BaylorScott&White
BAYLOR UNIVERSITY MEDICAL CENTER
BAYLOR CHARLES A. SAMMONS CANCER CENTER
DALLAS

CANCER UPDATE

A **Baylor University Medical Center** Publication on Oncology Innovations

SUMMER 2020
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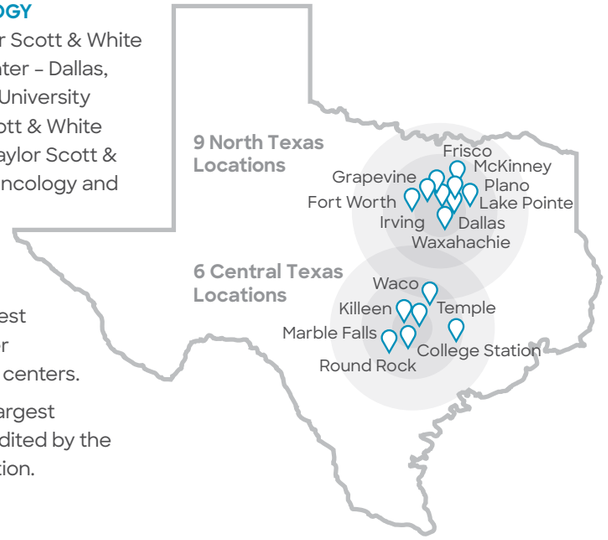
BAYLOR SCOTT & WHITE ONCOLOGY

Cancer research studies at Baylor Scott & White Charles A. Sammons Cancer Center – Dallas, located on the campus of Baylor University Medical Center, part of Baylor Scott & White Health, are conducted through Baylor Scott & White Research Institute, Texas Oncology and The US Oncology Network.

HOSPITAL-BASED CANCER PROGRAMS

Baylor Scott & White has the largest network of hospital-based cancer programs in Texas with 15 cancer centers.

Baylor Scott & White is the third largest network of cancer centers accredited by the Commission on Cancer in the nation.



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Our **COVID-19 Safe Care** measures are in place across our hospitals, surgery centers and clinics, in accordance with CDC guidance and recommendations by our clinical experts. Learn more at **BSWHealth.com/SafeCare**.

Cover photo: Minimally invasive surgical techniques used by the Baylor Dallas lung cancer team include thoracoscopic surgery and robotic surgery.

For more information, call **214.820.3535** or visit us at **BSWH.md/Oncology.**

FROM THE MEDICAL

DIRECTOR

I am pleased to share this Summer 2020 issue of the Baylor Scott & White Cancer Update. Founded in 1976, Baylor Scott & White Sammons Cancer Center is a recognized leader in excellent cancer care. This destination cancer program is located on the campus of Baylor University Medical Center and offers an unparalleled depth and breadth of cancer care.

The centralized cancer care facilities at our Dallas location include the 175,000-square-foot Baylor Scott & White T. Boone Pickens Cancer Hospital, which is the only dedicated cancer hospital in North Texas, and the 467,000-square-foot outpatient facility, one of the nation's largest cancer outpatient centers.

Our ability to provide exceptional research and patient care throughout North and Central Texas is enhanced by a network of 15 hospital-based cancer programs. This network leverages a single organizational infrastructure to offer our cancer care and clinical trials to a diverse population throughout the state of Texas and beyond. With our multidisciplinary teams of specialists at each site and robust connections among sites, we can offer patients access to the most innovative and groundbreaking cancer therapies in all aspects of cancer care.

In this issue, we focus on thoracic cancer care and research. Our Chest Cancer Research and Treatment Center brings together experts across multiple subfields to navigate complex personalized treatment strategies while providing a streamlined patient experience. The articles in this issue illustrate our three-part commitment to excellence in innovative patient care, leading-edge research and continuous quality improvement. Highlights of this issue include the following:

- Large-scale clinical trials of immunotherapies, combination therapies and cell-based therapeutics for cancers of the esophagus and lung. Our center participates in trials across the full spectrum of research, leveraging effective referral networks and industry partnerships.
- Minimally invasive surgical approaches for cancers of the esophagus and lung, including robotic surgery and endoscopic submucosal dissection.
- Comprehensive simulation resources that offer surgical skills training and facilitate research on innovative digital health technologies, such as telesurgery and kinesthetic feedback.
- Translational research to identify the molecular mechanisms of esophageal carcinogenesis and implement those insights to advance patient care.
- A screening program for early detection of lung cancer in high-risk individuals coupled with a nationally recognized lung cancer treatment program.
- A molecular diagnostics and genetic counseling program that provides analysis of somatic and germline mutations in partnership with patients and the multidisciplinary care teams.

Together, these stories illustrate our commitment to successful intervention and individualized care. We know the best outcomes are possible when cancers are detected early. With this in mind, our teams are always looking for ways to improve early identification and provide patient-centered care that maximizes quality and safety with minimal intervention. For instance, the Enhanced Recovery After Surgery program, which provides a clear workflow for perioperative care, has greatly reduced both complications and the duration of hospital stays. In recognition of our commitment to quality, the Baylor Scott & White Lung Cancer Surgery program has received the coveted three-star rating from the Society of Thoracic Surgeons in both 2018 and 2019 and is nationally ranked by *U.S. News & World Report*.

This is an exciting time to be in the fight against cancer. New therapies are offering impressive cure rates to patients who previously had few options. Trends toward minimally invasive surgery are reducing hospital stays and improving the quality of survivorship. Our unmatched infrastructure for cancer care and research, including a 1,800-square-foot in-house cGMP cell manufacturing facility and a dedicated facility for early-stage clinical research, positions Baylor Scott & White in a leadership role as we look toward the future.

As we use the most sophisticated weapons against cancer, we must also never lose sight of the fact that each individual is a whole person with a life story that extends across their cancer journey. As such, we work to provide world-class care in a peaceful environment that nurtures the spirit into a successful survivorship.

Ronan Kelly, MD, MBA
Chief of Oncology, Baylor Scott & White Health - North Texas
Director, Baylor Scott & White Charles A. Sammons Cancer Center

Feature Article

ADVANCES IN THE TREATMENT OF THORACIC CANCER

Baylor Scott & White Sammons Cancer Center is located at Baylor Dallas and has become a destination location for patients with thoracic cancers by combining innovative clinical research with advanced quality of care in a multidisciplinary environment. This article describes recent advances in the medical and surgical treatment of both lung cancer and esophageal cancer and explores potential practice-changing studies that have originated from our program.

Novel immunotherapies for esophageal cancer

Ronan Kelly, MD, MBA

Researchers at Baylor Dallas are investigating a number of innovative immunotherapeutic strategies for the treatment of gastroesophageal cancer. CheckMate 577 is a randomized, double-blind, placebo-controlled, phase III study (NCT02743494), which has enrolled 794 patients across 32 countries worldwide. The investigators are evaluating whether the PD-1 inhibitor nivolumab, given after standard-of-care chemoradiation and surgery, can improve disease-free survival and overall survival in patients with operable stage II/III cancer of the esophagus or gastroesophageal junction.

Ronan Kelly, MD, MBA, medical director of Baylor Scott & White Sammons Cancer Center, is the international principal investigator for the CheckMate 577 study. “Only about 30% of patients who get standard chemoradiation followed by esophageal resection achieve a pathological complete response. The remaining 70% of patients have few treatment options other than close observation as additional adjuvant chemotherapy has not been shown to be beneficial. We are eagerly awaiting the results of this pivotal phase III trial to see if immunotherapy can offer some additional hope to these patients.”

Additional esophageal cancer investigator-initiated phase I/II studies are now open with three recruitment sites, including Baylor Dallas, Johns Hopkins in Baltimore and the Allegheny Health Network in Pittsburgh. The first trial is investigating the use of neoadjuvant immunotherapy combined with chemoradiation prior to surgical resection (NCT03044613). In Arm A, patients receive nivolumab alone. In Arm B, they receive nivolumab plus the LAG-3 inhibitor relatlimab as induction therapy and concurrently with carboplatin/paclitaxel and thoracic irradiation prior to an esophagectomy.

The other trial is the REACTION study (NCT03610711), which will recruit patients with oligometastatic gastroesophageal cancer. All the patients will receive high-dose stereotactic body radiation to any sites outside the gastroesophageal region. Then, like the other study, patients in Arm A will receive nivolumab alone, and those in Arm B will receive nivolumab plus relatlimab.

Dr. Kelly is the lead investigator and author for both studies and says, “By testing the response to checkpoint inhibitor therapies across multiple disease stages and in various combinations, we hope to get a clearer picture of how much immunotherapy might benefit these patients with historically difficult to treat tumors.”

