NIH NATIONAL CANCER INSTITUTE

pipeline news

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DCTD Division of Cancer Treatment and Diagnosis

STAFF HIGHLIGHT – Janet Eary, MD

Janet Eary, MD
Associate Director,
Cancer Imaging Program,
DCTD

Janet Eary, MD, joined NCI in 2016 as Deputy Associate Director of DCTD's Cancer Imaging Program (CIP) after more than 30 years as an academic researcher. She became Associate Director of CIP in 2018. Dr. Eary talks about her scientific background, research objectives, and personal interests.

What is your scientific and clinical background?

After receiving my medical degree at Michigan State University College of Human Medicine, I did postdoctoral training at the University of Washington School of Medicine (UWMC), which led to Medical Specialty Board Certifications in Anatomic Pathology, Laboratory Medicine, and Nuclear Medicine. Later, I obtained certification in reading CT images. My academic career began at UWMC in the early 1980s, where I joined the faculty in the departments of Radiology, Pathology, and Orthopedics and held a faculty position in the University of Washington Graduate School. While at UWMC, I served as Director for the Division of Nuclear Medicine, Nuclear Medicine Residency Training Program, the Molecular Imaging Center, and the Molecular Medicine Graduate Seminar Course and was a full member at the Fred Hutchinson Cancer Research Center. I also created and led the Cancer Imaging Program in the Fred Hutch NCI Comprehensive Cancer Center. I was recruited to the University of Alabama at Birmingham (UAB) School of Medicine and Graduate School in 2014 to direct their new Molecular Imaging Center and Cyclotron facility. I was also a professor of Radiology and Surgery, Radiology Vice Chair of Clinical Research, and a member of the UAB NCI Comprehensive Cancer Center Experimental Therapeutics Program.

I originally thought that I would become a surgical pathologist. During my laboratory medicine rotation in radioimmune assay, I became interested in nuclear medicine and started the UW Nuclear Medicine residency while I finished Lab Medicine. After residency, I joined the faculty and

In this issue

Spotlight - The Office of Cancer Clinical Proteomics Research (OCCPR) Joins DCTD 3
Spotlight - Pediatric Cancer Research Updates 5
News about DCTD Programs and Activities 6

became an attending physician in the UW Pathology and Nuclear Medicine practices and began my research. I have served as principal investigator (PI) and program leader continuously throughout my career, holding NIH grants from 1984 up to the point of my arrival at NCI. I began my research career doing pioneering work in radionuclide experimental therapy with my UW and Fred Hutch collaborators, and after that I went on to pioneer molecular and advanced imaging as a program leader and investigator. As time has gone by, I have realized that pathology and imaging training with medical practice is a great combination background, because it has supported my focus on understanding the biology of disease.

In the early 1990s, my collaborators at the Fred Hutchinson Cancer Center and I published early work on imaging-based dose escalation clinical trials in radionuclide therapy for lymphoma and leukemia. This involved seminal studies in high-dose radiolabeled antibody therapy with and without bone marrow transplant. I designed, implemented, and supervised the imaging biodistribution and dosimetry estimation methods, and supervised the radionuclide therapy lab that produced the imaging and therapy doses. I also administered these high radionuclide doses to patients and supervised the radiation safety issues for the patients and hospital personnel. Later, I started early safety and dose escalation studies with radionuclide therapy in bony metastatic disease and myeloma.

The UW had some of the first PET imaging units in the U.S., so I transitioned my research to molecular imaging with novel agents designed to evaluate cancer treatment. My UW collaborators and I conducted an NCI-funded program project for 27 years! I designed, supervised, and analyzed clinical studies results on my project with several new imaging agents that our radiochemist colleagues designed and produced. In the later cycles of the P01, I was co-PI.

In 1995, I obtained an NCI R01 grant for a prospective imaging study of fluorodeoxyglucose (FDG) in sarcoma patients. We were the first to validate tumor FDG standard uptake value (SUV) as a measure of patient treatment outcome and revealed information about the nature and heterogeneity of sarcomas. We also evaluated the effect of neo-adjuvant chemotherapy on patients with high-grade tumors. This grant was active for 16 years and led to significant work in image analysis (radiomics today) and combined device use. Using data from this grant, I was the first at my institution to show PET images to a tumor board, which demonstrated their use in patient evaluation.

