signaling could be assigned to TCB; growth factor biology, as it affects tumor progression and metastasis, could be assigned to TME.

- **With Tumor Cell Biology [TCB]:** Activity of modulators of tumor cell adhesion, shape, motility, and invasion as it pertains to intracellular signaling pathways could be assigned to TCB, whereas applications dealing with signals from cells and extracellular matrix could be assigned to TME.

- **With Tumor Progression and Metastasis [TPM]:** Studies that focus on the role of angiogenesis for progression of tumors could be assigned to TPM; studies of angiogenesis, as it relates to the tumor microenvironment, could be assigned to TME.

- **With Cancer Biomarkers [CBSS]** regarding "host factors" such as immune signatures and vascular compartments. If the study concerns development of diagnostic biomarkers it could be assigned to CBSS, otherwise it could be assigned to TME.

- **With Radiation Therapeutics and Biology [RTB]** regarding tumor microenvironment: Studies of tumor microenvironment that relate to radiation biology (e.g., hypoxia) could be assigned to RTB; other studies of tumor microenvironment could be assigned to TME.

TME has the following shared interests outside the ONC IRG:

- **With the Hematology [HEME] and Cardiovascular Sciences [CVS] IRGs:** In general, studies of angiogenesis that are focused on developmentally related processes or reactivation of embryonic processes could be assigned to HEME or CVS; studies focused on tumor angiogenesis could be assigned to TME.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** In general, studies of the interaction of hormones with endocrine glands or reproductive organs and their microenvironment could be assigned to EMNR; studies of hormonal regulation of endocrine tumors could be assigned to EMNR and hormonal regulation of other tumors to TME.

- **With the Musculoskeletal, Oral, and Skin Sciences [MOSS] IRG:** In general, studies of the interaction of musculosketal, oral, skin, and bone cells with the tumor microenvironments could be assigned to MOSS; studies focused on tumor cell-microenvironment interactions could be assigned to TME.

- **With the Digestive Sciences [DIG] IRG:** In general, studies of the interactions of pre-neoplastic cells of the GI, liver, or pancreas with their microenvironments could be assigned to DIG; studies of the interactions of tumor cells from GI, liver or pancreatic with their microenvironment could be assigned to TME.

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Tumor Progression and Metastasis Study Section [TPM]

[TPM Roster**]**

The Tumor Progression and Metastasis [TPM] Study Section reviews grant applications that deal with basic mechanisms of cancer progression and metastasis. Special emphasis is placed on angiogenesis, hypoxia, invasion, migration/motility and tumor cell extravasation, intravasation, survival, adhesion and growth. Studies focusing on proteases, wound healing and extracellular matrix remodeling, cell adhesion molecules/integrins will also be assigned to this study section. These include *in vitro* and animal studies of malignancies.

Specific areas covered by TPM:

- Mechanisms and contributions of angiogenesis and lymphoid components in both pre-malignant and malignant stages of tumor progression (including the roles of hypoxia, angiogenic factors and their receptors).
- Studies of tumor cell invasion, migration, and motility (including tumor cell intravasation and extravasation).
- Studies on the basic biology of metastasis (including adhesion, growth, and modification of the extracellular matrix environment).
- Studies of the role of proteases and remodeling of extracellular matrix as it relates to tumor progression and metastasis.
- Studies of the mechanisms and roles of wound healing as they relate to tumor progression.
- The contribution of cell membrane specializations (e.g., caveolae and lipid rafts).
- The role of carbohydrate modifications as they relate to invasion/progression.
- Studies of the role of steroid hormones and the mechanisms of hormone independence in tumor progression.
- Developmental processes related to tumor progression, such as stem cell targets for organ-specific cancers.

TPM has the following shared interests within the ONC IRG:

- **With Cancer Etiology [CE]** regarding signal transduction, protein degradation, cell cycle checkpoint, apoptosis, etc.: Studies relating to causal processes of cancer could be assigned to CE while those relating to transformation or progression could be assigned to TPM.

- **With Tumor Microenvironment [TME]** as it relates to angiogenesis: Studies focused on angiogenesis in tumor progression could be assigned to TPM, while studies focused on the role of angiogenesis in tumor progression in the context of the tumor microenvironment could be assigned to TME.

- **With Tumor Microenvironment [TME]:** Studies of proteolysis as it relates to cell-matrix or cell-cell interactions could be assigned to TME; studies of proteolysis as it affects tumor metastasis and invasion could be assigned to TPM.

- **With Cancer Biomarkers [CBSS]** in the discovery and evaluation of markers for angiogenesis, invasion and other aspects of cancer metastasis that may serve as clinical biomarkers: When the focus is on identification of markers for clinical application, the study could be assigned to CBSS; when the focus is on understanding the role of metastasis, the study could be assigned to TPM.

- **With Radiation Therapeutics and Biology [RTB], Drug Discovery and Molecular Pharmacology [DMP], and Developmental Therapeutics [DT]:** Studies of potential therapeutic agents targeting the angiogenic pathway may be assigned to RTB, DMP, or DT.

TPM has the following shared interests outside the ONC IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] and Cell Biology [CB] IRGs:** In general, studies of extracellular matrix and proteolysis dealing with normal cell function could be assigned to BCMB or CB; if they relate solely to neoplastic progression they could be assigned to TPM.

- **With the Biology of Development and Aging [BDA] IRG:** In general, studies of developmental mechanisms and processes could be assigned to BDA; studies directly related to tumor metastasis could be assigned to TPM.