Therapeutic developments for lung cancer

Kartik Konduri, MD

Baylor Dallas also supports a robust portfolio of clinical trials for lung cancer. According to Kartik Konduri, MD, co-medical director of the Lung Cancer Research and Treatment Center at Baylor Scott & White Sammons Cancer Center, “We are seeing more strategies that combine immunotherapy with chemotherapy, especially at earlier disease stages, and more targeted therapies are emerging. We are also starting cell-based trials, including those with CAR-T cells and T cell receptor therapies. Some of these cell-based therapies can be produced in our on-campus cGMP cellular therapeutics manufacturing facility, positioning Baylor Dallas as an attractive site for innovative immunotherapy research.”

One strength of the Baylor Dallas environment is the ability to participate in clinical trials through Texas Oncology and The US Oncology Network, which can utilize large referral networks across the state and the country to identify patients with rare molecular or immunological alterations so they can come to Dallas to be treated on innovative studies that may be only available to a small population of patients. Strict entry criteria limit the feasibility of opening these studies in a smaller community or outside of

large academic settings that do not possess the population of patients needed to adequately enroll in some of these trials.

Dr. Konduri mentions exciting next-generation lung cancer therapies that are now entering the clinic, "The recent vastly improved outlook for lung cancer therapies has become possible due to targeted therapies and immunotherapies. Newer targets and therapeutics have become available based on promising data from clinical trials. These have a meaningful impact on helping patients live better and longer."

Such trials available at Baylor Dallas include the ongoing ARROW phase I/II open-label trial (NCT03037385). This study is evaluating the RET inhibitor BLU-667 in patients with RET-altered solid tumors, including non-small cell lung cancer (NSCLC). Baylor Dallas is also conducting a trial with AMG 510 for a subtype of NSCLC with KRAS (G12C) mutations, which are usually hard to treat with targeted therapies (NCT03600883).

Dr. Konduri also describes the potential importance of drug combinations. "Combining immunotherapy with targeted drugs represents an exciting attempt to gain the benefits of both these strategies. We are looking at multitargeted kinase inhibitors like sitravatinib, combined with immunotherapy, to assess improved efficacy. Another trial using targeted therapy with cabozantinib combined with immunotherapy (atezolizumab) is opening shortly for patients with NSCLC who have progressed on front-line therapies. These innovative clinical trials are leading advancements of therapeutics for lung cancer patients."

> The recent vastly improved outlook for lung cancer therapies has become possible due to targeted therapies and immunotherapies. Newer targets and therapeutics have become available based on promising data from clinical trials. These have a meaningful impact on helping patients live better and longer.
>
> **Kartik Konduri, MD**
> Co-medical director of the Lung Cancer Research and Treatment Center at Baylor Dallas

Baylor Dallas is also working with Texas Oncology for a phase I/II study (NCT03400332) to evaluate the safety and feasibility of the interleukin (IL)-8 inhibitor BMS-986253 plus nivolumab in patients with advanced solid tumors. High serum IL-8 levels correspond with poor prognosis across a variety of cancers. IL-8 blockade is expected to reduce the mesenchymal features of tumor cells and permit the success of immunotherapies.

Together, these studies attempt to identify novel therapies based on the molecular characterization of the tumor, providing an individualized and personalized approach to lung cancer therapy.

Excellence in lung cancer surgery

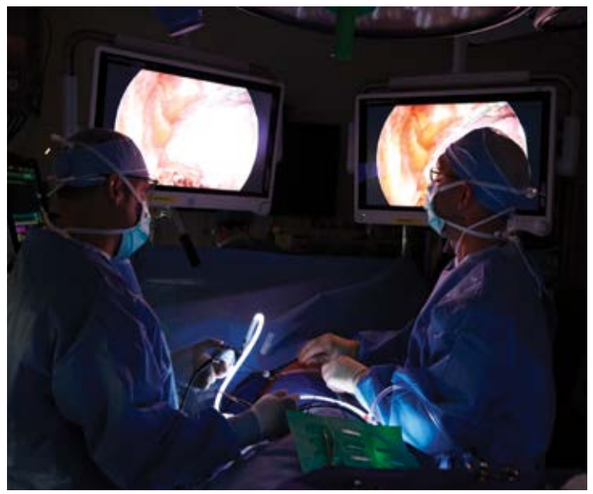
David Mason, MD

Lung cancer surgery at Baylor Dallas is focused around rapid access and individualized quality of care. These attributes have won Baylor Dallas the distinguished three-star rating from the Society of Thoracic Surgeons for patient care and cancer outcomes for lobectomy in lung cancer in both 2018 and 2019. This highest ranking puts Baylor Dallas in the top five percent of programs in the US and Canada. Additionally, most lung cancer patients undergo minimally invasive surgery.

The Lung Cancer Research and Treatment Center at Baylor Scott & White Sammons Cancer Center works alongside the Lung Nodule Clinic (see page 22) for screening and early diagnosis. Treatment of lung cancer then includes a combination of medical and surgical approaches, which are evaluated by a multidisciplinary team of pulmonary specialists, medical oncologists radiation oncologists, and thoracic surgeons. The surgical component is individualized to the patient's tumor size, location, lung function and underlying medical conditions.

According to David Mason, MD, chief of thoracic surgery and lung transplantation and chief of thoracic oncology at Baylor Dallas, success is all about teamwork. "We have a team of dedicated thoracic anesthesiologists, nurses and operating room staff. Having a specialized team is what allows us to get quality outcomes for our patients. We have grown tremendously in the last years. Since 2015, thoracic surgery volumes at Baylor Dallas have grown from 280 to over 1,300 performed last year. This is due to the impressive work by our dedicated team."

Minimally invasive surgical techniques used by lung cancer surgeons on the medical staff at Baylor Dallas include thoracoscopic surgery and robotic surgery. Thoracoscopic surgery is a video-assisted procedure of the chest that permits the surgeon to find and remove cancerous areas of the lung using only small incisions. Robotic surgery provides enhanced visualization and dexterity in specific circumstances and locations that require it. The department's thoracic surgeons specializing in non-cardiac diseases of the chest have expertise in each of these techniques and tailor the surgical approach for each individual patient. Hospital stays with minimally invasive surgery are short and recovery enhanced.



Minimally invasive surgical techniques used by the Baylor Dallas lung cancer team include thoracoscopic surgery and robotic surgery.

Another key to the success of Baylor Dallas is facilitating access to care. Dr. Mason says, "Some patients travel a long distance to see us in Dallas. We work hard to coordinate all their testing and surgery to minimize time away from home. In addition, we offer thoracic clinics in Fort Worth, Waxahachie, Rockwall, Lubbock and Tyler for those who prefer it. Finally, we offer same-day appointments for patients. For our entire team, it is always patients first, and we are constantly striving to improve their experiences and improve outcomes."

MINIMALLY INVASIVE SURGERY FOR GASTROESOPHAGEAL CANCER

Steven Leeds, MD

Eitan Podgaetz, MD

Marc Ward, MD

Cancers of the stomach and esophagus traditionally have been labeled as aggressive and hard to treat. When diagnosed in the later stages, gastroesophageal cancers often require a combination of chemotherapy, radiation and surgery. However, when the cancers are found early, many of these interventions can be avoided. Through a multidisciplinary effort with the Departments of Minimally Invasive Surgery, Thoracic Surgery and Gastroenterology, endoscopic surgical techniques are now available at Baylor Dallas.

Steven Leeds, MD, division chief of minimally invasive surgery at Baylor Dallas, mentions that the key to success is detecting the cancer early. “Endoscopy is becoming more common, and we are seeing people get endoscopies at younger ages. This means patients are referred to our center at earlier stages of disease, when they are still good candidates for minimally invasive treatments.” Dr. Leeds and his department spend significant time teaching and utilizing endoscopic techniques for minimally invasive surgery. These techniques have allowed Baylor Dallas to pioneer several procedures, including per-oral endoscopic myotomy (POEM) and endoscopic submucosal dissection (ESD). The team is also internationally recognized for research into endoscopic techniques for mitigating anastomotic leak after surgery of the gastrointestinal tract.

Endoscopic mucosal resection (EMR), developed in the 1980s, is the primary endoscopic technique for removing small superficial gastroesophageal lesions. EMR is routinely used at Baylor Dallas. The advantage to EMR is its ability to provide deeper biopsies than normal forceps. However, EMR cannot remove specimens en bloc larger than 1 – 2 centimeters.