What brought you to NCI?

Imaging is an important scientific area that has made many contributions to cancer research. Since imaging is also complementary to other science areas, I wanted to promote its integration within the NCI research agenda, while also supporting NCI's overall mission. At NCI, we can support researchers who work to improve the lives of patients with cancer. The NCI mission is one of many reasons why I value my time here.

What other elements of imaging research interest you?

At UAB, I became interested in how imaging can contribute to improvements in patient access and health care disparities. As researchers, we need to ask how we can help the community and improve access. One example of NCI CIP's efforts in this area, is in the Cancer Imaging Archive, which now hosts image-based datasets for techniques and devices that can be deployed in lower resource economies. Investigators can access these data for studies in telemedicine, artificial intelligence, and image interpretation complexity reduction.

As a senior academician I have had many experiences, and I always look for new partnerships and mentorship opportunities.

I encourage my colleagues to publish in non-imaging literature and to collaborate with people outside the imaging research community. I continue to participate in grant writing workshops, review data, and help people reach their research goals.

What interests do you have outside of NCI?

I have a lot of non-work-related interests! Beginning in grade school, I studied piano for many years and started playing woodwind instruments in high school. I eventually settled on studying the bassoon because I wanted to play orchestral music. I played several other band and orchestral instruments just so I could learn them too.

Prior to going to UAB, I studied bassoon privately for six years and played in as many as three orchestras at a time. One highlight was playing in a combined orchestra and massive choir performance of the Verdi Requiem at Benaroya Hall in Seattle. I was asked to play with the Seattle Rock Orchestra and played a couple of gigs backing for local bands that wanted that real orchestral sound with them on stage. That was fun, but I had to stay up way too late! I continue to play my bassoon – mostly in orchestras and chamber groups, and it's still a workout! Lately, I have become a hack on the electric bass guitar. While it would be challenging, I'd like to put together and conduct a chamber music group at NCI. I also love being outdoors and working in my gardens at home. I do a lot of sewing and fiber-based artwork. You can see some of it in my office in Shady Grove. When we all can be back together at work, please come by CIP and visit us!

SPOTLIGHT – The Office of Cancer Clinical Proteomics Research (OCCPR) Joins DCTD

In 2006, NCI created the Office of Cancer Clinical Proteomics Research (OCCPR) within the NCI Office of the Director to standardize the use of mass spectrometry for oncology research. To that end, OCCPR's director, Henry Rodriguez, PhD, MBA, MS, and dedicated staff manage cutting edge proteogenomic collaborations intramurally, extramurally, and internationally. In late 2020, OCCPR joined DCTD to continue their research efforts, now as a member of our division – Welcome OCCPR.

How Proteogenomics Further Our Understanding of Cancer

Although genomics has proven to be very important to cancer research, protein biology provides invaluable information about tumor development and progression that cannot be derived from genomics alone. Merging the powerful methodological fields of genomics and proteomics is transforming cancer research. OCCPR is at the forefront of these efforts by helping researchers develop a deeper understanding of cancer biology. This may ultimately aid in stratifying patients and explaining common inconsistencies in patient responses to cancer treatments, including targeted therapies assigned solely by genetic markers or cancer histology. Further research will identify alterations in genes and proteins that impact different stages of tumor progression, mechanisms that tumors use to evade its host, and the role proteins play in carcinogenesis.

OCCPR Goals

- Increase understanding of cancer biology by comprehensively characterizing tumors through the advancement and application of proteomic/proteogenomic science
- Support clinical research that expands the understanding of drug response and development of resistance for the prediction of which treatments will be most useful for each patient

- Accelerate cancer translation through public resources (data, assays, images, software, and reagents) that catalyze hypothesis-driven science

OCCPR Initiatives

- Clinical Proteomic Tumor Analysis Consortium (CPTAC) – As the flagship program developed in 2011, CPTAC brings together leading centers nationwide in a comprehensive and coordinated effort to accelerate the understanding of cancer biology. It does this through the application of large-scale proteome and genome analysis of tumors to address mechanisms of treatment response, resistance, or toxicity.

