WELCOME TO THE NCCN 2021 BIOMARKERS CONGRESS

NCCN would like to thank the outstanding faculty who are presenting and all of you for attending this educational event. We hope you find the information presented useful to your practice, and we encourage you to attend future NCCN educational initiatives.

PDF handouts of presentations are available at **http://education.nccn.org/NCCNbiomarkers2021-handouts**.

Agenda

10:15 – 10:20 AM	**Opening Remarks**
10:20 – 11:05 AM	**General Principles of Biomarker Testing: When Should Broad Genomic Profiling Be Performed and What Do Different Tests Offer?** Jennifer J.D. Morrissette, PhD *Abramson Cancer Center at the University of Pennsylvania*
11:10 – 11:55 AM	**General Principles of Test Interpretations: What Results are Actionable and How to Advise Patients About Results?** Dara L. Aisner, MD, PhD *University of Colorado Cancer Center*
11:55 AM – 12:10 PM	**Break**
12:10 – 12:55 PM	**Clinical Scenario #1: Applying Biomarkers in Metastatic Non-Small Cell Lung Cancer** Jonathan E. Dowell, MD Jeffrey Gagan, MD, PhD *UT Southwestern Simmons Comprehensive Cancer Center*
1:00 – 1:45 PM	**Clinical Scenario #2: Applying Biomarkers in Metastatic Breast Cancer** Kimberly H. Allison, MD Melinda L. Telli, MD *Stanford Cancer Institute*
1:45 – 2:00 PM	**Break**
2:00 – 2:45 PM	**Clinical Scenario #3: Applying Biomarkers in Melanoma** Donald A. Baldwin, PhD Anthony J. Olszanski, MD, RPh *Fox Chase Cancer Center*
2:50 – 3:35 PM	**Clinical Scenario #4: Evolving Applications of PARP Inhibitors in Various Cancers** Dana Farengo-Clark, MS, LCGC Susan M. Domchek, MD *Abramson Cancer Center at the University of Pennsylvania*
3:35 – 3:50 PM	**Break**
3:50 – 4:35 PM	**Clinical Scenario #5: Applying Biomarkers in Colorectal Cancer** Terri L. Blase, MS, CGC Kelsey A. Klute, MD Benjamin J. Swanson, MD, PhD *University of Nebraska Medical Center* *Fred & Pamela Buffett Cancer Center*
4:40 – 5:25 PM	**What's on the Horizon?** Jennifer J.D. Morrissette, PhD *Abramson Cancer Center at the University of Pennsylvania* Aparna R. Parikh, MD, MS David T. Ting, MD *Massachusetts General Hospital Cancer Center*
5:25 – 5:30 PM	**Closing Remarks**

All times are listed as Eastern Standard Time (UTC/GMT -5).

Program Overview

Individualizing cancer treatment based upon biomarker testing is a rapidly evolving area in oncology. Clinicians are challenged to remain current on what the different tests offer, the types of genetic alterations that can be detected, the technologies that can be used, the limitations of the techniques, and the factors to consider in determining the appropriate tests for their patients with solid tumors.

The *NCCN 2021 Virtual Congress: Biomarkers in Solid Tumors* will address the increasing use of biomarker testing in the management of patients with solid tumors, the factors affecting the selection of the appropriate tests, challenges of interpreting test results and communicating the results to patients, and new developments in biomarker testing. Case scenarios will be employed to assist clinicians in applying biomarker testing in the management of metastatic non-small cell lung cancer, metastatic breast cancer, melanoma, ovarian cancer, and colorectal cancer.

Intended Audience

This educational program is designed to meet the educational needs of physicians, nurse practitioners, nurses, physician assistants, pharmacists, genetic counselors, and other health care professionals who manage patients with solid tumors.

Learning Objectives

Following this program, participants should be able to:

Overall Congress Objectives

- Apply the current standards of oncology care and the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) to appropriately integrate biomarker testing to optimize the care of patients with solid tumors.
- Select the appropriate biomarker tests to evaluate and optimally manage patients with solid tumors.
- Analyze and interpret the results of biomarker tests to select appropriate treatments for patients.
- Communicate the results of biomarker tests with patients to inform their care.
- Communicate with members of the interprofessional oncology care team about the use of biomarker testing in the management of patients with solid tumors.

General Principles of Biomarker Testing: When Should Broad Genomic Profiling be Performed and What Do Different Tests Offer?