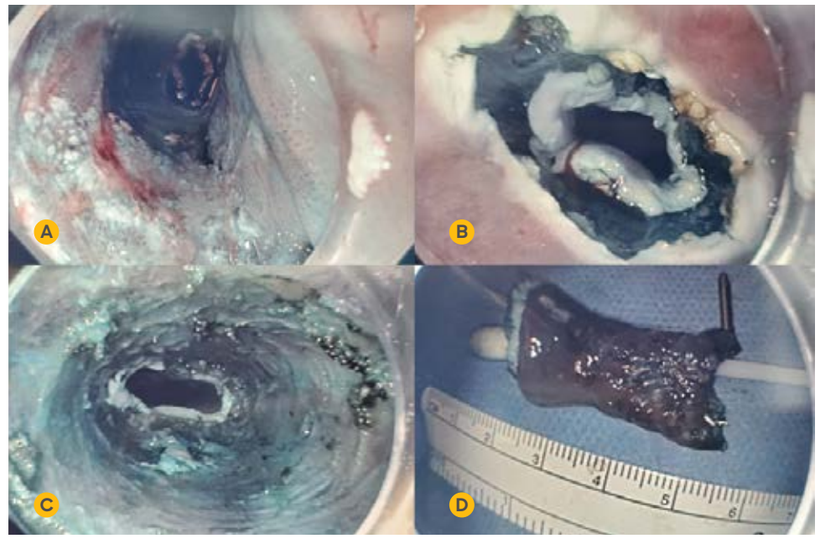
A major breakthrough in endoscopic cancer treatment came with the development of ESD. Pioneered in Japan in the 2000s, ESD allows the surgeon to peel away the mucosa to resect tumors of the esophagus, stomach and other areas of the gastrointestinal tract without incisions.

Eitan Podgaetz, MD, director of minimally invasive and endoscopic thoracic surgery at Baylor Dallas, says, “We perform complex endoscopic eradication therapy, including ESD, which removes the area with the tumor and the surrounding mucosa. We also perform circumferential dissection, where we remove the entire 360 degrees of mucosa endoscopically. This technically demanding approach is only performed at a few centers, and we are happy to offer it to our patients.”

Marc Ward, MD, director of minimally invasive research and simulation and a surgical oncologist on the medical staff at Baylor Dallas, published the first case study demonstrating successful resection of a 2-centimeter gastric mass with ESD in a 76-year-old man with significant comorbidities. Although the mass was confined to the mucosa, it was too large for EMR. The ESD resection was successful with complete removal of the cancer, and the patient was discharged after one day with no complications.

According to Dr. Ward, “If you can remove a lesion endoscopically, the patient has a faster recovery; there are no incisions. It is very well-tolerated even in patients with comorbidities compared to laparoscopic techniques. Our collaborative environment allows us to guide each patient to the best choice for both quality and safety.”

This individualized approach to cancer care is also seen in the Enhanced Recovery After Surgery (ERAS) program. The ERAS program also guides the patient throughout the perioperative period and recovery. Research at Baylor Dallas has shown that ERAS programs in minimally invasive surgery have decreased complications by 81% and shortened the hospital stay by 16%. Combining this ongoing research with advanced cancer treatment, physicians on the medical staff at Baylor Dallas are providing optimal cancer care in the least invasive way possible.



A: Endoscopic view of superficial squamous cell carcinoma. **B:** Initial endoscopic incision. **C:** Endoscopic view post circumferential resection. **D:** Photo of tubularized specimen.

ACADEMIC SIMULATION PROGRAM

Sanket Chauhan, MD, MBA

James Fleshman, MD, FACS, FASCRS

The Academic Simulation Program at Baylor Dallas offers comprehensive simulation resources for education and quality improvement throughout Baylor Scott & White and beyond. These centralized resources permit a wide range of medical professionals to receive skills training in a standardized, low-risk and cost-effective environment.

Sanket Chauhan, MD, MBA, co-founder and medical director of clinical simulation, describes what makes the Baylor Dallas program unique. “There are very few fully integrated simulation programs in the country. We support physicians, medical students, residents, advanced service providers, nurses and allied health professionals. We are also integrated with the clinical service lines to support patient safety and quality improvement initiatives.” This strategy positions Baylor Dallas to innovate and standardize approaches across multiple disciplines.

The Academic Simulation Center is integral to the formal training of medical students and residents at Baylor Dallas.

The Academic Simulation Program is divided into three divisions:

- **Seeger Surgical Simulation Center.** The newly renovated facility contains a wide array of task-based training stations, including several manikins and virtual reality simulators.
- **Baylor Operative Skills Simulation (BOSS) center.** This 2,400-square-foot facility is a centralized resource for cadaver-based bioskills training. It is equipped with eight stations, including both laparoscopic and open surgical instrumentation, and can be outfitted with specialty equipment. The BOSS center is also fully networked for HD video recording and livestreaming.
- **Center for Evidence Based Simulation (CEBS).** This is the research and development wing of the Academic Simulation Program. Funded by over $4 million in external funding, including an R01 grant from the National Institute of Biomedical Imaging and Bioengineering, the CEBS develops simulation programs in partnership with collaborators throughout academia and industry. Ongoing research includes exploring the capacity for telesurgery, integrating artificial intelligence into skills assessment, and incorporating kinesthetic (haptic) feedback into laparoscopic training.

The Academic Simulation Program is integral to the formal training of medical students and residents at Baylor Dallas. Residents at all levels can develop skills in laparoscopy, robotic surgery, endoscopy and open surgery.

James Fleshman, MD, FACS, FASCRS, chief of the Department of Surgery at Baylor Dallas and co-founder of the Academic Simulation Program, notes that the simulation resources have also been used to train practicing surgeons in laparoscopy for resection of colon and rectal cancer. “The result was a safe and reproducible technique that benefitted the patient with less pain and earlier recovery, without compromising the chance of cure.” Thus, simulation can be integrated at all levels of care to improve the quality of cancer care delivery.

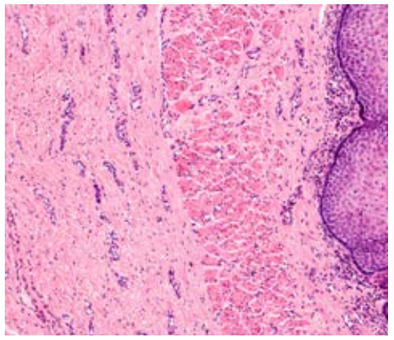
PRECANCEROUS LESIONS IN THE ESOPHAGUS

Vani Konda, MD

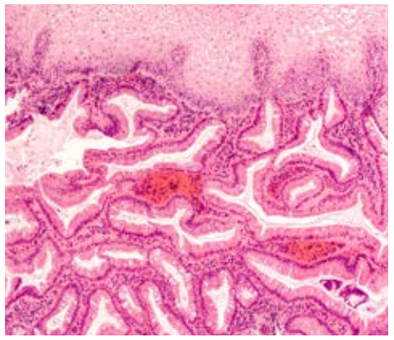
Rhonda Souza, MD

Stuart Spechler, MD

Baylor Dallas is internationally recognized for excellence in research and treatment for esophageal precancerous lesions. The precursor lesion for esophageal adenocarcinoma is Barrett's esophagus, a complication of chronic gastrointestinal reflux disease (GERD). In Barrett's esophagus, the esophageal squamous epithelium is converted to columnar epithelium with goblet cells, causing the esophageal lining to resemble the lining of the intestine. The progression of Barrett's esophagus from metaplasia through dysplasia and into cancer is managed using endoscopic monitoring.



Normal Esophagus



Barrett's Intestinal Metaplasia

Vani Konda, MD, gastroenterologist on the medical staff and director of clinical operations of the Endoscopy Center at Baylor Dallas, describes the clinical services that set Baylor Dallas apart. "Unlike other centers, we offer the full armamentarium of tools available, from radiofrequency ablation (RFA) and EMR for milder disease to ESD and esophagectomy for more advanced disease. We also use a combined consult system for early cancer, which allows the patient to see both the surgeon and gastroenterologist in the same appointment and decide on a treatment plan in real time. This streamlined approach facilitates consensus and minimizes stress for the patient."

Despite the best clinical management of Barrett's esophagus, some patients still progress to adenocarcinoma, and the research team at Baylor Dallas wants to know why. For instance, Barrett's metaplasia can recur after RFA at a rate of nearly 10% per year. This recurrence is caused by a unique ability of the Barrett's cells to burrow into the submucosa and escape the thermal injury of RFA.

In a 2019 publication in *Gastroenterology*, researchers at Baylor Dallas gained critical insight into how Barrett's cells escape RFA. They identified a mechanism whereby the components of acid reflux cause Barrett's cells to undergo epithelial-mesenchymal transition (EMT), a reversible transformation that permits stationary cells to migrate. Rhonda Souza, MD, co-director of the Endoscopy Center and senior author on the *Gastroenterology* paper, says, "We identified vascular endothelial growth factor (VEGF) as the trigger for EMT, and with the help of recent R01 funding from the National Institute of Diabetes and Digestive for Kidney Diseases, we can now identify the detailed mechanism, including the role of the hypoxia-induced factor HIF-1a."