- International Cancer Proteogenome Consortium (ICPC) – Inspired by the Cancer Moonshot, ICPC began in 2016 with a mission to develop a cancer atlas representative of the diversity of people with cancer worldwide and has now expanded to 35 participating institutions in 13 countries.

- Applied Proteogenomics OrganizationaL Learning and Outcomes (APOLLO) – Developed in 2016 as a collaboration between NCI, the Department of Defense, and the Department of Veterans Affairs, APOLLO aims to incorporate proteogenomics into patient care.

To achieve OCCPR's goals, CPTAC has developed:

- The Tumor Characterization Program
  - A network of three Proteome Characterization Centers (PCCs) and five Proteogenomic Data Analysis Centers (PGDACs) that use state-of-the-art, standardized mass spectrometry (MS)-based technologies to perform deep comprehensive proteomic characterizations in combination with deep, comprehensive, genomically-characterized treatment-naïve biospecimens (CPTAC Biospecimen Collection Program)
  - Integrates and analyzes omics data (genomics, transcriptomics, and proteomics measurements, imaging, and clinical data) to provide a more complete picture of a patient's tumor

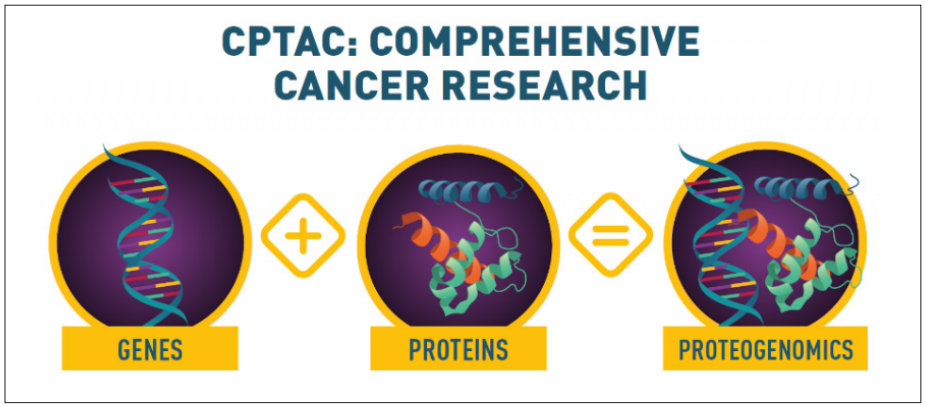
- The Translational Research Program
  - A network of three Proteogenomic Translational Research Centers (PTRCs) focusing on understanding drug response and resistance to therapies in collaboration with PGDACs
  - Leverages an integrated proteogenomics approach to address questions of biology in the context of NCI-sponsored clinical trials

Additional OCCPR Programs

- NCI's Antibody Program – Produces well characterized antibodies in collaboration with the extramural community and the Antibody Characterization Laboratory (ACL), a reference laboratory located at the Frederick National Laboratory for Cancer Research

- NCI's Assay Program – Serves as a centralized public repository of highly characterized "fit-for-purpose," multiplexed quantitative MS-based proteomic targeted assays

- NCI's Proteomic Data Commons (PDC) and CPTAC Data Portal (CDP) – Centralized repositories aimed to democratize access to cancer-related proteomic datasets as well as to provide sustainable computational support to the



cancer research community; partner with the Genomics Data Commons (GDC) and The Cancer Imaging Archive (TCIA) to host corresponding genomic and imaging data, respectively.

Collectively, these programs provide proteomic, genomic, and imaging data to the public as well as annotated resources to maximize utility and benefit to the scientific community, to accelerate and improve cancer diagnosis and treatment standards.