- **With the Hematology [HEME] IRG:** In general, studies of red blood cell disorders/malignancies could be assigned to HEME; studies of lymphoma and leukemia progression and metastasis could be assigned to TPM.

- **With the Cardiovascular Sciences [CVS] IRG:** In general, studies of angiogenesis that are focused on developmentally related processes or reactivation of embryonic processes could be assigned to CVS; studies focused on tumor progression and metastasis could be assigned to TPM.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** In general, studies of endometrial hyperplasia; trophoblast neoplasia; germ cell tumors; pituitary adenomas; as well as thyroid, parathyroid, and adrenal tumors could be assigned to EMNR; studies of the role of hormones on the progression and metastasis of other tumors and studies of tumors of reproductive organs could be assigned to TPM. Studies of the relation between insulin/IGF signaling and tumor progression and metastasis could be assigned to EMNR or to TPM depending on the focus of the study.

- **With the Musculoskeletal, Oral, and Skin Sciences [MOSS] IRG:** In general, studies of the effect of musculoskeletal tumors on the overall musculoskeletal system or which provide understanding of the development of the musculoskeletal system could be assigned to MOSS; studies of musculoskeletal, skin, and oral tumors and metastasis could be assigned to TPM.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, studies of CNS-unique physiological factors on tumor progression and invasion could be assigned to BDCN; studies of oncological mechanisms on the progression and invasion of CNS tumors could be assigned to TPM.

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Chemo/Dietary Prevention Study Section [CDP]

[CDP Roster]

The Chemo/Dietary Prevention Study Section reviews grant applications that address nutrition,

dietary and chemopreventive factors and their use in intervention for modulation of cancer risk, and inhibition of cancer progression. This study section reviews grant applications dealing with basic mechanistic studies, preclinical and clinical (phase-1 and phase-2) studies as well as discovery, evaluation, and validation of biomarkers.

Specific areas covered by CDP include:

- Discovery and evaluation of diets as well as individual dietary factors, chemopreventive agents, and targets for the modulation of cancer.
- Mechanisms of cancer modulation by chemical and nutritional factors studied at the biochemical, molecular, and cellular levels.
- Preclinical prevention studies (including *in vitro* and *in vivo* evaluation of efficacy and safety).
- Phase-1 and Phase-2 clinical trials of chemopreventive agents.
- Development and validation of markers important in prevention, including markers of cancer risk and progression.
- Design, development, and synthesis of preventive agents.
- Design and development of approaches to the prevention of tumors via other factors, such as exercise or vaccines.
- Diet restriction, antioxidant defense mechanisms, DNA methylation, traditional (e.g., arytenoids, selenium, vitamins) and other food components.
- *In vitro* and *in vivo* pharmacokinetic and pharmacodynamic studies of chemopreventive agents.
- Effect of dietary factors on hormonal carcinogenesis, chemical carcinogenesis, differentiation/transdifferentiation, apoptosis, and oxidative stress

CDP has the following shared interests within the ONC IRG:

- **With Cancer Etiology [CE]** in studies of mechanisms of cancer initiation: When the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With Cancer Genetics [CG]** in the role of gene polymorphisms: When the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With Tumor Cell Biology [TCB]** in studies of biological markers of cancer and mechanisms of tumor progression: When the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With Cancer Biomarkers [CBSS]** in proposals to discover, or validate biomarkers for cancer: When the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With Cancer Immunopathology and Immunotherapy [CII]** in applications dealing with cancer vaccines and immunological agents: When the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With Drug Discovery and Molecular Pharmacology [DMP]** in applications proposing synthesis, isolation, evaluation and validation of new drugs: When the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With Clinical Oncology [CONC]** in applications proposing phase I and II trials and in

the development of chemopreventive drugs: When the emphasis is on cancer prevention, the application may be assigned to CDP.

CDP has the following shared interests outside the ONC IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] IRG:** In general, research on the chemistry and synthesis of new agents/drugs could be assigned to BCMB; when the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With the Health of the Population [HOP] IRG:** HOP reviews applications dealing with cancer prevention that involve a community-based approach, (e.g., use of mass media to increase use of sunscreen, culturally tailored approaches to increase screening compliance).

- **With the Risk, Prevention and Health Behavior [RPHB] IRG:** Studies of human behaviors that relate to cancer risk and the development of behavioral approaches to cancer prevention could be assigned to RPHB.

- **With organ-specific IRGs** that deal with health and disease of particular organs/tissues: In general, when the emphasis is on cancer prevention, the application could be assigned to CDP.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** Studies focusing on insulin resistance or obesity as a risk factor for cancer could be assigned to EMNR.

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Cancer Biomarkers Study Section [CBSS]

[CBSS Roster**]**

The Cancer Biomarkers Study Section reviews applications addressing the discovery, validation and development of biomarkers for risk, early detection, diagnosis, prognosis and progression of cancer. Research on markers related to predicting treatment response, studies measuring minimal residual disease and monitoring therapeutic efficacy are also considered. The development of bioassays for the discovery and testing of cancer markers may be assigned to CBSS.

Specific areas covered by CBSS include:

- Identification of biomarkers for disease detection, differential diagnosis, prognosis, predicting response to therapy, monitoring minimal residual disease and measuring tumor burden through analysis and/or molecular profiling of DNA, RNA, and protein from tumor tissue or body fluids.
- Validation of new biomarkers using animal models, human materials and clinical trials.
- Phase-I and phase-II clinical trials where the primary goal is marker validation.
- Phase-III trials (validation studies) of markers for determining risk, early detection or choice of therapy.
- Early detection of cancer, or monitoring its progression or response to therapy using available medical imaging approaches.