- Describe different types of genomic testing.
- Review the utility, benefits, and limitations of tissue vs. liquid biopsy testing.
- Describe the types of tests that can detect fusion genes.
- Identify the factors that should be considered when ordering genomic testing.

General Principles of Test Interpretation: What Results are Actionable and How to Advise Patients on Results?

- Describe the benefits and limitations of companion diagnostic and alternative tests.
- Review ways to decipher laboratory reports and understand pitfalls and limitations of genomic test results.
- Describe how the tiered reporting systems can be used to prioritize results.
- Name web resources that can be used to obtain information about complex variants.

Learning Objectives (continued)

Clinical Scenario #1: Applying Biomarkers in Metastatic Non-Small Cell Lung Cancer

- Describe the different molecular and immune biomarker tests that are recommended for eligible patients with metastatic non-small cell lung cancer.
- Compare and contrast biomarker testing using tissue and plasma ctDNA samples.
- Review treatment options for patients with KRAS mutation-positive metastatic NSCLC.

Clinical Scenario #2: Applying Biomarkers in Metastatic Breast Cancer

- List the available biomarkers for breast cancer and when testing for specific biomarkers should be performed.
- Compare and contrast the various techniques available for these biomarker tests.
- Integrate biomarker testing and test results into clinical practice for treatment of patients with breast cancer.

Clinical Scenario #3: Applying Biomarkers in Melanoma

- Review the biomarker tests that are recommended for melanoma and when these tests should be done.
- Compare and contrast the techniques available for performing these biomarker tests.
- Incorporate biomarker testing and test results into clinical practice for the treatment of patients with melanoma as appropriate.

Clinical Scenario #4: Evolving Applications of PARP Inhibitors in Various Cancers

- Describe the tests (germline vs. somatic) that are recommended prior to selecting PARPi therapy and when these tests should be done.
- Compare and contrast the techniques available for these tests.
- Integrate biomarker testing, test results, and use of PARPi therapy in treating patients with various cancers as appropriate.

Clinical Scenario #5: Applying Biomarkers in Colorectal Cancer

- Review the biomarker tests that are recommended for colorectal cancer and when these tests should be done.
- Compare and contrast the techniques available for these biomarker tests.
- Incorporate biomarker testing and test results into clinical practice for treatment of patients with colorectal cancer as appropriate.

What's on the Horizon?

- Explain what is meant by tumor heterogeneity.
- Review an example of a novel technique for biomarker detection.
- Review advanced application of single cell analysis and liquid biopsy.

Program Supporters

This activity is supported by educational grants from:

- AstraZeneca
- Bayer HealthCare Pharmaceuticals Inc.
- Eisai
- Exact Sciences
- Genentech, a member of the Roche Group
- Janssen Biotech, Inc., administered by Janssen Scientific Affairs, LLC.
- Lilly
- Novartis

This activity is supported by independent educational grants from Boehringer Ingelheim Pharmaceuticals, Inc. and Merck & Co., Inc.

This activity is supported by an independent medical education grant from Illumina Corporate Foundation.

Accreditation Statements

In support of improving patient care, National Comprehensive Cancer Network (NCCN) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physicians
NCCN designates this live activity for a maximum of 6 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nurses
NCCN designates this educational activity for a maximum of 6 contact hours.

Pharmacists
NCCN designates this knowledge-based continuing education activity for 6 contact hours (0.6 CEUs) of continuing education credit. **UAN: JA4008196-0000-21-101-L01-P**

Physician Assistants
NCCN has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for 6 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

American Board of Internal Medicine Maintenance of Certification (MOC)
Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 6 medical knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

Aggregated participant data will be shared with the commercial supporters of this activity.

Accreditation Statements (continued)

American Board of Pathology Maintenance of Certification (MOC)
This activity has been registered to offer credit in the American Board of Pathology's (ABPath) Maintenance of Certification program. Participants may earn up to 6 Lifelong Learning (Part II) credits.

Aggregated participant data will be shared with the commercial supporters of this activity.

American Board of Medical Specialties Maintenance of Certification (MOC)
Through the American Board of Medical Specialties ("ABMS") ongoing commitment to increase access to practice relevant Continuing Certification Activities through the ABMS Continuing Certification Directory, ***NCCN 2021 Virtual Congress: Biomarkers in Solid Tumors*** *has met the requirements as a* ***MOC Part II CME Activity*** *(apply toward general CME requirement) for the following ABMS Member Boards:*

MOC Part II CME Activity
Anesthesiology
Radiology
Urology

Genetic Counselor CEUs
The National Society of Genetic Counselors (NSGC) has authorized National Comprehensive Cancer Network to offer up to 0.6 CEUs or 6 Category 1 contact hours for the activity *NCCN 2021 Virtual Congress: Biomarkers in Solid Tumors*. The American Board of Genetic Counseling (ABGC) will accept CEUs earned at this program for the purposes of genetic counselor certification and recertification.