SPOTLIGHT – Pediatric Cancer Research Updates

NCTN Navigator Expands Its Inventory of Data and Specimens Available to the Research Community

In April 2018, NCI launched NCTN Navigator, a resource for cancer researchers interested in conducting studies using specimens and clinical data collected from cancer treatment trials in NCI's National Clinical Trials Network (NCTN) and the former NCI Cooperative Group Program. As of September 2020, the first specimens from pediatric trials are now available. NCTN Navigator's initial inventory included data from more than 80 trials, 50,000 patients, and 600,000 specimens. As of November 2020, the inventory has expanded to more than 200 trials, 147,000 patients, and 2,000,000 specimens. Investigators can search available NCTN Navigator specimens and review the steps for proposing a research project.

NCI-COG Pediatric MATCH Trial Opens New Arms

Launched in July 2017, Pediatric MATCH is one of the first large pediatric clinical trials that is treating patients based on the genetic changes in their tumors by testing drugs that specifically target those changes. The trial includes 13 different treatment arms; currently, 11 are open to enrollment and 2 are closed, having met their target accrual. Three new treatment arms were activated in 2020.

New Pediatric Cancer Videos and Facebook Live Event

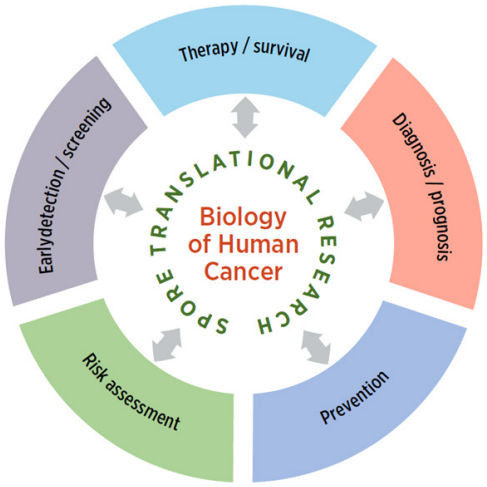
Five new videos are available to support families when a child has cancer. All five videos are available in a playlist on NCI's YouTube channel. More information and resources for families are found on NCI's website, where four of the five videos are embedded, and the fifth is available via link at the bottom of the page.

On September 23, 2020, NCI held a Facebook Watch Party – For Parents: Coping with Your Child's Cancer Diagnosis. Lori Wiener, PhD, NCI Center for Cancer Research, and Nita Seibel, MD, CTEP, discussed NCI's new video series. Clips from the videos featured in the Watch Party are available on NCI's Facebook page under the Videos tab.

NEWS ABOUT DCTD PROGRAMS AND ACTIVITIES

Program Updates

FY2020 SPORE Grantees



In September, the Translational Research Program announced its successfully competed FY2020 Specialized Programs of Research Excellence (SPORE) grantees. This year, there were four grant renewals and three new awardees, focusing on the following cancer types: breast, head and neck, kidney, lung, and ovarian cancer. See the full list of grantees.

NCI Funding for Development of Standardized Electronic Treatment Plans

NCI is providing administrative supplements for development of standardized electronic treatment plans for NCI-supported clinical trials that will be applicable across clinical research sites. This pilot study support is being given to two consortia of clinical trial sites to develop processes that will facilitate the development of single electronic health record (EHR) clinical trial treatment plans that can be deployed at multiple institutions. Read more about how NCI is supporting this effort.

Administrative Supplement Support through the NCI Experimental Therapeutics Clinical Trials Network (ETCTN)

The ETCTN is expanding its clinical trials outreach through administrative supplements. The ETCTN is providing support of precision medicine clinical trials through the NCI Early Drug Development Opportunity Program (EDDOP) and the Create Access to Targeted Cancer Therapy for Underserved Populations (CATCH-UP 2020). Learn more about these initiatives and see the 2020 project leaders.

Results from the Molecular Analysis of the Initial Screening Phase of the NCI-MATCH Trial

A recent publication in the Journal of Clinical Oncology (Flaherty, 2020) describes the molecular results of the initial screening phase of the NCI-MATCH (Molecular Analysis for Therapy Choice) clinical trial, which analyzed the tumor biopsies of nearly 6,000 patients. The trial demonstrated the feasibility of screening large numbers of patients at numerous accruing sites across the NCI National Clinical Trials Network and the NCI Community Oncology Research Program. Read more about these NCI-MATCH results.