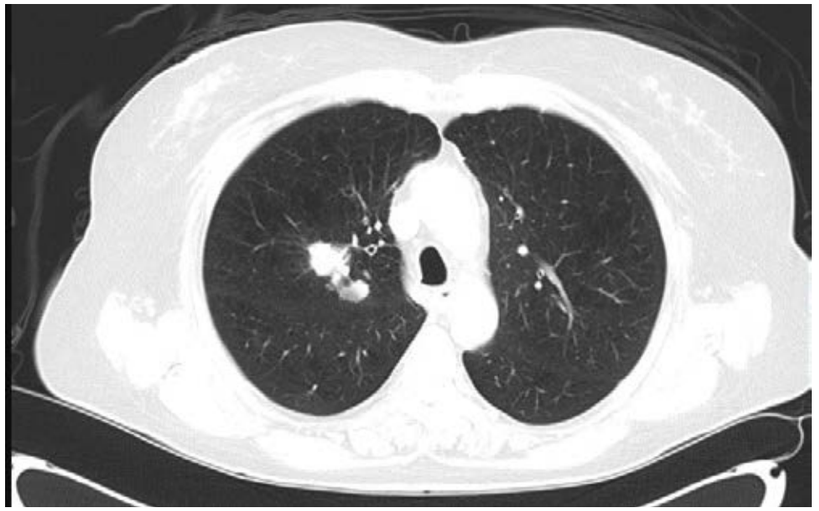
Stuart Spechler, MD, chief of gastroenterology and co-director of the Endoscopy Center, who is also a co-author on the *Gastroenterology* publication and co-principal investigator on the R01 grant, adds, "We will also test candidate therapies based on the molecular mechanisms that we have elucidated. This is what really makes our work unique. We can do true translational research to identify the fundamental mechanisms underlying our patients' clinical conditions. The knowledge we gain from this research enables us to develop novel treatments and procedures that directly impact patient care."

EARLY DETECTION THROUGH LUNG CANCER SCREENING

Leonidas Tapias, MD

Lung cancer is the leading cause of cancer death for both men and women. However, early detection improves outcomes. As early as 2011, the National Lung Screening Trial showed that annual screening of people at risk for lung cancer reduced lung cancer-specific mortality by 20%. Based on these findings, Baylor Dallas has developed a comprehensive lung cancer screening program to identify and treat people who might have early-stage lung cancer.

Leonidas Tapias, MD, thoracic surgeon on the medical staff at Baylor Dallas, describes the target population. “People between 55 and 75 years old with a history of 30 packs per year and either current smoking or quitting within the last 15 years are at increased risk of lung cancer. Our goal is to help these people get into annual screening.”



Baylor Scott & White Sammons Cancer Center is also a destination treatment resource for people with lung nodules identified either through screening or incidentally.

The primary modality for screening is low-dose computed tomography (CT) scanning. Biomarker analyses, such as antibody tests and genomic profiling, can be used to generate a combined risk calculator. Research is ongoing as to the best specimen collection method for biomarker analysis, and process improvements may further improve risk assessment.

> People already know to undertake screening for other cancers, but because lung cancer screening is still in the early stages, people are not yet aware of the benefits. We encourage them to join our screening program.
>
> **Leonidas Tapias, MD**
> Thoracic Surgeon at Baylor Dallas

Working with the lung cancer screening program, Baylor Scott & White Sammons Cancer Center is a destination treatment resource for people with lung nodules identified either through screening or incidentally. One key advantage of Baylor Dallas is a multidisciplinary team approach, which includes radiologists, pulmonologists, oncologists and surgeons, who streamline care and coordinate the steps from identification through therapy, if necessary. Smoking cessation counseling is also available. All of this takes place in collaboration with the referring physician to reduce stress and confusion for the patient.

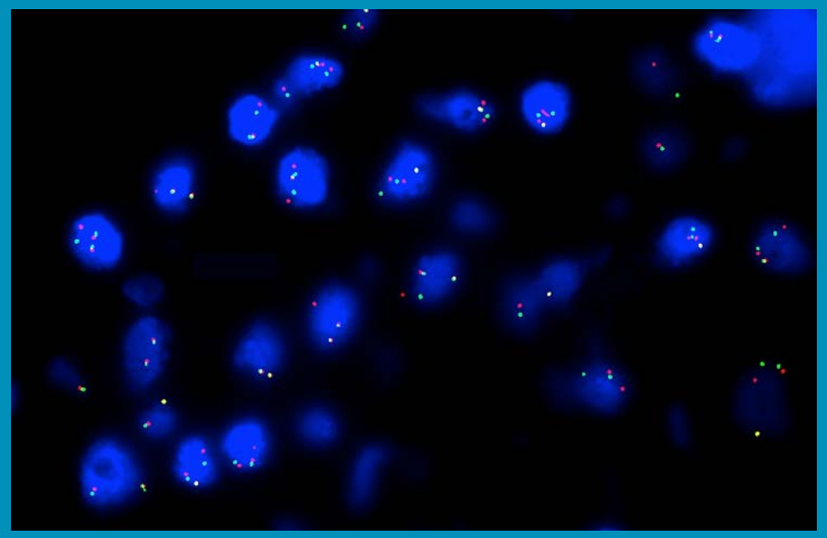
Although early detection can reduce lung cancer mortality, only 3 – 5% of eligible candidates enter a screening program. Given that approximately 90% of identified nodules turn out to be benign, finding ways to increase screening acceptance are important. Dr. Tapias mentions, “People already know to undertake screening for other cancers, but because lung cancer screening is still in the early stages, people are not yet aware of the benefits. We encourage them to join our screening program.”

MOLECULAR DIAGNOSTICS FOR THORACIC CANCERS

S. Michelle Shiller, DO, MSPT

Baylor Dallas has embraced the growing recognition of molecular markers as tools for navigating the cancer treatment journey. The molecular diagnostics services available at Baylor Dallas include analysis of somatic molecular alterations in the tumor and, depending on the cancer type, evaluation of germline mutations.

S. Michelle Shiller, DO, MSPT, molecular pathologist and co-medical director of the Genetic Counseling Program at Baylor Dallas, describes how molecular analysis of somatic alterations fits into the multidisciplinary team approach that makes Baylor Dallas a leader in the treatment of complex disease. "As a member of the multidisciplinary team, I consult about the role of particular oncogenic drivers and educate about testing and its optimal implementation. Molecular profiling is performed on every tumor, and the analysis of those results adds an important piece to the development of a treatment plan." The routine molecular tumor profiling assays include evaluation of point mutations, genomic rearrangements, gene amplifications and protein expression levels.



The routine molecular tumor profiling assays include evaluation of point mutations, genomic rearrangements, gene amplifications and protein expression levels.

The Genetic Counseling Program provides genetic testing and support services for individuals and families who might have germline mutations that increase the risk of cancer.

For example, somatic mutations in the growth factor receptor gene *EGFR* are present in 25% of patients with non-squamous NSCLC and a small percentage of those with squamous cell NSCLC. Given that tyrosine kinase inhibitors are first-line therapies for NSCLC patients with most *EGFR* mutations, integrating molecular profiling as early as possible can clearly impact the therapeutic approach.

The Genetic Counseling Program also provides genetic testing and support services for individuals and families who might have germline mutations that increase the risk of cancer. According to Kelly Johnson, MS, MPH, certified genetic counselor at Baylor Dallas, "Chest and lung cancers were initially thought to be largely sporadic or environmental, but in rare cases, there are hereditary genetic mutations that increase risk for these tumors (Table 1). For patients with non-small cell lung cancer, malignant mesothelioma, and thymic or bronchial carcinoid tumors, we encourage physicians to discuss the family history, evaluate the patient for other features of the genetic conditions and consider a referral to Baylor Dallas for genetic counseling."

Table 1. Germline mutations in thoracic cancer.