How to Claim Credit

NCCN Account Verification

Before or during the activity, please ensure that you have an NCCN account and will receive the correct type of credit.

1. Log in at www.NCCN.org/login
   - *If you do not have an NCCN account, click "Register" to create one for free.*
2. Click "Profile" in the left side menu.
3. Verify that your User Type matches the type of credit you will claim:
   - Physician/Surgeon/Oncologist = *AMA PRA Category 1 Credits*™; ABIM/ABPath MOC points, if applicable*
   - Physician Assistant = AAPA Category 1 CME credits
   - Nurse Practitioner = ANCC contact hours (*AMA PRA Category 1 Credits*™ available upon request)
   - Pharmacist = ACPE contact hours**
   - Clinical Nurse Specialist = ANCC contact hours
   - Nurse/Oncology Nurse = ANCC contact hours
   - Case Manager (Nurse) = ANCC contact hours
   - All other user types = certificate of participation***
4. Scroll down and click "Save" if you make any changes.

How to Claim Credit (continued)

Immediately after the activity, follow the instructions below to complete the CE requirements online through NCCN's Continuing Education Portal.

You will need to log in with the same email address used for program registration:

1. Log in at http://education.nccn.org/biomarkers2021
2. Click the Take Course button.
3. Follow the prompts.

Requirements for Receiving CE Credit

Within 30 days of the activity, you must:

- Attend the activity.
- Complete the immediate post-test.
- Complete the evaluation.
- Claim your credits.

You will be able to view/print your certificate online once all requirements have been met.

***Physicians claiming ABIM or ABPath MOC points:** ABIM/ABPath MOC points are reported to ABIM/ABPath once you have completed the post-test and evaluation and claimed your credits. **Be sure to enter your learner/diplomate ID and date of birth when prompted in the evaluation**. Your credit cannot be reported without this information.

***Pharmacists:** **You must complete the post-test and evaluation by December 12, 2021.**
Continuing pharmacy education credit is reported to the CPE Monitor once you have completed the post-test and evaluation and claimed your credits. Before completing these requirements, ensure that your NCCN profile has been updated with your NAPB e-profile ID and date of birth. Your credit cannot be reported without this information.

****Genetic Counselors:** **You must complete the post-test and evaluation by December 5, 2021.**
CEUs will be reported to NSGC once you have completed the post-test and evaluation and claimed your credits. **Be sure to enter your NSGC User ID when prompted in the evaluation**. Your credit cannot be reported without this information. Once NCCN has filed for CEUs on your behalf, NSGC will issue an official certificate that details the total number of CEUs and Contact Hours earned for this activity.

If you have any questions, please email education@nccn.org.

NCCN Continuing Education Disclosure Policy

It is the policy of NCCN that all planners, faculty, moderators, authors, reviewers and anyone involved in the planning and delivery of NCCN continuing education activities are expected to disclose **ALL** financial relationships they have had in the past **24 months** with ineligible companies. The ACCME *Standards for Integrity and Independence* require that individuals who refuse to provide this information will be disqualified from involvement in the planning and implementation of accredited continuing education presented by NCCN. NCCN identifies, mitigates, and discloses to learners all relevant financial relationships.

In addition, all content has been reviewed to ensure education promotes safe, effective patient care and does not promote the products or services of an ineligible company. Content, including any presentation of therapeutic options, is fair, balanced, evidence-based, scientifically accurate, and free of commercial bias and marketing.

Definitions

Ineligible Company: An ineligible company is any entity whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

Relevant Financial Relationships: Financial relationships of any dollar amount occurring within the past **24 months** are defined as relevant if the educational content an individual can control is related to the business lines or products of an ineligible company. There is no minimum financial threshold. We ask for disclosure of **ALL** financial relationships with ineligible companies, regardless of the amount and regardless of the potential relevance of each relationship to the education.

Faculty Disclaimers

All faculty for this continuing education activity are competent in the subject matter and qualified by experience, training, and/or preparation for the tasks and methods of delivery.