- Development of novel methods for biostatistical analysis, informatics, and modeling that facilitate the discovery, evaluation, and use of markers.

CBSS has the following shared interests within the ONC IRG:

- **With Cancer Etiology [CE]** in the identification and evaluation of markers that assess risk (including risks from environmental carcinogens and tumor-associated pathogens): Mechanism-driven studies could be assigned to CE; empirical studies to identify biomarkers for cancer risk and patient-oriented research to assess the clinical utility of markers could be assigned to CBSS.

- **With Cancer Genetics [CG]** regarding discovery and evaluation of genetic and epigenetic abnormalities in tumors that may serve as clinical biomarkers useful for establishing disease prognosis or predicting response to therapy: When the focus is on understanding the disease process, the application could be assigned to CG; when the focus is on identification of markers for clinical applications, the proposal could be assigned to CBSS.

- **With Cancer Molecular Pathobiology [CAMP] and Tumor Cell Biology [TCB]** in the discovery and evaluation of novel biological markers, signatures, patterns and signaling pathways in normal and tumor tissues: When the focus is on understanding the disease mechanism, the study could be assigned to CAMP or TCB; when the focus is on identifications of markers for clinical application, it could be assigned to CBSS.

- **With Tumor Microenvironment [TME] and Tumor Progression and Metastasis [TPM]** in the discovery and evaluation of biomarkers for angiogenesis, invasion, tissue or host response and other aspects of cancer progression that may serve as clinical biomarkers: When the focus is on understanding disease mechanisms, the study could be assigned to TPM or TME; when the focus is on identification of biomarkers for clinical application, the study could be assigned to CBSS.

- **With Chemo/Dietary Prevention [CDP]** in evaluating biomarkers for chemoprevention: studies of biomarkers that relate to monitoring chemoprevention or dietary prevention could be assigned to CDP: Studies focusing on clinical biomarker development could be assigned to CBSS.

- **With Radiation Therapeutics and Biology [RTB]** in the evaluation of markers that monitor trials of radiation therapy: When emphasis is on optimizing radiation therapy or on *in vivo* investigation of radiation response mechanisms, applications could be assigned to RTB; when the emphasis is on evaluation of markers, applications could be assigned to CBSS.

- **With Cancer Immunopathology and Immunotherapy [CII]** in the development and characterization of novel targets for immunotherapy and immune response profiling: When the focus is on assessment of the activity of new agents, the study could be assigned to CII; when the focus is on prediction of the patient's response to therapy, the study could be assigned to CBSS.

- **With Developmental Therapeutics [DT]** in validating molecular markers of tumor and host response: when the focus is on assessment of the activity of new agents, the study could be assigned to DT; when the focus is on prediction of the patient's response to therapy, the study could be assigned to CBSS.

- **With Clinical Oncology [CONC]** in the evaluation of biomarkers that monitor trials of therapy: studies of markers for evaluating novel agents in Phase-1 and -2 trials could be assigned to CONC; retrospective correlative studies and studies of biomarkers that predict response to established therapeutic agents could be assigned to CBSS.

CBSS has the following shared interests outside the ONC IRG:

- **With the Bioengineering Sciences and Technologies [BST] IRG:** In general, the development of new technologies, computational methods, bioinformatics approaches and systems, and mathematical models could be assigned to BST; the application of these approaches to the study of tumor markers could be assigned to CBSS.

- **With Organ-system IRGs:** In general, studies of biomarkers for the early detection of tumors are shared between the organ-system IRGs and CBSS; studies of biomarkers for progression, differential diagnosis, prognosis, minimal residual disease and prediction of response to chemotherapy could be assigned to CBSS.

- **With the Surgical Sciences, Biomedical Imaging and Bioengineering [SBIB] IRG:** When the primary focus of a study is to evaluate the potential of novel diagnostic imaging instrumentation or to improve image acquisition or analysis, the study could be assigned to SBIB; when imaging is directed toward molecular targets for early detection, prognosis, progression or response to cancer therapy, the study may be assigned to CBSS.

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Radiation Therapeutics and Biology Study Section [RTB]

[RTB Roster]

The Radiation Therapeutics and Biology [RTB] Study Section reviews applications dealing with therapeutic interactions of ionizing radiation, radionuclides, electromagnetic radiation, and heat at the molecular, cellular, organ and patient levels. This includes applications in which dose, dose rate, type of radiation, and quality of radiation are variables.

Specific areas covered by RTB include:

- Basic molecular/cellular-radiation/thermal interactions at therapeutic doses: radiation chemistry, DNA repair, cell cycle regulation, hypoxia, signal transduction, apoptosis, heat shock proteins, growth factors, cytokines, oxidative stress, reactive oxygen species, tumor suppressor genes, cytogenetics and genomic instability.
- Mechanisms and applications of modifiers of radiation response (including radiation sensitizers, radioprotectors, fractionation and other modulators).
- Combination of radiation with novel agents (including those targeting growth factors, signaling pathways, or tumor angiogenesis).
- Physics of treatment planning, treatment delivery, and dosimetry of brachytherapy, intravascular brachytherapy, thermal therapy, targeted radionuclide therapy, photodynamic therapy (PDT) and heavy ion or neutron capture therapy.
- Technology and outcome analysis methodologies related to radiation treatment and planning.
- Imaging and image analysis as it relates to targeting of radiation and assessment of response.
- Therapies, including: intensity modulation radiation therapy, conformal therapy,

tomotherapy, hyperthermia, PDT (including interstitial PDT), photoimmunotherapy, radiofrequency ablation, cryoablation, intravascular radiotherapy, and radiation-induced gene therapy.