Cancer/tumor type	Gene	Syndrome	Mode of Inheritance	Other features seen in the personal/family history
Non-small cell lung cancer	*EGFR*	Hereditary lung cancer syndrome	Autosomal dominant	• *EGFR* T790M somatic mutations in the tumor prior to therapies • Family history of young lung cancers and/or lung cancer in non-smokers
Mesothelioma	*BAP1*	*BAP1*-hereditary cancer predisposition syndrome	Autosomal dominant	Uveal melanoma, cutaneous melanoma, kidney cancer, multiple nevi or atypical Spitz-like tumors, meningiomas
Thymic and bronchial carcinoids	*MEN1*	Multiple endocrine neoplasia type 1 (MEN1)	Autosomal dominant (10% *de novo* mutations)	Hyperparathyroidism, pituitary tumors, well-differentiated tumors of the gastro-entero-pancreatic tract (gastrinomas, insulinomas, etc.), neuroendocrine tumors (such as PNETs), adrenocortical tumors, ependymomas

December 2019 through May 2020

RECENT PUBLICATIONS

FROM BAYLOR SCOTT & WHITE SAMMONS CANCER CENTER

Clifford M, Bannon S, Bednar EM, Czerwinski J, Davis J, Dunnington L, Hashmi SS, DiNardo CD. Clinical applicability of proposed algorithm for identifying individuals at risk for hereditary hematologic malignancies. *Leuk Lymphoma.* 2019;60(12):3020-3027. doi:10.1080/10428194.2019.1630618

Tew BY, Legendre C, Schroeder MA, Triche T, Gooden GC, Huang Y, Butry L, Ma DJ, Johnson K, Martinez RA, Pierobon M, Petricoin EF, O'Shaughnessy J, Osborne C, Tapia C, Buckley DN, Glen J, Bernstein M, Sarkaria JN, Toms SA, Salhia B. Patient-derived xenografts of central nervous system metastasis reveal expansion of aggressive minor clones. *Neuro Oncol.* 2020;22(1):70-83. doi:10.1093/neuonc/noz137

Shadman M, Maloney DG, Storer B, Sandmaier BM, Chauncey TR, Andersen NS, Niederwieser D, Shizuru J, Bruno B, Pulsipher MA, Maziarz RT, Agura ED, Hari P, Langston AA, Maris MB, McSweeney PA, Storb R, Sorror ML. Rituximab-based allogeneic transplant for chronic lymphocytic leukemia with comparison to historical experience. *Bone Marrow Transplant.* 2020;55(1):172-181. doi:10.1038/s41409-019-0660-8

Jansen AML, Ghosh P, Dakal TC, Slavin TP, Boland CR, Goel A. Novel candidates in early-onset familial colorectal cancer. *Fam Cancer.* 2020;19(1):1-10. doi:10.1007/s10689-019-00145-5

Sternberg CN, Motzer RJ, Hutson TE, Choueiri TK, Kollmannsberger C, Bjarnason GA, Nathan P, Porta C, Grünwald V, Dezzani L, Han J, Tannir NM. COMPARZ post hoc analysis: characterizing pazopanib responders with advanced renal cell carcinoma. *Clin Genitourin Cancer.* 2019;17(6):425-435.e4. doi:10.1016/j.clgc.2019.01.015

Golshan M, Wong SM, Loibl S, Huober JB, O'Shaughnessy J, Rugo HS, Wolmark N, Ansell P, Maag D, Sullivan DM, Metzger-Filho O, Von Minckwitz G, Geyer Jr CE, Sikov WM, Untch M. Early assessment with magnetic resonance imaging for prediction of pathologic response to neoadjuvant chemotherapy in triple-negative breast cancer: results from the phase III BrighTNess trial. *Eur J Surg Oncol.* 2020;46(2):223-228. doi:10.1016/j.ejso.2019.10.002

Nguyen LH, Goel A, Chung DC. Pathways of colorectal carcinogenesis. *Gastroenterology.* 2020;158(2):291-302. doi:10.1053/j.gastro.2019.08.059

Shah NP, García-Gutiérrez V, Jiménez-Velasco A, Larson S, Saussele S, Rea D, Mahon FX, Levy MY, Gómez-Casares MT, Pane F, Nicolini FE, Mauro MJ, Sy O, Martin-Regueira P, Lipton JH. Dasatinib discontinuation in patients with chronic-phase chronic myeloid leukemia and stable deep molecular response: the DASFREE study. *Leuk Lymphoma.* 2020;61(3):650-659. doi:10.1080/10428194.2019.1675879

Kelly RJ, Lee J, Bang YJ, Almhanna K, Blum-Murphy M, Catenacci DVT, Chung HC, Wainberg ZA, Gibson MK, Lee KW, Bendell JC, Denlinger CS, Chee CE, Omori T, Leidner R, Lenz HJ, Chao Y, Rebelatto MC, Brohawn PZ, He P, McDevitt J, Sheth S, Englert JM, Ku GY. Safety and efficacy of durvalumab and tremelimumab alone or in combination in patients with advanced gastric and gastroesophageal junction adenocarcinoma. *Clin Cancer Res.* 2020;26(4):846-854. doi:10.1158/1078-0432.CCR-19-2443

Gerber DE, Camidge DR, Morgensztern D, Cetnar J, Kelly RJ, Ramalingam SS, Spigel DR, Jeong W, Scaglioni PP, Zhang S, Li M, Weaver DT, Vaikus L, Keegan M, Horobin JC, Burns TF. Phase 2 study of the focal adhesion kinase inhibitor defactinib (VS-6063) in previously treated advanced KRAS mutant non-small cell lung cancer. *Lung Cancer.* 2020;139:60-67. doi:10.1016/j.lungcan.2019.10.033

Cobleigh M, Yardley DA, Brufsky AM, Rugo HS, Swain SM, Kaufman PA, Tripathy D, Hurvitz SA, O'Shaughnessy J, Mason G, Antao V, Li H, Chu L, Jahanzeb M. Baseline characteristics, treatment patterns, and outcomes in patients with HER2-positive metastatic breast cancer by hormone receptor status from SystHERs. *Clin Cancer Res.* 2020;26(5):1105-1113. doi:10.1158/1078-0432.CCR-19-2350

Rini BI, Pal SK, Escudier BJ, Atkins MB, Hutson TE, Porta C, Verzoni E, Needle MN, McDermott DF. Tivozanib versus sorafenib in patients with advanced renal cell carcinoma (TIVO-3): a phase 3, multicentre, randomised, controlled, open-label study. *Lancet Oncol.* 2020;21(1):95-104. doi:10.1016/S1470-2045(19)30735-1

Rini BI, Battle D, Figlin RA, George DJ, Hammers H, Hutson T, Jonasch E, Joseph RW, McDermott DF, Motzer RJ, Pal SK, Pantuck AJ, Quinn DI, Seery V, Voss MH, Wood CG, Wood LS, Atkins MB. The society for immunotherapy of cancer consensus statement on immunotherapy for the treatment of advanced renal cell carcinoma (RCC). *J Immunother Cancer.* 2019;7(1):354. doi:10.1186/s40425-019-0813-8

Jung G, Hernández-Illán E, Moreira L, Balaguer F, Goel A. Epigenetics of colorectal cancer: biomarker and therapeutic potential. *Nat Rev Gastroenterol Hepatol.* 2020;17(2):111-130. doi:10.1038/s41575-019-0230-y

Shimura T, Toden S, Komarova NL, Boland C, Wodarz D, Goel A. A comprehensive in vivo and mathematic modeling-based kinetic characterization for aspirin-induced chemoprevention in colorectal cancer [published online ahead of print, 2020 Jan 6]. *Carcinogenesis.* 2020;bgz195.

Golshan M, Loibl S, Wong SM, Houber JB, O'Shaughnessy J, Rugo HS, Wolmark N, McKee MD, Maag D, Sullivan DM, Metzger-Filho O, Von Minckwitz G, Geyer Jr CE, Sikov WM, Untch M. Breast conservation after neoadjuvant chemotherapy for triple-negative breast cancer: surgical results from the BrighTNess randomized clinical trial [published online ahead of print, 2020 Jan 8]. *JAMA Surg.* 2020;155(3):e195410.

Amrollahi P, Rodrigues M, Lyon CJ, Goel A, Han H, Hu TY. Ultra-sensitive automated profiling of EpCAM expression on tumor-derived extracellular vesicles. *Front Genet.* 2019;10:1273. doi:10.3389/fgene.2019.01273

Nadler E, Pavilack M, Espirito JL, Clark J, Fernandes A. Observational study of treatment patterns in patients with epidermal growth factor receptor (EGFR) mutation-positive non-small cell lung cancer after first-line EGFR-tyrosine kinase inhibitors. *Adv Ther.* 2020;37(2):946-954. doi:10.1007/s12325-020-01221-4

Öberg K, Califano A, Strosberg JR, Ma S, Pape U, Bodei L, Kaltsas G, Toumpanakis C, Goldenring JR, Frilling A, Paulson S. A meta-analysis of the accuracy of a neuroendocrine tumor mRNA genomic biomarker (NETest) in blood. *Ann Oncol.* 2020;31(2):202-212. doi:10.1016/j.annonc.2019.11.003

Smith J 2nd, Irwin A, Jensen L, Tedesco K, Misir S, Zhu W, Almonte A, He Y, Xie R, Olivo M, O'Shaughnessy J. Phase II study of eribulin mesylate administered biweekly in patients with human epidermal growth factor receptor-2-negative metastatic breast cancer. *Clin Breast Cancer.* 2020;20(2):160-167. doi:10.1016/j.clbc.2019.09.007