NCI and BBRB Launch the Cancer Moonshot Biobank

The NCI Cancer Moonshot Biobank℠, which launched in September 2020, aims to accelerate research on cancer drug resistance and sensitivity through the collection of donated biospecimens and data from more than 1,000 participants receiving standard of care therapy at participating NCI Community Oncology Research Program (NCORP) sites. Biospecimens will be collected over the course of treatment and made available to Cancer Moonshot-funded researchers and the broader research community. A subset of biospecimens will be sent to NCI's Patient-Derived Models Repository for development of patient-derived models. Data collected will be deposited into the NCI Cancer Research Data Commons and the NIH database of Genotypes and Phenotypes (dbGaP). Radiological and histological images will be available in the Cancer Imaging Archive.

Improving engagement of research participants in biobanking is a key objective for the Biobank. The project's approach includes:

- Adaptation of an electronic consent module
- Return of value through the provision of a clinical NGS test (biomarker test) performed on tumor tissue
- Funding of local engagement projects
- A participant and provider engagement website (website and electronic consent module are available in English and Spanish).

Updates from the Cancer Imaging Program

NCI Launches Imaging Data Commons (IDC)

The NCI Cancer Research Data Commons (CRDC), in coordination with The Cancer Imaging Archive (TCIA), recently launched the Imaging Data Commons. This cloud-based resource is the latest node of the CRDC to be released that helps connect researchers with cancer imaging datasets and other omics data.

The IDC was developed in partnership with the Frederick National Laboratory for Cancer Research and the Brigham and Women's Hospital (BMH), Harvard Medical School and involves collaboration with:

- Co-principal investigators at BMH: Ron Kikinis, MD, and Andrey Fedorov, PhD
- The team at the Institute for Systems Biology
- IDC federal lead, Keyvan Farahani, PhD, NCI/CBIIT

Through the IDC, both researchers and clinicians can host and discover a wide range of cancer-related images, data, and tools:

- Radiology and pathology imaging data
- Accompanying metadata from TCIA
- Other NCI driving projects (e.g., the Cancer Moonshot)
- Tools for searching, identifying, and viewing images
- Tools for creating image cohorts to allow for further analysis in the cloud using the NCI Cancer Cloud Resources

Partnering with TCIA allows the IDC to take advantage of the expert data curation and de-identification services that TCIA has advanced in recent years. Additionally, for users who do not want to work on the cloud, TCIA will still allow for free data downloads. Learn more about the IDC, and view a video introduction and hands-on tutorial.

The Cancer Imaging Archive (TCIA) Releases New COVID-19 Data, Adding to Their Existing Collection

The Cancer Imaging Archive continues its dedication to providing free and open access to imaging data from patients with COVID-19. Released in the summer of 2020, TCIA's first COVID-19 image data collection consists of radiographic and CT imaging studies for 105 patients who tested positive for COVID-19. The new dataset contains CT images of 632 patients with COVID-19, who presented with a variety

of symptoms, had come into contact with an infected patient, or had traveled to a region with an active outbreak. Some of this new data will be used in the COVID-19 Lung CT Lesion Segmentation Challenge – 2020, which aims to encourage new methods for identification and quantification of lung lesions caused by SARS-CoV-2. More data are expected to be released in the coming weeks, including data collected from the Radiological Society of North America (RSNA) International COVID-19 Open Radiology Database (RICORD). Learn more about TCIA's efforts to aid in the fight against COVID-19 or to access the datasets.

Meetings of Interest

2020 Early Drug Development Meeting

CTEP's Investigational Drug Branch held its annual Early Drug Development meeting in October. This year's meeting included updates on early-phase immunotherapy and phase 1 and 2 studies, an educational session on building effective biomarker plans, and the Fourteenth Annual Michaele C. Christian Oncology Drug Development Award and Lecture. Read more details about the meeting.