- Pre-clinical studies including: pharmacokinetics, response assessment, efficacy; and internal dosimetry of targeted radio labeled agents (including: antibodies, peptides, oligonucleotides, and liposomes).
- Feasibility studies to establish proof-of-principle of novel radiation therapeutics.
- Radiation carcinogenesis: including the physical and chemical processes leading to DNA damage and cancer.
- Investigations of mechanisms of DNA damage and repair.

RTB has the following shared interests within the ONC IRG:

- **With Cancer Genetics [CG]:** DNA damage and repair topics could be assigned to RTB when relevant to biological response to radiation.

- **With Cancer Biomarkers [CBSS]:** Imaging studies related to diagnosis, and prognosis could be assigned to CBSS, imaging related to optimization, targeting or implementation of radiation therapeutics could be assigned to RTB.

- **With Cancer Immunopathology and Immunotherapy [CII]:** Studies that focus on engineering or design of antibodies or other pharmaceuticals for radiotherapeutic targeting could be assigned to CII. Proposals that focus on dosimetry, dose rates, or effects of isotopes on antibody binding could be assigned to RTB.

- **With Developmental Therapeutics [DT]:** In general, the development of new approaches to treat cancer could be assigned to DT. Studies of novel biologic modifiers or cytotoxic drugs used to modulate the effects of ionizing radiation, electromagnetic radiation, radionuclide delivery, or heat could be assigned to RTB. Studies involving combinations of IR (radiation) and cytotoxic drugs and/or biologic modifiers that emphasize radiation therapy could be assigned to RTB.

- **With Clinical Oncology [CONC]:** Phase-1, -2, or -3 clinical trials, including those with translational emphasis on radiation therapeutics, could be assigned to CONC.

RTB has the following shared interests outside the ONC IRG:

- **With Organ-specific IRGs:** In general, studies of radiotherapy for the treatment of cancer could be assigned to RTB.

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Cancer Immunopathology and Immunotherapy Study Section [CII]

[CII Roster**]**

The Cancer Immunopathology and Immunotherapy [CII] Study Section reviews applications addressing immunologic therapies of cancer and modulation of the innate and adaptive immune responses to cancer cells. This includes *in vitro* studies, the evaluation of immunotherapeutic strategies in preclinical models, and translational studies leading to pilot and/or phase-1 clinical trials.

Specific areas covered by CII include:

Immunotherapies:

- Development and testing of tumor vaccines: including cell-based vaccines, tumor antigen-based vaccines, DNA vaccines, recombinant viral and bacterial vaccines, and vaccines using genetically modified tumor cells.
- Dendritic cell-based therapies to induce or amplify tumor immunity.
- Assessment of immune response to tumor antigens in cancer patients.
- Use of antibodies, conjugated antibodies, or antibody fragments to target tumor cells *in vivo* or to modulate immune response to cancer cells.
- Autologous, syngeneic, and allogeneic hematopoietic stem cell transplantation as part of cancer treatment.
- Development and testing of methods and models of autologous, syngeneic, and allogeneic immune responses to cancer.
- Cytokine or chemokine therapy to modulate innate or adaptive immune responses to tumors.
- Gene therapy to modulate tumor immune responses.
- Adoptive cellular therapies with immune cells.
- Drug-induced modulation of immune responses in cancer patients.

Biological therapies as they affect host anti-tumor responses:

- Immune modulation with growth factors and growth factor antagonists in model systems of tumors or in patients with cancer.
- Use of signal agonists and antagonists that affect immune responses to tumors (e.g., anti-CTLA-4, CD40-ligand).
- Use of protein, DNA, and RNA biological response modifiers, such as ribozymes and anti-sense oligonucleotides.

Mechanisms of tumor resistance and escape from immune recognition or killing:

- Modulation of tumor antigen processing and presentation.
- Alteration of susceptibility of tumors to innate and adaptive immunologic responses.
- Tumor-induced immune suppression and tolerance.

CII has the following shared interests within the ONC IRG:

- **With Tumor Microenvironment [TME]:** In general, studies of the tumor microenvironment could be assigned to TME; studies of modulation of the immune response within the tumor microenvironment could be assigned to CII.

- **With Cancer Biomarkers [CBSS]:** In general, the development of new approaches to diagnosing cancer could be assigned to CBSS; however, the development of novel targets for immunotherapy could be assigned to CII.

- **With Radiation Therapeutics and Biology [RTB]:** Studies focusing on the radiotherapeutic effects of treatment are more appropriately assigned to RTB; studies of radio-conjugated antibodies that focus on immunologic targeting could be assigned to CII.

- **With Developmental Therapeutics [DT]:** In general, studies focusing on biologic agents and gene therapy approaches for treating cancer could be assigned to DT; studies examining the use of biologic agents and gene therapy approaches to manipulate immune function could be assigned to CII.

- **With Clinical Oncology [CONC]:** Studies focusing primarily on immunotherapy trials in patients are more appropriately assigned to CONC. Studies emphasizing the development of immunotherapeutic approaches that may include translation and development of pilot studies or phase-1 trials could be assigned to CII.

CII has the following shared interests outside the ONC IRG:

- **With the Immunology [IMM] IRG:** In general, basic studies of tumor immunity and immune surveillance could be assigned to IMM; translational studies that include the development or testing of immunotherapeutic approaches to cancer treatment could be assigned to CII.