Faculty presentations may include discussion of off-label use. Faculty will disclose that the use in question is not currently approved by the FDA per the product labeling or marketing.

This list includes disclosures of relevant financial relationships submitted to NCCN as of November 4, 2021.

Faculty Disclosures

Congress Co-Chairs

The faculty listed below have the following **relevant** financial relationship(s) with ineligible companies to disclose. All of the relevant financial relationships listed for these individuals have been mitigated.

Kimberly H. Allison, MD
Devicor Medical Products, Inc.: Consulting Fee

Jennifer J.D. Morrissette, PhD
Bayer HealthCare: Consulting Fee
Novartis Pharmaceuticals Corporation: Consulting Fee

This list includes disclosures of relevant financial relationships submitted to NCCN as of November 4, 2021.

Faculty Disclosures

Presenting Faculty

The faculty listed below have **no relevant** financial relationship(s) with ineligible companies to disclose.

Donald A. Baldwin, PhD
Terri L. Blase, MS, CGC
Jeffrey Gagan, MD, PhD

The faculty listed below have the following **relevant** financial relationship(s) with ineligible companies to disclose. All of the relevant financial relationships listed for these individuals have been mitigated.

Dara L. Aisner, MD, PhD
Blueprint Medicines: Consulting Fee
Genentech, Inc.: Grant/Research Support
Loxo Oncology: Consulting Fee
sanofi-aventis U.S.: Consulting Fee
Takeda Pharmaceuticals North America, Inc.: Consulting Fee

Dana Farengo-Clark, MS, LCGC
AstraZeneca Pharmaceuticals LP: Product/Speakers Bureau

Susan M. Domchek, MD
AstraZeneca Pharmaceuticals LP: Honoraria

Jonathan E. Dowell, MD
AstraZeneca Pharmaceuticals LP: Consulting Fee
BeiGene: Consulting Fee
Genentech, Inc.: Consulting Fee
Janssen Pharmaceutica Products, LP: Consulting Fee

Kelsey A. Klute, MD
Agios, Inc.: Grant/Research Support
AstraZeneca Pharmaceuticals LP: Grant/Research Support
Daiichi-Sankyo Co.: Consulting Fee
FibroGen, Inc.: Grant/Research Support
Incyte Corporation: Grant/Research Support
Pfizer Inc.: Consulting Fee

Anthony J. Olszanski, MD, RPh
Bristol-Myers Squibb Company: Scientific Advisor
Eisai Inc.: Scientific Advisor
Merck & Co., Inc.: Scientific Advisor

Faculty Disclosures

Presenting Faculty (continued)

The faculty listed below have the following **relevant** financial relationship(s) with ineligible companies to disclose. All of the relevant financial relationships listed for these individuals have been mitigated.

Aparna R. Parikh, MD, MS
Bristol-Myers Squibb Company: Grant/Research Support
C2i Genomics: Equity Interest/Stock Options
Checkmate Pharmaceuticals: Consulting Fee
Daiichi-Sankyo Co.: Grant/Research Support
Eli Lilly and Company: Consulting Fee
Genentech, Inc.: Grant/Research Support
Inivata Ltd.: Consulting Fee
Mirati Therapeutics Inc.: Grant/Research Support
Novartis Pharmaceuticals Corporation: Grant/Research Support
Pfizer Inc.: Consulting Fee
Plexxikon: Grant/Research Support
PMV Pharmaceuticals, Inc.: Grant/Research Support
PureTech Health: Grant/Research Support
Roche Pharmaceuticals: Scientific Advisor
Takeda Pharmaceuticals North America, Inc.: Grant/Research Support

Benjamin J. Swanson, MD, PhD
Cogen Bioscience, Inc.: Equity Interest/Stock Options; Scientific Advisor

Melinda L. Telli, MD
AbbVie, Inc.: Grant/Research Support; Scientific Advisor
AstraZeneca Pharmaceuticals LP: Scientific Advisor
Blueprint Medicines: Scientific Advisor
G1 Therapeutics: Consulting Fee
Guardant Health: Scientific Advisor
Genentech, Inc.: Grant/Research Support; Scientific Advisor
Immunomedics, Inc.: Scientific Advisor
Lilly Oncology: Scientific Advisor
Merck & Co., Inc.: Grant/Research Support; Scientific Advisor
Natera Inc.: Scientific Advisor
Novartis Pharmaceuticals Corporation: Scientific Advisor
OncoSec Medical: Grant/Research Support; Scientific Advisor
Pfizer Inc.: Grant/Research Support; Scientific Advisor
sanofi-aventis U.S.: Scientific Advisor

This list includes disclosures of relevant financial relationships submitted to NCCN as of November 4, 2021.