Pichler M, Rodriguez-Aguayo C, Nam SY, Dragomir MP, Bayraktar R, Anfossi S, Knutsen E, Ivan C, Fuentes-Mattei E, Lee SK, Ling H, Ivkovic TC, Huang G, Huang L, Okugawa Y, Katayama H, Taguchi A, Bayraktar E, Bhattacharya R, Amero P, He WR, Tran AM, Vychytilova-Faltejskova P, Klec C, Bonilla DL, Zhang X, Kapitanovic S, Loncar B, Gafà R, Wang Z, Cristini V, Hanash SM, Bar-Eli M, Lanza G, Slaby O, Goel A, Rigoutsos I, Lopez-Berestein G, Calin GA. Therapeutic potential of FLANC, a novel primate-specific long non-coding RNA in colorectal cancer [published online ahead of print, 2020 Jan 27]. *Gut.* 2020;gutjnl-2019-318903. doi:10.1136/gutjnl-2019-318903

Tripathy D, Brufsky A, Cobleigh M, Jahanzeb M, Kaufman PA, Mason G, O'Shaughnessy J, Rugo HS, Swain SM, Yardley DA, Chu L, Li H, Antao V, Hurvitz SA. De novo versus recurrent HER2-positive metastatic breast cancer: patient characteristics, treatment, and survival from the SystHERs registry. *Oncologist.* 2020;25(2):e214-e222. doi:10.1634/theoncologist.2019-0446

LaCasce AS, Bociek RG, Sawas A, Caimi P, Agura E, Matous J, Ansell SM, Crosswell HE, Islas-Ohlmayer M, Behler C, Cheung E, Forero-Torres A, Vose J, O'Connor OA, Josephson N, Wang Y, Advani R. Three-year outcomes with brentuximab vedotin plus bendamustine as first salvage therapy in relapsed or refractory Hodgkin lymphoma. *Br J Haematol.* 2020;189(3):e86-e90. doi:10.1111/bjh.16499

Tolcher AW, Kurzrock R, Valero V, Gonzalez R, Heist RS, Tan AR, Means-Powell J, Werner TL, Becerra C, Wang C, Leonowens C, Kalyana-Sundaram S, Kleha JF, Gauvin J, D'Amelio Jr AM, Ellis C, Ibrahim N, Yan L. Phase I dose-escalation trial of the oral AKT inhibitor uprosertib in combination with the oral MEK1/MEK2 inhibitor trametinib in patients with solid tumors. *Cancer Chemother Pharmacol.* 2020;85(4):673-683. doi:10.1007/s00280-020-04038-8

Schmid P, Cortes J, Pusztai L, McArthur H, Kümmel S, Bergh J, Denkert C, Park YH, Hui R, Harbeck N, Takahashi M, Foukakis T, Fasching PA, Cardoso F, Untch M, Jia L, Karantza V, Zhao J, Aktan G, Dent R, O'Shaughnessy J, KEYNOTE-522 Investigators. Pembrolizumab for early triple-negative breast cancer. *N Engl J Med.* 2020;382(9):810-821. doi:10.1056/NEJMoa1910549

Jansen AML, Goel A. Mosaicism in patients with colorectal cancer or polyposis syndromes: a systematic review [published online ahead of print, 2020 Mar 5]. *Clin Gastroenterol Hepatol.* 2020;S1542-3565(20)30268-8. doi:10.1016/j.cgh.2020.02.049

Hurvitz SA, Gonçalves A, Rugo HS, Lee KH, Fehrenbacher L, Mina LA, Diab S, Blum JL, Chakrabarti J, Elmeliegy M, DeAnnuntis L, Gauthier E, Czibere A, Tudor IC, Quek RGW, Litton JK, Ettl J. Talazoparib in patients with a germline BRCA-mutated advanced breast cancer: detailed safety analyses from the phase III EMBRACA trial. *Oncologist.* 2020;25(3):e439-e450. doi:10.1634/theoncologist.2019-0493

Abou-Alfa GK, Sahai V, Hollebecque A, Vaccaro G, Melisi D, Al-Rajabi R, Paulson AS, Borad MJ, Gallinson D, Murphy AG, Oh DY, Dotan E, Catenacci DV, Van Cutsem E, Ji T, Lihou CF, Zhen H, Féliz L, Vogel A. Pemigatinib for previously treated, locally advanced or metastatic cholangiocarcinoma: a multicentre, open-label, phase 2 study. *Lancet Oncol.* 2020;21(5):671-684. doi:10.1016/S1470-2045(20)30109-1

Kandimalla R, Tomihara H, Banwait JK, Yamamura K, Singh G, Baba H, Goel A. A 15-gene immune, stromal, and proliferation gene signature that significantly associates with poor survival in patients with pancreatic ductal adenocarcinoma [published online ahead of print, 2020 Mar 31]. *Clin Cancer Res.* 2020;clincanres.4044.2019. doi:10.1158/1078-0432.CCR-19-4044

Hong DS, Kang YK, Borad M, Sachdev J, Ejadi S, Lim HY, Brenner AJ, Park K, Lee JL, Kim TY, Shin S, Becerra CR, Falchook G, Stoudemire J, Martin D, Kelnar K, Peltier H, Bonato V, Bader AG, Smith S, Kim S, O'Neill V, Beg MS. Phase 1 study of MRX34, a liposomal miR-34a mimic, in patients with advanced solid tumours. *Br J Cancer.* 2020;122(11):1630-1637. doi:10.1038/s41416-020-0802-1

Wang M, Munoz J, Goy A, Locke FL, Jacobson CA, Hill BT, Timmerman JM, Holmes H, Jaglowski S, Flinn IW, McSweeney PA, Miklos DB, Pagel JM, Kersten MJ, Milpied N, Fung H, Topp MS, Houot R, Beitinjaneh A, Peng W, Zheng L, Rossi JM, Jain RK, Rao AV, Reagan PM. KTE-X19 CAR T-cell therapy in relapsed or refractory mantle-cell lymphoma. *N Engl J Med.* 2020;382(14):1331-1342. doi:10.1056/NEJMoa1914347

Nadler E, Aguilar K, Wentworth C, Boyd M, Amirian ES, Barker S, French P, Wilson T, Hess LM. Treatment patterns and healthcare resource utilization among patients with advanced or metastatic soft tissue sarcoma in US community practices. *Sarcoma.* 2020;2020:1765319. Published 2020 Feb 28. doi:10.1155/2020/1765319

Ramani A, Maloney T, Mills B, Mazharuddin S, Mennel RG. Isolated adrenocorticotrophic hormone deficiency in a patient treated with checkpoint inhibitor therapy. Proc (Bayl Univ Med Cent). 2019;33(2):251-253. doi:10.1080/08998280.2019.1698217

Lake Littlejohn C, Whiteley A, Stone MJ. Early stage IgD multiple myeloma in a 50-year-old man. Proc (Bayl Univ Med Cent). 2019;33(2):263-265. doi:10.1080/08998280.2019.1698878

Blayney DW, Albdelhafeez N, Jazieh AR, Pinto CF, Udrea A, Roach A, Das D, Grubbs S, Hamm J, Jahanzeb M, Kamal AH, Kelly RJ, Martin SE, O'Mahony D, Birch W, Bowman R, Crist STS, Evers A, Gilmore T, Klein M, Siegel R. International perspective on the pursuit of quality in cancer care: global application of QOPI and QOPI certification. *JCO Glob Oncol.* 2020;6:697-703. doi:10.1200/GO.20.00048

Nishiwada S, Sho M, Banwait JK, Yamamura K, Akahori T, Nakamura K, Baba H, Goel A. A microRNA signature identifies pancreatic ductal adenocarcinoma patients at risk for lymph node metastases [published online ahead of print, 2020 May 3]. *Gastroenterology.* 2020;S0016-5085(20)30576-X. doi:10.1053/j.gastro.2020.04.057

Kandimalla R, Shimura T, Mallik S, Sonohara F, Tsai S, Evans DB, Kim SC, Baba H, Kodera Y, Von Hoff D, Chen X, Goel A. Identification of serum miRNA signature and establishment of a nomogram for risk stratification in patients with pancreatic ductal adenocarcinoma [published online ahead of print, 2020 May 8]. *Ann Surg.* 2020;10.1097/SLA.0000000000003945. doi:10.1097/SLA.0000000000003945

O'Shaughnessy J. Treatment options for patients with HR+/HER2- advanced breast cancer during the COVID-19 pandemic: dose reduction of ribociclib does not diminish efficacy. *Breast Cancer Res Treat.* 2020;182(1):243-244. doi:10.1007/s10549-020-05674-7

Jongeneel G, Greuter MJE, van Erning FN, Koopman M, Medema JP, Kandimalla R, Goel A, Bujanda L, Meijer GA, Fijneman RJA, van Oijen MGH, Ijzermans J, Punt CJA, Vink GR, Coupé VMH. Modeling Personalized Adjuvant TreaTment in EaRly stage coloN cancer (PATTERN) [published online ahead of print, 2020 May 26]. *Eur J Health Econ.* 2020;10.1007/s10198-020-01199-4. doi:10.1007/s10198-020-01199-4

O'Shaughnessy J. Advancing the field of breast cancer care. *Oncology (Williston Park).* 2020;34(4):693614.