- **With Organ-system IRGs:** In general, translational studies of immunotherapeutic approaches (including stem cell transplantation) to cancer treatment or to modulate tumor immunity could be assigned to CII.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, immuno-therapy studies that focus on tumors of the CNS could be assigned to BDCN; studies that are applicable to several different tumors could be assigned to CII.

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Drug Discovery and Molecular Pharmacology Study Section [DMP]

[DMP Roster**]**

The Drug Discovery and Molecular Pharmacology [DMP] Study Section encompasses (1) discovery, design, identification, isolation, development and synthesis of novel agents that are potentially useful in cancer therapy, (2) identification of molecular targets of antineoplastic agents and (3) design, development, and validation of novel preclinical models for anticancer drug evaluation.

Specific areas covered by DMP include:

- Identification of molecular targets of antineoplastic agents that modulate signal transduction, cell cycle, differentiation, apoptosis, and hormone signaling.
- Development of high throughput *in vitro* screens and cell-based assays for cancer therapeutics.
- Synthesis and isolation of new antineoplastic compounds for evaluation in both *in vitro* and *in vivo* tumor model systems.
- Identification of novel drugs and modification of existing compounds for study at molecular, cellular, and target-tissue levels using combinatorial and parallel approaches.
- Development and application of new technologies for the drug discovery process, including microarray analysis, proteomics, genomics, and bioinformatics.
- Development, validation, and use of novel mammalian and non-mammalian models for anticancer therapeutic experimentation.

DMP has the following shared interests within the ONC IRG:

- **With Chemo/Dietary Prevention [CDP]:** When the emphasis is on cancer prevention,

the application could be assigned to CDP. When the emphasis is on drug design or development of anticancer drugs, it could be assigned to DMP.

- **With Cancer Biomarkers [CBSS]:** Studies where the emphasis is on the identification of cancer biomarkers could be assigned to CBSS. Studies focused on therapeutic effects involving molecular targets could be assigned to DMP.

- **With Cancer Immunopathology and Immunotherapy [CII]:** Studies using drug conjugates that involve and emphasize the immune response could be assigned to ClI. When the emphasis is on the targeting or pharmacology of the drug or drug conjugate, the application could be assigned to DMP.

- **With Developmental Therapeutics [DT]:** Translational studies in animals and patients could be assigned to DT. Studies that emphasize early stage development of drugs (e.g., identification, modification, and synthesis, SAR) could be assigned to DMP. Identification, synthesis and early screening of new anti-angiogenic agents could be assigned to DMP.

- **With Basic Mechanisms of Cancer Therapeutics [BMCT]:** Studies where the primary emphasis is on the mechanism of action of anti-neoplastic agents could be assigned to BMCT. Studies focusing on early-stage drug discovery and identification of molecular targets could be assigned to DMP.

DMP has the following shared interests outside the ONC IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] IRG:** Studies involving approaches for the synthesis of new agents, natural product drug discovery, and drug screening could be assigned to BCMB; when the central focus of these studies is on cancer, it could be assigned to DMP.

- **With the Bioengineering Sciences and Technologies [BST] IRG:** In general, when the major goal is the development of computational methods, bioinformatics approaches, mathematical models, or gene therapies, the application could be assigned to BST. If these new approaches are being applied to improve cancer therapy, the application could be assigned to DMP.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** EMNR and DMP share an interest in studies of hormones and growth factors that are important in molecular and cell biology. When the major focus is on the hormone and growth factor/ligand interactions, the application could be assigned to EMNR; when the major focus of the application is on cancer drug discovery it could be assigned to DMP.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, studies of neural disease and injury could be assigned to BDCN. Studies of early stage drug discovery for treating brain tumors could be assigned to DMP.

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Developmental Therapeutics Study Section [DT]

[DT Roster**]**

The Developmental Therapeutics [DT] Study Section reviews applications addressing the

experimental therapy of neoplastic diseases in *in vitro* systems and *in vivo* model systems, including some early-stage, pilot clinical trials. The major emphasis of this study section is on the rational development of novel therapeutic strategies that have a significant potential for early translation to the clinic.

Specific areas covered by DT include:

- Evaluation of drug-delivery strategies for cancer treatment (including nanoparticles, liposomes and other delivery vehicles).
- Translational studies of novel antineoplastic agents.
- Development of anti-angiogenic therapeutic strategies.
- Development and application of mathematical and computational methods for the investigation of combination chemotherapy using small molecules and other modalities.
- Rational combination of cytotoxic drugs with novel agents including those targeting: growth factors, signaling, cell cycle regulation, angiogenic, and differentiation pathways
- Pre-clinical drug toxicity and pharmacokinetic/pharmacodynamic studies of anticancer agents.
- Gene therapy involving non-immunologic targets for treatment of cancer.
- Therapeutic approaches involving biologic response modifiers, (including cytokines, and hormonal agents) either alone or in combination with novel or conventional drugs for cancer treatment.
- Early-stage, pilot clinical trials of novel anticancer therapeutic and drug-delivery strategies involving pharmacokinetic, pharmacodynamic, toxicologic, or pharmacogenomic endpoints.
- Study of biomarkers in response to anti-neoplastic drug action in preclinical systems

DT has the following shared interests within the ONC IRG:

- **With Cancer Biomarkers [CBSS]** in validating molecular markers of tumor response. When the focus is on prediction of the patient's response to therapy, the study could be assigned to CBSS. Studies focusing on the assessment of new drug activity could be assigned to DT.

- **With Radiation Therapeutics and Biology [RTB]** in studies involving combinations of ionizing or electromagnetic radiation with conventional or novel cytotoxic drugs. If the emphasis is on radiation, the study could be assigned to RTB; if the emphasis is on the cytotoxic drug it could be assigned to DT.