Faculty Disclosures

Presenting Faculty (continued)

The faculty listed below have the following **relevant** financial relationship(s) with ineligible companies to disclose. All of the relevant financial relationships listed for these individuals have been mitigated.

David T. Ting, MD
Advanced Cell Diagnostics, Inc. (Bio-Techne): Grant/Research Support
Foundation Medicine, Inc.: Consulting Fee
Nanostring Technologies: Honoraria
PanTher Therapeutics: Equity Interest/Stock Options; Officer, Director or Any Other Fiduciary Role
Pfizer Inc.: Consulting Fee
PureTech Health: Grant/Research Support
Ribon Therapeutics: Grant/Research Support
ROME Therapeutics: Consulting Fee; Equity Interest/Stock Options; Intellectual Property Rights; Royalty Income; Scientific Advisor
TellBio, Inc.: Equity Interest/Stock Options

NCCN Staff Disclosures

None of the planners for this educational activity have **relevant** financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

This list includes disclosures of relevant financial relationships submitted to NCCN as of November 4, 2021.

Dara L. Aisner, MD, PhD, is Associate Professor in the Department of Pathology at the University of Colorado School of Medicine.

Dr. Aisner earned her medical degree from the University of Texas Southwestern Medical School at Dallas and her doctorate of philosophy from the University of Texas Southwestern Graduate School. She completed her residency in anatomic pathology at the National Institutes of Health. Dr. Aisner subsequently completed a fellowship in surgical pathology at the Hospital of the University of Pennsylvania, where she also completed fellowship training in molecular and genetic pathology. Dr. Aisner is board-certified in Anatomic Pathology, Molecular Genetic Pathology, and Clinical Informatics.

Dr. Aisner is a member of several professional organizations, including the International Association for the Study of Lung Cancer, and the Association for Molecular Pathology, the College of American Pathologists and is the Co-Founder of the Genomics Organization for Academic Laboratories. She serves on the editorial boards for *JCO-PO* and *Archives of Pathology and Laboratory Medicine*.

Dr. Aisner is a member of the NCCN Non-Small Cell Lung Cancer/Malignant Pleural Mesothelioma/Thymomas and Thymic Carcinomas Panel.

Kimberly H. Allison, is a Professor of Pathology at Stanford University Medical Center and the Director of Breast Pathology at Stanford Cancer Institute, where she also serves as the Director of the Breast Pathology Fellowship Program and the Anatomic and Clinical Pathology Residency Programs.

Dr. Allison received her medical degree from New York Medical College. She completed a residency in anatomic and clinical pathology at University of Washington Medical Center, followed by a fellowship in surgical pathology with a focus on breast/gynecologic pathology. She is board-certified in anatomic and clinical pathology.

Dr. Allison's clinical expertise is in breast pathology. Her research interests include how standards should be applied to breast cancer diagnostics, the utility of molecular panel-based testing in breast cancer, digital pathology applications, and identifying the most appropriate management of specific pathologic diagnoses.

Dr. Allison serves on the editorial board for the 5th Edition of the *WHO Classification of Tumours of the Breast* and is Co-Chair of the ASCO/CAP ER/PR Testing in Breast Cancer committee. She is a breast cancer survivor and the author of *Red Sunshine: A Story of Strength and Inspiration from a Doctor who Survived Stage 3 Breast Cancer*.

Dr. Allison is a member of the NCCN Breast Cancer Panel.

Faculty Biographies

Donald A. Baldwin, PhD, is Associate Professor of Pathology and Director of the Molecular Testing Enterprise at Fox Chase Cancer Center in Philadelphia, PA.

Dr. Baldwin completed his undergraduate studies at Iowa State University. He completed his PhD in microbiology and cell science at University of Florida.

Dr. Baldwin's research interests include the development, validation, and clinical deployment of genomic technologies for prognostic and diagnostic tests. He is also involved in metagenomics profiling to investigate how microbiomes may influence cancer, and integrated DNA and RNA profiling to understand cellular signaling and metabolism in cancer.

Dr. Baldwin is an active member of the Association of Biomolecular Resource Facilities and its NextGen Sequencing benchmarking project. He is a member of the Association for Molecular Pathology and the Genome in a Bottle Consortium, and has served on the editorial board for the Journal of Biomolecular Techniques and several NIH grant review panels.