Innovations in Biomarkers and Cancer Drug Development Conference

The 2020 Innovations in Biomarkers and Cancer Drug Development meeting was held virtually in October. Several DCTD staff were involved in the planning and implementation, including a presentation by Lyndsay Harris, MD, Cancer Diagnosis Program (CDP). Tracy Lively, PhD, and Sherry Yang, MD, PhD, both also from CDP, were members of the scientific committee. Dr. Lively chaired a scientific session and participated in an interview with ecancer on critical issues in drug and biomarker development.

Recordings from the 2020 NIH AACR Cancer, Autoimmunity, and Immunology Conference

Held for the first time in 2018, the Cancer, Autoimmunity, and Immunology Conference was created to understand the biology of immune-related adverse events that have occurred in cancer patients treated with immunotherapies and how that might inform the study of autoimmune disease. Additionally, a conference goal is to define the potential for the study of autoimmune-disease to lead to greater understanding of the treatment and management of immune-related adverse events during and following cancer therapies. Recordings of the 2020 NIH AACR Cancer, Autoimmunity and Immunology Conference, which was held virtually last March, are available and open to the public.

2nd NCI Workshop on Cell-Based Immunotherapy for Solid Tumors

DCTD's 2nd NCI Workshop on Cell-Based Immunotherapy for Solid Tumors convenes on December 10 – 11, 2020. This virtual meeting follows the successful first workshop on this topic held in December 2018, the purpose of which was to gain insight on major challenges in cell therapy research and identify ways in which NCI could help advance the field.

Since the first workshop, with DCTD support, NCI has:

- Opened new cGMP space for cell therapy manufacturing
- Established analytic assays to monitor cell therapy products
- Awarded six grant supplements to drive technology advancement
- Developed capacity for lentivirus vector manufacturing
- Begun working toward retrovirus vector manufacturing and development of gene editing technology

2020 Workshop Information

- Co-Chairs
  - Crystal Mackall, MD (Stanford University)
  - Marcela Maus, MD, PhD (Harvard University and Massachusetts General Hospital)
- Goals
  - Review the current state of the field
  - Understand the remaining hurdles in the development of autologous and allogeneic cell-based therapies for solid tumors
  - Identify knowledge gaps and critical barriers, providing the basis for NCI to better support the extramural community
- Scientific Presentations
  - Two keynote presentations given by meeting co-chairs
  - Six sessions of scientific talks and interactive panel discussions
  - Topics range from scientific challenges in the field to clinical and regulatory considerations involved in cell therapy development

Publications and Outreach

Publications

Flaherty KT, Gray RJ, Chen AP, et al. Molecular Landscape and Actionable Alterations in a Genomically Guided Cancer Clinical Trial: National Cancer Institute Molecular Analysis for Therapy Choice (NCI-MATCH). *J Clin Oncol*. 2020 Nov 20;38(33):3883-3894.

Wheeler DA, Takebe N, Hinoue T, et al. Molecular Features of Cancers Exhibiting Exceptional Responses to Treatment. *Cancer Cell*. 2020 Nov 16;S1535-6108(20)30546-8.

Krushkal J, Negi S, Yee LM, et al. Molecular Genomic Features Associated with In Vitro Response of the NCI-60 Cancer Cell Line Panel to Natural Products. *Mol Oncol*. 2020 Nov 9. Online ahead of print.

Capala J and Kunos CA. A New Generation of "Magic Bullets" for Molecular Targeting of Cancer. *Clin Cancer Res*. 2020 Nov 3. Online ahead of print.

O'Sullivan Coyne G, Kummar S, Meehan RS, et al. Phase I Trial of TRC102 (methoxyamine HCL) in Combination with Temozolomide in Patients with Relapsed Solid Tumors and Lymphomas. *Oncotarget*. 2020 Nov 3;11(44):3959-3971.

Kurmasheva R, Erickson SW, Earley E, et al. In Vivo Evaluation of the EZH2 Inhibitor (EPZ011989) Alone or in Combination with Standard of Care Cytotoxic Agents against Pediatric Malignant Rhabdoid Tumor Preclinical Models - A Report from the Pediatric Preclinical Testing Consortium. *Pediatr Blood Cancer*. 2020 Oct 22; Online ahead of print.