- **With Cancer Immunopathology and Immunotherapy [CII]** in studies of combinations of biologic response modifiers with cytotoxic drugs or gene therapy. Gene therapy studies involving immunologic targets could be assigned to CII.

- **With Drug Discovery and Molecular Pharmacology [DMP]:** Synthesis of new anti-angiogenic agents could be assigned to DMP. Studies that emphasize early stage development of drugs (e.g., identification, modification, and synthesis, SAR) could be assigned to DMP while translational studies in animals and patients could be assigned to DT.

- **With Basic Mechanisms of Cancer Therapeutics [BMCT]:** Studies involving mechanism of action or molecular effects of anti-neoplastic or anti-angiogenic agents could in general be assigned to BMCT. However, advanced animal experiments and studies containing a strong translational component could be assigned to DT.

DT has the following shared interests outside the ONC IRG:

- **With the Bioengineering Sciences and Technologies [BST] IRG:** When the major goal is the development of general gene therapy approaches, the application could be assigned to BST. If the proposed gene therapy approach is being applied to improve cancer therapy, the application could be assigned to DT. Applications involving formulation-type studies of drug-delivery strategies for cancer treatment could be assigned to BST. Once a lead particle, liposome or other vehicle has been developed, the application could be assigned to DT.

- **With the Infectious Diseases and Microbiology [IDM] IRG:** Studies that focus on viral replication and virology could be assigned to IDM, while studies involving viral vectors for cancer treatment could be assigned to DT.

- **With the Hematology [HEME] IRG:** In general, studies focused on the diagnosis and treatment of lymphomas and leukemias could be assigned to DT.

- **With the Hematology [HEME] and Cardiovascular Sciences [CVS] IRGs:** In general, studies of the treatment of angiogenesis that are focused on developmentally related processes or reactivation of embryonic processes could be assigned to HEME or CVS; studies of treatments focused on tumor-related angiogenesis could be assigned to DT.

- **With the Endocrinology Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** When the primary focus of basic or clinical studies is on the hormone or endocrine organ, assignment may be made to EMNR while studies that focus on translational research for cancer treatment, where hormones receive a secondary consideration, could be assigned to DT.

- **With the Digestive Sciences [DIG] IRG:** Studies of the treatment of Barrett's Esophagus and GI polyps could be assigned to DIG, while all other translational cancer treatment studies involving GI cancers could be assigned to DT.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, chemo-therapy and gene therapy studies that focus on outcome variables associated with CNS functions could be assigned to BDCN; while all other translational therapeutic brain tumor studies could be assigned to DT.

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Basic Mechanisms of Cancer Therapeutics Study Section [BMCT]

[BMCT Roster**]**

The Basic Mechanisms of Cancer Therapeutics [BMCT] Study Section reviews applications addressing the mechanisms of action of anti-neoplastic agents, including drug effects on tumor cell growth, death, and differentiation. Studies analyzing the mechanisms of resistance to anti-neoplastic agents and on the circumvention of resistance to cancer drugs are also included. Anti-neoplastic agents that target the immune system are excluded.

Specific areas covered by BMCT include:

- Mechanism(s) of action of anti-neoplastic agents or combinations of agents at the molecular, cellular, or

target tissue level.

- Effect of anti-neoplastic agents on tumor cell anabolic processes including: macromolecular synthesis, DNA repair, gene regulation, immortalization, differentiation, cell cycle and checkpoint control, RNA translation, and signal transduction.
- Effect of anti-neoplastic agents on tumor cell catabolic processes including: DNA damage, apoptotic and non-apoptotic cell death, protein degradation and stability, and stress-response pathways.
- Mechanism(s) of action of anti-neoplastic agents that inhibit angiogenesis.
- Mechanism(s) of action of chemosensitizing agents and their combination with anti-neoplastic chemotherapeutic agents.
- Mechanism(s) of resistance to anti-neoplastic agents and strategies for circumvention of resistance towards commonly used therapy forms.

BMCT has the following shared interests within the ONC IRG:

- **With Cancer Molecular Pathobiology [CAMP]:** Basic studies of the biology of the malignant cell could be assigned to CAMP. If the study is therapeutically oriented, it could be assigned to BMCT.

- **With Chemo/Dietary Prevention [CDP]:** Studies focusing on the mechanisms of chemopreventive agents could be assigned to CDP. Mechanistic studies focusing on cancer therapy could be assigned to BMCT.

- **With Cancer Biomarkers [CBSS]:** Studies focusing on defining predictive molecular markers of the patient's response to cancer therapy could be assigned to CBSS. Studies focusing on the molecular mechanism(s) of cancer drug action could be assigned to BMCT.

- **With Radiation Therapeutics and Biology [RTB]:** RTB and BMCT share an interest in the molecular and cellular mechanisms of cancer therapy. Studies emphasizing radiation therapy could be assigned to RTB; studies focusing on other anti-neoplastic agents could be assigned to BMCT. Mechanistic studies using radiation and other anti-neoplastic agent(s) could be assigned to either RTB or BMCT depending on the emphasis of the study.

- **With Cancer Immunopathology and Immunotherapy [CII]:** Mechanistic studies involving anti-tumor immunotherapies; other anti-neoplastic agents that modulate the immune system; or tumor resistance to immune recognition or killing could be assigned to CII. Studies of mechanism or resistance where the anti-neoplastic agent does not target the immune system could be assigned to BMCT.