Terri L. Blase, MS, CGC, is a board certified and licensed Genetic Counselor specializing in cancer genetics at University of Nebraska Medical Center.

Ms. Blase received her Masters of Science degree in Genetic Counseling at California State University and is certified by the American Board of Genetic Counseling.

Ms. Blase provides genetic counseling to patients with significant personal and/or family histories of cancer. She enjoys teaching others and sharing her love of her profession by being a clinical rotation supervisor for genetic counseling graduate students.

Susan M. Domchek, MD, is the Basser Professor in Oncology at the Perelman School of Medicine of the University of Pennsylvania. She also serves as Executive Director of the Basser Center for BRCA at the Abramson Cancer Center and Director of the Mariann and Robert MacDonald Cancer Risk Evaluation Program.

Dr. Domchek's work focuses on the genetic evaluation and medical management of individuals with inherited risk factors for cancer. Dr. Domchek is particularly interested in developing new cancer therapies, such as PARP inhibitors, for breast cancer due to genetic risk factors.

An elected member of the National Academy of Medicine, the American Society of Clinical Investigation, and the Association of American Physicians, Dr. Domchek also is a Fellow of the American Society of Clinical Oncology (FASCO). A significant contributor to the oncology literature, she has authored/co-authored more than 350 articles appearing in scholarly journals including *The New England Journal of Medicine*, *The Journal of the American Medical Association*, and *Journal of Clinical Oncology*. Dr. Domchek also serves on a number of editorial review boards, as well as on the Scientific Advisory Board for the Breast Cancer Research Foundation and the PA Breast Cancer Coalition.

Dr. Domchek is a member of the NCCN Guidelines Panel for Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic Cancers.

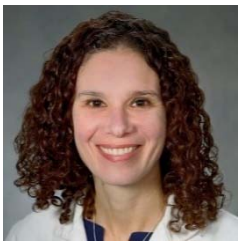
Jonathan E. Dowell, MD, is Professor of Internal Medicine in the Division of Hematology/ Oncology, and Program Director of the Hematology Oncology Fellowship Program at UT Southwestern Simmons Comprehensive Cancer Center. Dr. Dowell is Chief of the Section of Hematology/Oncology at Dallas VA Medical Center.

Dr. Dowell completed his medical school education at the University of Chicago and received his internal medicine training at UT Southwestern. He completed his fellowship in hematology and oncology at Vanderbilt University, where he received extensive mentorship in thoracic malignancies from leaders in that field.

Dr. Dowell specializes primarily in thoracic malignancies, including but not limited to non-small cell and small cell lung cancers, mesothelioma, and thymoma. He is an active investigator in the clinical research program for these cancers at UT Southwestern and co-directs the Thoracic Disease Oriented Team.

Dr. Dowell was named a Best Doctor by *D Magazine* in 2020 and a Super Doctor by *Texas Monthly* in 2018.

Dr. Dowell is a member of the NCCN Non-Small Cell Lung Cancer/Malignant Pleural Mesothelioma/Thymomas and Thymic Carcinomas Panel and NCCN TH-138 Principal Investigators.



Dana Farengo-Clark, MS, LCGC, is a Senior Genetic Counselor at the Basser Center for BRCA, the MacDonald Cancer Risk Evaluation Center, and the Gastrointestinal Cancer Risk Evaluation Program at the University of Pennsylvania.

Dana has been practicing oncology genetics for more than 20 years. In her work as a genetic counselor, she sees a diverse cohort of patients who are at risk to carry mutations in hereditary cancer susceptibility genes. She is actively involved in clinical research and has contributed to numerous studies focusing on the clinical implementation of genetic medicine to promote the health of individuals and their families.

In addition to her current role, Dana also serves as the Co-Chair of the Admissions Committee for the University of Pennsylvania Master's Program in Genetic Counseling and enjoys being a clinical instructor and supervisor. When not at work, Dana is a runner, mother, field hockey coach, and baker.

Jeffrey Gagan, MD, PhD, is Assistant Professor of Pathology and Medical Director of Clinical NGS Lab at UT Southwestern Medical Center.

Dr. Gagan completed his undergraduate and graduate studies at University of Virginia. He trained in clinical pathology at Brigham and Women's Hospital in Boston, where he also completed fellowships in Molecular and Genetic Pathology. Dr. Gagan is board-certified in clinical pathology and molecular genetic pathology.