Crow LD, Jambusaria-Pahlajani A, Chung CL, Baran DA, Lowenstein SE, Abdelmalek M, Ahmed RL, Anadkat MJ, Arcasoy SM, Berg D, Bibee KP, Billingsley E, Black WH, Blalock TW, Bleicher M, Brennan DC, Brodland DG, Brown MR, Carroll BT, Carucci JA, Chang TW, Chaux G, Cusack CA, Dilling DF, Doyle A, Emtiazjoo AM, Ferguson NH, Fosko SW, Fox MC, Goral S, Gray AL, Griffin JR, Hachem RR, Hall SA, Hanlon AM, Hayes Jr D, Hickey GW, Holtz J, Hopkins RS, Hu J, Huang CC, Jiang SIB, Kapnadak SG, Kraus ES, Lease ED, Leca N, Lee JC, Leitenberger JJ, Lim MA, Longo MI, Malik SM, Mallea JM, Menter A, Myers SA, Neuburg M, Nijhawan RI, Norman DJ, Otley CC, Paek SY, Parulekar AD, Patel MJ, Patel VA, Patton TJ, Pugliano-Mauro M, Ranganna K, Ravichandran AK, Redenius R, Roll GR, Samie FH, Shin T, Singer JP, Singh P, Soon SL, Soriano T, Squires R, Stasko T, Stein JA, Taler SJ, Terrault NA, Thomas CP, Tokman S, Tomic R, Twigg AR, Wigger MA, Zeitouni NC, Arron ST. Initial skin cancer screening for solid organ transplant recipients in the United States: Delphi method development of expert consensus guidelines. *Transpl Int.* 2019;32(12):1268-1276. doi:10.1111/tri.13520

Kardashian A, Florman SS, Haydel B, Ruiz RM, Klintmalm GB, Lee DD, Taner CB, Aucejo F, Tevar AD, Humar A, Verna EC, Halazun KJ, Chapman WC, Vachharajani N, Hoteit M, Levine MH, Nguyen MH, Melcher ML, Langnas AN, Carney CA, Mobley C, Ghobrial M, Amundsen B, Markmann JF, Sudan DL, Jones CM, Berumen J, Hemming AW, Hong JC, Kim J, Zimmerman MA, Nydam TL, Rana A, Kueht ML, Fishbein TM, Markovic D, Busuttil RW, Agopian VG. Liver transplantation outcomes in a U.S. multicenter cohort of 789 patients with hepatocellular carcinoma presenting beyond Milan criteria [published online ahead of print, 2020 Mar 2]. *Hepatology.* 2020;10.1002/hep.31210. doi:10.1002/hep.31210

DiNorcia J, Florman SS, Haydel B, Tabrizian P, Ruiz RM, Klintmalm GB, Senguttuvan S, David D Lee DD, Taner CB, Verna EC, Halazun KJ, Hoteit M, Levine MH, Chapman WC, Vachharajani N, Aucejo F, Nguyen MH, Melcher ML, Tevar AD, Humar A, Mobley C, Ghobrial M, Nydam TL, Amundsen B, Markmann JF, Berumen J, Hemming AW, Langnas AN, Carney CA, Sudan DL, Hong JC, Kim J, Zimmerman MA, Rana A, Kueht ML, Jones CM, Fishbein TM, Markovic D, Busuttil RW, Agopian VG. Pathologic response to pretransplant locoregional therapy is predictive of patient outcome after liver transplantation for hepatocellular carcinoma: analysis from the US multicenter HCC transplant consortium. *Ann Surg.* 2020;271(4):616-624. doi:10.1097/SLA.0000000000003253

Sukumar JS, Sukumar S, Purohit D, Welch BJ, Balani J, Yan S, Hathiramani SS. Activating BRAF mutation in sclerosing mucoepidermoid carcinoma with eosinophilia of the thyroid gland: two case reports and review of the literature. *J Med Case Rep.* 2019;13(1):385. doi:10.1186/s13256-019-2288-0

Salem A, Pinto K, Koch M, Liu J, Silva EG. Are polyploid giant cancer cells in high grade serous carcinoma of the ovary blastomere-like cancer stem cells? [published online ahead of print, 2020 Mar 18]. *Ann Diagn Pathol.* 2020;46:151505. doi:10.1016/j.anndiagpath.2020.151505

Morris CS, Baerlocher MO, Dariushnia SR, McLoney ED, Abi-Jaoudeh N, Nelson K, Cura M, Abdel Aal AK, Mitchell JW, Madassery S, Partovi S, McClure TD, Tam AL, Patel S. Society of Interventional Radiology position statement on the role of percutaneous ablation in renal cell carcinoma: endorsed by the Canadian Association for Interventional Radiology and the Society of Interventional Oncology. *J Vasc Interv Radiol.* 2020;31(2):189-194.e3. doi:10.1016/j.jvir.2019.11.001

Johnson C, Read-Fuller A. Mandibular metastasis from lung adenocarcinoma as the first sign of occult malignancy. *Proc (Bayl Univ Med Cent).* 2020;33(2):261-262. doi:10.1080/08998280.2020.1719783

Xu Y, Surman DR, Diggs L, Xi S, Gao S, Gurusamy D, McLoughlin K, Drake J, Feingold P, Brown K, Wangsa D, Wangsa D, Zhang X, Ried T, Davis JL, Hernandez J, Hoang CD, Souza RF , Schrump DS, Ripley RT. Bile acid-induced "Minority MOMP" promotes esophageal carcinogenesis while maintaining apoptotic resistance via Mcl-1. *Oncogene.* 2020;39(4):877-890. doi:10.1038/s41388-019-1029-6

Reardon DA, Desjardins A, Vredenburgh JJ, O'Rourke DM, Tran DD, Fink KL, Nabors LB, Li G, Bota DA, Lukas RV, Ashby LS, Duic JP, Mrugala MM, Cruickshank S, Vitale L, He Y, Green JA, Yellin MJ, Turner CD, Keler T, Davis TA, Sampson JH, ReACT trial investigators. Rindopepimut with bevacizumab for patients with relapsed EGFRvIII-expressing glioblastoma (ReACT): results of a double-blind randomized phase II trial. *Clin Cancer Res.* 2020;26(7):1586-1594. doi:10.1158/1078-0432.CCR-18-1140

Puduvalli VK, Wu J, Yuan Y, Armstrong TS, Vera E, Wu J, Xu J, Giglio P, Colman H, Walbert T, Raizer J, Groves MD, Tran D, Iwamoto F, Avgeropoulos N, Paleologos N, Fink K, Peereboom D, Chamberlain M, Merrell R, Prado MP, Yung WKA, Gilbert MR. A Bayesian adaptive randomized phase II multicenter trial of bevacizumab with or without vorinostat in adults with recurrent glioblastoma [published online ahead of print, 2020 Mar 13]. *Neuro Oncol.* 2020;noaa062. doi:10.1093/neuonc/noaa062

Jaramillo-Jiménez E, Gupta M, Snipes G, Cheek BS, Michael CB, Navarro-Montoya AM, Gómez-Escobar T, Jiménez-Villegas J, Rodríguez-Márquez I, Melguizo-Gavilanes I. Textiloma mimicking a recurrent high-grade astrocytoma: a case report. *J Neurol Surg Rep.* 2020;81(1):e7-e9. doi:10.1055/s-0039-3400231

Fox MA, Berger RJ, Wright KA, Lawrenz JM, Sultan AA, Day C, Farrow LD, Ilaslan H, Mesko NW. Osteoid osteoma masquerading as cholelithiasis: a case report. *JBJS Case Connect.* 2020;10(1):e0090. doi:10.2106/JBJS.CC.19.0009

Su Q, Igyártó BZ. One-step artificial antigen presenting cell-based vaccines induce potent effector CD8 T cell responses. *Sci Rep.* 2019;9(1):18949. doi:10.1038/s41598-019-55286-5

Huo X, Dunbar KB, Zhang X, Zhang Q, Spechler SJ, Souza RF. In Barrett's epithelial cells, weakly acidic bile salt solutions cause oxidative DNA damage with response and repair mediated by p38. *Am J Physiol Gastrointest Liver Physiol.* 2020;318(3):G464-G478. doi:10.1152/ajpgi.00329.2019