- **With Drug Discovery and Molecular Pharmacology [DMP]:** Studies focusing on early-stage drug discovery, identification, modification and screening could be assigned to DMP. Studies of anti-neoplastic agents where the focus is on mechanism of action could be assigned to BMCT.

- **With Developmental Therapeutics [DT]:** Advanced animal experiments, and studies containing a strong translational component could be assigned to DT. Mechanistic studies of anti-cancer agents could be assigned to BMCT.

BMCT has the following shared interests outside the ONC IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] IRG:** Basic studies of biochemical processes in non-tumor cells could be assigned to the BCMB IRG. Studies emphasizing the effect(s) of anti-neoplastic agents on biochemical processes could be assigned to BMCT.

- **With the Cell Biology [CB] IRG:** Fundamental studies of cellular processes could be assigned to the CB IRG. Studies emphasizing the effect(s) of anti-neoplastic agents on anabolic and catabolic processes of tumor cells could be assigned to BMCT.

- **With the Genes, Genomes and Genetics [GGG] IRG:** Basic mechanistic studies of genetic stability, DNA repair, or of cell growth control and differentiation could be assigned to the GGG IRG. Mechanistic studies emphasizing the effect(s) of anti-neoplastic agents on molecular genetic processes could be assigned to BMCT.

- **With the Biology of Development and Aging [BDA] IRG:** Studies emphasizing cellular processes during development or aging (e.g. cell cycle control, apoptosis, signal transduction) could be assigned to the BDA IRG. When the emphasis is on the effects of anti-neoplastic agents on tumor cell processes, assignment could be made to BMCT.

- **With the Hematology [HEME] IRG:** Studies focusing on the molecular pathogenesis of hematologic malignancies could be assigned to HEME. When the focus is the molecular mechanisms of the treatment of hematologic malignancies with anti-neoplastic agents, assignment could be made to BMCT.

- **With the Endocrinology, Metabolism, Nutrition and Reproductive Sciences [EMNR] IRG:** When the primary focus of basic mechanistic studies is on the hormone or endocrine organ, assignment could be made to EMNR; when the focus is on cancer drug mechanisms, the assignment could be made to BMCT.

- **With the Brain Disorders and Clinical Neuroscience [BDCN] IRG:** In general, chemotherapy studies that focus on outcome variables associated with CNS functions could be assigned to BDCN. All other studies focusing on the mechanism of action of anti-neoplastic agents in brain tumor cells could be assigned to BMCT.

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Clinical Oncology Study Section [CONC]

[CONC Roster**]**

The Clinical Oncology Study Section reviews applications in the areas of clinical patient-oriented research and clinical therapeutic trials. This includes clinical trials with therapeutic intent using drugs, radiation, surgery, and/or biological agents.

Specific areas covered by CONC include:

- Chemotherapy
- Surgical oncology
- Immunotherapy
- Vaccine and gene therapy
- Radiation therapy and radiopharmaceuticals
- Combined modality therapy
- Pharmacologic and toxicologic studies of new therapeutic modalities in patients
- Non-behavioral alternative cancer therapies
- Correlative studies relevant to therapeutic clinical trials
- Trials and research on the treatment of cancer therapy-related nausea and vomiting, pain, mucositis, alopecia and fatigue
- Age-specific issues including: changes in tumor behavior with aging, clinical and laboratory assessment of the older cancer patient, age-related factors that withstand effective cancer treatment, coordination of care of the older cancer patient, pharmacology of chemotherapy agents, and amelioration of toxicity.

CONC has the following shared interests within the ONC IRG:

- **With Cancer Immunopathology and Immunotherapy [CII]** for some experimental immunotherapy studies: In general, preclinical studies could be assigned to CII and clinical studies by CONC.

- **With Radiation Therapeutics and Biology [RTB]:** Basic and translational studies of radiotherapy (mechanisms, actions, radiobiology, etc.) could be assigned to RTB, early clinical trials and evaluations of novel therapeutic approaches could be assigned to CONC.

- **With Developmental Therapeutics [DT]:** Preclinical and translational studies of drug activity could be assigned to DT, while clinical studies could be assigned to CONC.

CONC has the following shared interests outside the ONC IRG:

- **With the Genes, Genomes and Genetics [GGG] IRG:** In general research relating to polymorphisms could be assigned to GGG; studies having a clinical component could be assigned to CONC.

- **With the Health of the Population [HOP] IRG:** Epidemiological studies of cancer could be assigned to HOP, while clinical studies could be assigned to CONC.

- **With the Risk, Prevention and Health Behavior [RPHB] IRG:** Studies of human behaviors that relate to cancer risk and the development of behavioral approaches to cancer prevention could be assigned to RPHB.

- **With the Immunology [IMM] IRG:** There is a shared interest between IMM and ONC in the use of bone marrow to treat hematological cancers. However, clinical studies could be assigned to CONC.

- **With the Infectious Diseases and Microbiology [IDM] IRG:** In general, clinical studies of tumor-associated viruses or other pathogens could be assigned to CONC.

- **With the Hematology [HEME] IRG:** In general, clinical studies of hematological malignancies could be assigned to CONC.

- **With the Digestive Sciences [DIG] IRG:** Studies of the treatment of Barrett's Esophagus and GI polyps could be assigned to DIG.

- **With the Surgical Sciences, Biomedical Imaging, and Bioengineering [SBIB]:** Where the focus of the study is the evaluation of a radiological approach, review could be in SBIB; clinical studies of cancer diagnosis using established radiological procedures or studies focusing on therapy could be assigned to CONC.