Dr. Gagan's clinical and investigational interests are focused on making molecular pathology data more accessible by utilizing informatics and modern front-end design principles. He is also interested in developing clinical cell-free DNA assays and applying machine learning to diagnostics.

Kelsey A. Klute, MD, is Assistant Professor in Internal Medicine, Division of Oncology and Hematology at University of Nebraska Medical Center.

Dr. Klute earned her medical degree from University of North Dakota School of Medicine and Health Sciences. She completed her residency in internal medicine from Washington University/Barnes-Jewish Hospital. She served her clinical fellowship in medical oncology and hematology at Weill-Cornell Medical College/New York Presbyterian Hospital.

Dr. Klute is actively engaged in medical practice, teaching, consulting, and clinical research. She specializes in the care of patients with pancreatic, hepatobiliary, gastroesophageal and colorectal cancers. She is the Medical Director of the Buffett Cancer Center's Cancer Risk and Prevention Clinic, which provides highly coordinated multidisciplinary care to individuals with hereditary cancer risk.

Dr. Klute is an active member in the American Society of Clinical Oncology and is a member of UNMC's Institution Review Board and Scientific Review Committee. At UNMC, she received the Department of Internal Medicine's Top Teach Award in 2018 and 2019.

Jennifer J.D. Morrissette, PhD, is Associate Professor of Clinical Pathology and Laboratory Medicine, Laboratory Director of Penn's CytoGenomics Laboratory, Clinical Director of the Center for Personalized Diagnostics, and Scientific Director, Clinical Cancer Cytogenetics at the University of Pennsylvania.

Dr. Morrissette earned her Doctorate of Philosophy in molecular genetics from the State University of New York at Buffalo. She completed a postdoctoral fellowship in molecular genetics at Harvard Medical School and a fellowship in Clinical Cytogenetics and Molecular Genetic Diagnostics at Children's Hospital of Philadelphia.

Dr. Morrissette is a member of several professional organizations, including the American College of Medical Genetics, the Association of Molecular Pathology, The Eastern Cooperative Oncology Group, the Genomics Organization for Academic Laboratories, and the International Federation of Clinical Chemistry and Laboratory Medicine.

Anthony J. Olszanski, MD, RPh, is Associate Professor and Vice Chair of Clinical Research at Fox Chase Cancer Center, Director of the Early Clinical Drug Development Phase I Program, and Co-Director of the Melanoma and Skin Cancer Program.

Dr. Olszanski completed his hematology and oncology fellowship and clinical pharmacology fellowship at Dartmouth-Hitchcock Medical Center. He is board-certified in internal medicine, medical oncology, and clinical pharmacology. He focuses on the treatment of lung cancer and cutaneous malignancies with a focus on melanoma.

Dr. Olszanski is a member of the NCCN Melanoma Guidelines Panel and the NCCN Management of Immunotherapy-Related Toxicity Panel. He also serves as Associate Editor for *JNCCN—Journal of the National Comprehensive Cancer Network.*

Dr. Olszanski also serves as a mentor to numerous oncology fellows, internal medicine residents, and colleagues. In addition to attracting a large number of sponsored Phase I trials, he has written, developed, and run (or served as a sub-investigator on) many investigator-initiated trials. Dr. Olszanski has served as the principal investigator on more than 50 trials.

Aparna R. Parikh, MD, MS, is the Medical Director of the Center for Young Adult Colorectal Cancer and the Director of the Global Cancer Care Program at Massachusetts General Hospital (MGH) Cancer Center.

Dr. Parikh is an expert in gastrointestinal (GI) cancers, with a focus on young adults with colorectal cancer. She has a robust clinical trial portfolio with the hopes of bringing novel agents into the clinic, working closely with laboratory collaborators at MGH currently serving as the Principal Investigator of more than 10 studies. She also leads the clinical liquid biopsy efforts for the GI Oncology group and is an international expert on liquid biopsies, helping to develop tools in the setting of residual disease after curative intent surgeries to understand response to treatment drug resistance.

Dr. Parikh also has a passion for cancer care in low- and middle-income countries. As the Director of the Global Cancer Care Program at MGH, she works to support access, equity, and education in these geographic areas and has spent time in several African countries. She co-founded and co-leads the Program for Enhanced Training in Cancer (POETIC). This fellowship exchange program trains clinical oncology fellows from the University of Cape Town in South Africa and Ocean Road Cancer Center in Tanzania. POETIC fellows attend multidisciplinary conferences, clinics, and teaching sessions in hopes of further building capacity for oncology care in Sub-Saharan Africa.