Zhu Y, Brettin T, Evrard Y, et al. Ensemble Transfer Learning for the Prediction of Anti-cancer Drug Response. *Sci Rep*. 2020 Oct 22;10(1):18040.

Doroshow JH, Prindiville S, McCaskill-Stevens W, et al. COVID-19, Social Justice, and Clinical Cancer Research. *J Natl Cancer Inst*. 2020 Oct 15; Online ahead of print.

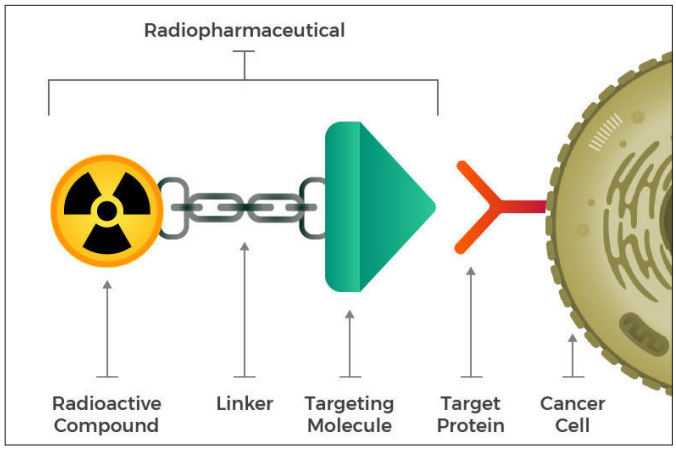
Wishka DG, Lopez OD, Rudchenko VK, et al. The Development of β-selective Glycosylation Reactions with Benzyl Substituted 2-deoxy-1,4-dithio-D-erythro-pentofuranosides: Enabling Practical Multi-gram Syntheses of 4'-Thio-2'-deoxycytidine (T-dCyd) and 5-aza-4'-thio-2'-deoxycytidine (aza-T-dCyd) to Support Clinical Development. *Nucleosides Nucleotides Nucleic Acids*. 2020 Oct 16;1-28. Online ahead of print.

Albain KS, Gray RJ, Makower DF, et al. Race, Ethnicity and Clinical Outcomes in Hormone Receptor-positive, HER2-negative, Node-negative Breast Cancer in the Randomized TAILORx Trial. *J Natl Cancer Inst*. 2020 Sep 28; Online ahead of print.

The Genotype-Tissue Expression Project; Collection of papers in the *Science* Press Package; September 10, 2020.

NCI Cancer Currents Blog Posts

Radiopharmaceuticals: Radiation Therapy Enters the Molecular Age; Charles Kunos, MD, PhD, CTEP; October 26, 2020.

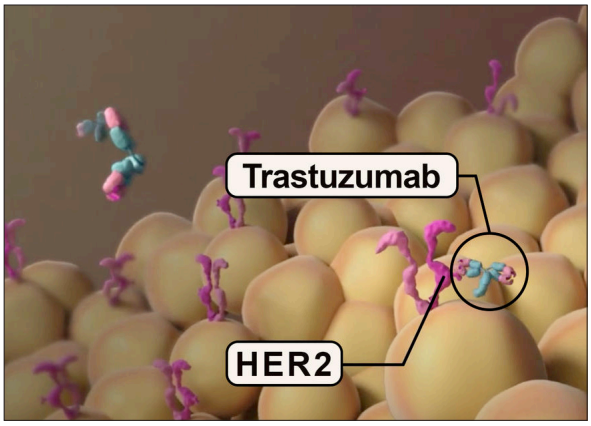


Nivolumab Improves Survival for Some Patients with Advanced Stomach Cancer; Carmen Allegra, MD, CTEP; October 20, 2020.

FDA Approves Blood Tests That Can Help Guide Cancer Treatment; Ana Robles, PhD, OCCPR; October 15, 2020.

A More Treatable Kind of Metastatic Cancer: Bhadrasain Vikram, MD, RRP; October 5, 2020.