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Oncological Sciences Small Business Activities [SBIR/STTR] Special Emphasis Panels [ONC Small Business SEPs]

[SBIR/STTR Rosters]

The Oncological Sciences Small Business Activities Special Emphasis Panels [ONC Small Business SEPs] review small business applications including Small Business Innovation Research [SBIR] and Small Business Technology Transfer [STTR] grant applications concerned with basic, preclinical, and clinical studies in the oncological sciences.

Cancer Drug Development and Therapeutics SBIR [CDDT SBIR SEP:ONC (10)]

This Special Emphasis Panel reviews applications addressing the experimental therapy of neoplastic diseases in *in vitro* systems and *in vivo* model systems, including some early-stage, pilot clinical trials. The major emphasis of this study section is on the rational development of novel therapeutic strategies that have a significant potential for translation to the clinic.

Specific areas covered by the CDDT SBIR SEP include:

- Development and evaluation of anti-cancer therapeutic agents in both in vitro and in vivo tumor model systems.
- Novel anti-cancer therapies and drug delivery mechanisms
- Identification and validation of new cancer relevant molecular targets for therapeutic intervention.
- Development of gene therapy with viral or non-viral based delivery in animal models.
- Experimental cancer therapeutics
- Mechanisms of drug resistance and strategies to circumvent resistance.
- Natural compounds that modulate signal transudation, cell cycle, angiogenic or apoptotic pathways.

The CDDT SBIR SEP has the following shared interests outside the ONC IRG:

- **With the Biological Chemistry and Macromolecular Biophysics IRG [BCMB]:** Studies related to drug synthesis and protein structures, lipids/biopolymers synthesis, and biochemical activity of low molecular weight compounds of natural or synthetic origins could be assigned to BCMB.

Radiation Therapy and Biology SBIR Special Emphasis Panel [RTB SBIR SEP: ONC (11)]

This Special Emphasis Panel reviews applications dealing with therapeutic interactions of ionizing radiation, radionuclides, electromagnetic radiation, and heat at the molecular, cellular, organ and patient levels. This includes applications in which dose, dose rate, type of radiation, and quality of radiation are variables.

Specific areas covered by the RBT SBIR SEP:

- Radiation treatment and planning
- Dosimetry of brachytherapy
- Radiation physics and internal dosimetry
- Thermal ablation therapy
- Targeted radionuclide therapy
- Photodynamic Therapy (PDT) Heavy ion or Neutron Capture Therapy

- Technology and outcome analysis methodologies related to radiation treatment and planning
- Imaging and image analysis as it relates to radiation treatment and assessment of response

The RBT SBIR SEP has the following shared interests outside the ONC IRG:

- **With the Surgical Sciences, Biomedical Imaging, and Bioengineering IRG [SBIB]:** In general, studies of radiotherapy for the treatment of cancer could be assigned to RBT SBIR SEP. Development and testing of imaging devices and nuclear medicine technologies for cancer diagnosis could be assigned to SBIB.

Cancer Diagnostics and Treatments SBIR [CDT SBIR SEP: ONC (12)]

This Special Emphasis Panel reviews grant applications related to diagnosis and treatment of cancer. This includes biomarkers as prognosticators of cancer, bioimmunotherapies of cancer, and novel approaches to treating cancer.

Specific areas covered by the CDT SBIR SEP include:

- Discovery of biomarkers for cancer detection, diagnosis and prognosis
- Pre-clinical and clinical validation of cancer biomarkers
- Novel assays, instrumentation and analysis algorithm for cancer screening, and metastasis and survival prediction
- Basic, pre-clinical and clinical testing for tumor genetic and epigenetic variations
- Cancer related proteomics
- Pre-clinical and clinical modeling of carcinogenesis, tumor development, metastasis, prevention and treatment
- Evaluation of immunotherapeutic strategies in preclinical models, and translational studies leading to pilot and/or phase-1 clinical trials
- Development and testing of tumor vaccines: including nucleotide-based vaccines, peptide-based vaccines, cell-based vaccines, and vaccines using ex-vivo modified cells

The CDT SBIR SEP has the following shared interests outside the ONC IRG:

- **With the Genes, Genomes and Genetics IRG [GGG]:** In general, studies in genetics, genomics, and nucleic acid technology, including molecular assays, bioinstrumentation, bioinformatics and educational tools could be assigned to GGG. Translational studies that are directly linked to cancer could be assigned to the CDT SBIR SEP.

- **With the Bioengineering Sciences and Technologies IRG [BST]:** In general, basic studies directed toward developing gene and drug delivery systems, microscopic imaging, modeling and analysis of biological systems, biodata management and analysis, instrumentation and systems development, and biomaterial and biointerfaces could be assigned to BST. Translational studies of the applications of these results to cancer could be assigned to the CDT SBIR SEP.

- **With the Risk, Prevention and Health Behavior IRG [RPHB]:** Studies focused on social, behavioral, and technological interventions designed to reduce the risk of cancer, improve cancer treatment and management could be assigned to RPHB. Studies related to cancer therapeutics and prevention could be assigned to the CDT SBIR SEP.

- **With the Immunology IRG [IMM]:** In general, studies that include basic immune responses, immunoassays, regulations of immune reaction could be assigned to IMM. Translational studies that include testing of immunodetection and immunotherapeutic approaches to cancer could be assigned to the CDT SBIR SEP.

- **With the Endocrinology, Metabolism, Nutrition, and Reproductive Sciences IRG [EMNR]:** Studies focused on metabolic functions, hormonal treatment, and dietary supplements could be assigned to EMNR. Studies related to dietary/natural products in prevention or treatment of cancer could generally be assigned to the CDT SBIR SEP.