Dr. Parikh is a member of the NCCN Colon/Rectal/Anal Cancers Panel.

Benjamin J. Swanson, MD, PhD, is Associate Professor in the Department of Pathology and Microbiology at University of Nebraska Medical Center. He is Director of the Gastrointestinal Pathology Fellowship and Director of the Tissue Banking Core Facility.

Dr. Swanson earned his doctorate and medical degree from The University of Nebraska Medical School, where he also completed his residency. He completed a fellowship at Ohio State University Wexner Medical Center. He is board certified in anatomic pathology and clinical pathology.

Dr. Swanson is a member of the NCCN Genetic/Familial High-Risk Assessment: Colorectal Panel.

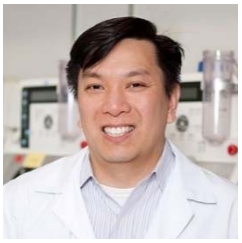
Melinda L. Telli, MD, is an Associate Professor of Medicine in the Division of Medical Oncology at Stanford University School of Medicine, the Director of the Breast Cancer Program at the Stanford Cancer Institute, and the Associate Director of the Stanford Women's Cancer Center.

Dr. Telli received her undergraduate degree from the University of Pennsylvania m*agna cum laude* and her medical degree from George Washington University with distinction. She subsequently completed an internship and residency in internal medicine at Stanford University and stayed at Stanford to pursue fellowship training in medical oncology.

Dr. Telli's research focuses on the development of novel therapies for the treatment of triple-negative and hereditary cancer. Her work has focused on the validation of homologous recombination deficiency biomarkers to help identify patients with sporadic triple-negative breast cancer that may specifically derive benefit from DNA repair defect-targeted therapies. In addition to her involvement in the clinical development of PARP inhibitors for BRCA1 and BRCA2 mutation-associated cancers, she has also explored the use of 'beyond BRCA' DNA repair gene mutations as potential biomarkers to select patients for PARP inhibitor therapy in the advanced disease setting.

Dr. Telli has served on numerous committees for the American Society of Clinical Oncology (ASCO) and currently serves as a Komen Scholar and an editorial board member for *Journal of Clinical Oncology*. She is a past recipient of numerous awards, including: the Susan G. Komen for the Cure Translational Postdoctoral Fellowship Award; the ASCO Young Investigator Award; the Susan G. Komen for the Cure Leadership Award; the Triple Negative Breast Cancer Foundation Hero Award; and the Susan G. Komen SF Bay Area Visionary Award. She has garnered multiple teaching accolades and is a repeat recipient of the Stanford Division of Oncology Teaching Award.

Dr. Telli is a member of the NCCN Breast Cancer Panel.



David T. Ting, MD, is Associate Clinical Director for Innovation, Principal Investigator, and Co-Director of the Biomarker Discovery Lab at Massachusetts General Hospital (MGH) Cancer Center. He also is an Associate Professor of Medicine at Harvard Medical School and a member of numerous programs at Dana-Farber Cancer Institute, including Cancer Genetics and Epigenetics, Gastrointestinal Malignancies, and Cancer Risk, Prevention, and Early Detection.

Dr. Ting received undergraduate degrees in chemical engineering and biology from Massachusetts Institute of Technology and earned his medical degree at Harvard Medical School (Division of Health, Sciences, and Technology). He completed an internal medicine residency at MGH and a medical oncology fellowship at Dana-Farber Cancer Institute and the MGH Cancer Center. He subsequently performed post-doctoral training at the MGH Cancer Center, where he began work characterizing circulating tumor cells (CTCs) and primary tumors with RNA-sequencing.

Dr. Ting is a medical oncologist and translational researcher specializing in gastrointestinal malignancies. His research focuses on pursuing new methods to diagnose pancreatic cancer and avenues for effective treatments. His laboratory has utilized RNA sequencing and RNA in situ hybridization technology to understand the complex transcriptional landscape of cancers. His laboratory team has used these technologies to characterize EMT plasticity and non-coding repeat RNA expression across cancer and normal tissues. This work has provided mechanistic insight into the disease, offering a means to identify novel biomarkers and therapeutic targets.

Dr. Ting is a past-recipient of a numerous research grants from prominent oncology organizations, including the Pancreatic Cancer Action Network, Lustgarten Foundation, and Stand Up To Cancer.