Trastuzumab May Improve Survival in Women with Rare Endometrial Cancer; Elise Kohn, MD, CTEP; August 13, 2020.



Interviews and Press

News from the Exceptional Responders Study

- Study of "Exceptional Responders" Yields Clues to Cancer and Potential Treatments; NCI Press Release; November 19, 2020.
- 'Exceptional' Cancer Patients Yield Clues to Better Drug Treatments; *Science*; Percy Ivy, MD, CTEP and Lou Staudt, MD, PhD, CCG; November 19, 2020.

- Exceptional Responders Cancer Study Points to Possible Treatment Targets; *Genome Web*; Percy Ivy, MD, CTEP and Lou Staudt, MD, PhD, CCG; November 19, 2020.
- NIH Scientists Collect Clues to Improving Cancer Care from 'Exceptional Responders;' *Fierce Biotech*; Percy Ivy, MD, CTEP and Lou Staudt, MD, PhD, CCG; November 19, 2020.

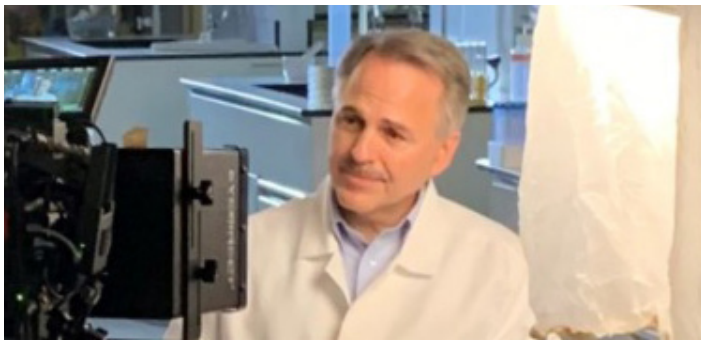
NCI-MATCH Sets "Benchmark of Actionability;" *Cancer Discovery*; Alice Chen, MD, DTC; November 9, 2020.

These Oceanographers Want to Turn Marine Slime into Drugs; *Wired*; Barry O'Keefe, PhD, DTP; October 27, 2020.

The National Cancer Institute's New Study Examines the Intersection between Cancer and COVID-19; *Future of Personal Health*; Larissa Korde, MD, CTEP, September 22, 2020.

Web Exclusive: Plants and Medicine; *BBC One*; Barry O'Keefe, PhD, DTP; September 11, 2020.

First Person Profile: C. Norman Coleman, MD; *Cancer*; September 3, 2020.



Dr. Barry O'Keefe during his interview with the BBC.

New DCTD Funding Opportunity and Funding Information

Title	Announcement Number	First Available Due Date	Expiration Date	Activity Code
Notice of Special Interest (NOSI): Administrative Supplements to Support Collaborations with the NCI-supported PDX Development and Trial Centers Research Network (PDXNet)	NOT-CA-21-009	January 8, 2021	January 9, 2021	Admin Supp
Innovative Research in Cancer Nanotechnology (IRCN) (Clinical Trial Not Allowed)	PAR-20-284	October 4, 2020	May 5, 2023	R01
NCI Clinical and Translational Exploratory/ Developmental Studies (Clinical Trial Optional)	PAR-20-292	September 20, 2020	July 21, 2022	R21
Assay Validation of High Quality Markers for Clinical Studies in Cancer (Clinical Trials Not Allowed)	PAR-20-313	January 18, 2021	October 11, 2023	UH2/UH3

Title	Announcement Number	First Available Due Date	Expiration Date	Activity Code
Assay Validation of High Quality Markers for Clinical Studies in Cancer (Clinical Trials Not Allowed)	PAR-20-314	January 18, 2021	October 11, 2023	UH3
National Cancer Institute's Investigator-Initiated Early Phase Clinical Trials for Cancer Treatment and Diagnosis (Clinical Trial Required)	PAR-21-033	December 7, 2020	January 8, 2024	R01
Specialized Programs of Research Excellence (SPOREs) in Human Cancers for Years 2021, 2022, 2023 (Clinical Trial Required)	PAR-20-305	December 25, 2020	January 8, 2024	P50