Im A, Rashidi A, Wang T, Hemmer M, MacMillan ML, Pidala J, Jagasia M, Pavletic S, Majhail NS, Weisdorf D, Abdel-Azim H, Agrawal V, Al-Homsi AS, Aljurf M, Askar M, Auletta JJ, Bashey A, Beitinjaneh A, Bhatt VR, Byrne M, Cahn JY, Cairo M, Castillo P, Cerny J, Chhabra S, Choe H, Ciurea S, Daly A, Perez MAD, Farhadfar N, Gadalla SM, Gale R, Ganguly S, Gergis U, Hanna R, Hematti P, Herzig R, Hildebrandt GC, Lad DP, Lee C, Lehmann L, Lekakis L, Kamble RT, Kharfan-Dabaja MA, Khandelwal P, Martino R, Murthy HS, Nishihori T, O'Brien TA, Olsson RF, Patel SS, Perales MA, Prestidge T, Qayed M, Romee R, Schoemans H, Seo S, Sharma A, Solh M, Strair R, Teshima T, Urbano-Ispizua A, Van der Poel M, Vij R, Wagner JL, William B, Wirk B, Yared JA, Spellman SR, Arora M, Hamilton BK. Risk factors for graft-versus-host disease in haploidentical hematopoietic cell transplantation using post-transplant cyclophosphamide [published online ahead of print, 2020 May 17]. *Biol Blood Marrow Transplant.* 2020;S1083-8791(20)30286-X. doi:10.1016/j.bbmt.2020.05.001

Hale DA, Krause JR. Unexpected lymph node finding in a patient with essential thrombocythemia. *Blood.* 2020;135(2):154. doi:10.1182/blood.2019002036

Zhang Q, Bansal A. Role of extracellular vesicles in the diagnosis and pathogenesis of Barrett's esophagus: a mini-review [published online ahead of print, 2020 Apr 10]. *Dig Dis Sci.* 2020;10.1007/s10620-020-06250-1. doi:10.1007/s10620-020-06250-1

Garbarino GM, Marchese U, Tobome R, Ward MA, Vibert E, Gayet B, Cherqui D, Fuks D. Laparoscopic versus open unisegmentectomy in two specialized centers. Feasibility and short-term results. *HPB (Oxford).* 2020;22(5):750-756. doi:10.1016/j.hpb.2019.09.017

Mehta RS, Holtan SG, Wang T, Hemmer MT, Spellman SR, Arora M, Couriel DR, Alousi AM, Pidala J, Abdel-Azim H, Agrawal V, Ahmed I, Al-Homsi AS, Aljurf M, Antin JH, Askar M, Auletta JJ, Bhatt VR, Chee L, Chhabra S, Daly A, DeFilipp Z, Gajewski J, Gale RP, Gergis U, Hematti P, Hildebrandt GC, Hogan WJ, Inamoto Y, Martino R, Majhail NS, Marks DI, Nishihori T, Olsson RF, Pawarode A, Diaz MA, Prestidge T, Rangarajan HG, Ringden O, Saad A, Savani BN, Schoemans H, Seo S, Schultz KR, Solh M, Spitzer T, Storek J, Teshima T, Verdonck LF, Wirk B, Yared JA, Cahn JY, Weisdorf DJ. Composite GRFS and CRFS outcomes after adult alternative donor HCT [published online ahead of print, 2020 May 4]. *J Clin Oncol.* 2020;JCO1900396. doi:10.1200/JCO.19.00396

Pamudurthy V, Lodhia N, Konda VJA. Advances in endoscopy for colorectal polyp detection and classification. *Proc (Bayl Univ Med Cent).* 2019;33(1):28-35. doi:10.1080/08998280.2019.1686327

Wu JJ, Merola JF, Feldman SR, Menter A, Lebwohl M. Treatment of psoriasis with secukinumab in challenging patient scenarios: a review of the available evidence [published correction appears in Dermatol Ther (Heidelb). 2020 May 18]. *Dermatol Ther (Heidelb).* 2020;10(3):351-364. doi:10.1007/s13555-020-00373-z

Peterman CM, Robinson-Bostom L, Paek SY. Pembrolizumab-induced lobular panniculitis in the setting of metastatic melanoma. *Cutis.* 2020;105(1):E22-E23.

Han L, Jiang J, Xue M, Qin T, Xiao Y, Wu E, Shen X, Ma Q, Ma J. Sonic hedgehog signaling pathway promotes pancreatic cancer pain via nerve growth factor. *Reg Anesth Pain Med.* 2020;45(2):137-144. doi:10.1136/rapm-2019-100991

Nguyen N, Silfvast-Kaiser AS, Frieder J, Zaayman M, Menter A. Diffuse dermal angiomatosis of the breast. *Proc (Bayl Univ Med Cent).* 2020;33(2):273-275. doi:10.1080/08998280.2020.1722052

Chen X, Gu J, Neuwald AF, Hilakivi-Clarke L, Clarke R, Xuan J. BICORN: An R package for integrative inference of de novo cis-regulatory modules. *Sci Rep.* 2020;10(1):7960. doi:10.1038/s41598-020-63043-2

BAYLOR SCOTT & WHITE SAMMONS CANCER CENTER

CURRENT CLINICAL TRIALS

Study ID	DX	NCT#	Principal Investigator	Study Title
			Preskitt, John	Creation and Maintenance of a Longitudinal Surgical Oncology Clinical Research Database (SOCRD)
013-249	Pancreatic Cancer	n/a	Preskitt, John	(Pancreas MDT) A Retrospective and Prospective Longitudinal Pancreas Data Collection Study for Multidisciplinary Tumor Conferences (MDTC)
014-129	AML, MDS	NCT02267863	Levy, M Yair	(APTOSE) A Phase I Dose Escalation with Two Disease Specific Expansions, Multicenter, Open-label, Safety, Pharmacokinetic and Pharmacodynamic Study of LOR-253 in Patients with Relapsed or Refractory Hematologic Malignancies
014-197	Melanoma	n/a	Preskitt, John	(Melanoma MDT) A Retrospective and Prospective Longitudinal Melanoma Data Collection Study for Multidisciplinary Tumor Conferences (MDTC)
014-248	Lung Cancer	n/a	Preskitt, John	(Lung MDT) A Retrospective and Prospective Longitudinal Lung Data Collection Study for Multidisciplinary Tumor Conferences (MDTC)
015-196	Pancreatic Cancer	n/a	Celinski, Scott	(ROC) (w/TGen) Circulating Tumor DNA, Non-Coding RNA, and DNA Methylation Biomarkers for Early Detection of Recurrence and Prognostication of Pancreatic Cancer: A Pilot Study
015-312	MCL	NCT02601313	Holmes, Houston	A Phase 2 Multicenter Study Evaluating the Efficacy of KTE-C19 in Subjects with Relapsed/Refractory Mantle Cell Lymphoma (r/r MCL)
016-068	MM	NCT02884102	Levy, M Yair	Clinical-grade Molecular Profiling of Patients with Multiple Myeloma and Related Plasma Cell Malignancies (MMRF-002)
016-077	Other	n/a	Levy, M Yair	(ROC) (AMPS) A Two-Stage Blinded Study to Assess Accelerometry-Tracked Pre-Treatment Physical Activity as Surrogate Indicator of Clinical Performance Status
016-126	AML	NCT02665065	Koshy, Nebu	(IOMAB) A Multicenter, Pivotal Phase 3 Study of Iomab-B Prior to Allogeneic Hematopoietic Cell Transplantation Versus Conventional Care in Older Subjects with Active, Relapsed or Refractory Acute Myeloid Leukemia
016-130	Anaplastic Astrocytoma	NCT02796261	Fink, Karen	A Phase 3, Randomized, Open-Label Study to Evaluate the Efficacy and Safety of Eflornithine with Lomustine Compared to Lomustine Alone in Patients with Anaplastic Astrocytoma That Progress/Recur After Irradiation and Adjuvant Temozolomide Chemotherapy
016-137	Pancreatic Cancer, Gastric and Prostate	NCT02744287	Becerra, Carlos	A Phase 1/2 Feasibility, Safety, and Activity Study of PSCA-Specific Chimeric Antigen Receptor Engineered T Cells (BPX-601) in Subjects with Previously Treated Advanced Solid Tumors
016-241	MM	NCT02998047	Levy, M Yair	A Phase I Study of Lintuzumab-Ac225 in Patients with Refractory Multiple Myeloma
016-260-5	MM	n/a	Levy, M Yair	(TGen Sample Study) Characterizing Mechanisms of Resistance to Novel Agents in Multiple Myeloma

Study ID	DX	NCT#	Principal Investigator	Study Title
016-262	Other	NCT03002519	Escobar, Carolina	Phase I Dose-Escalation Study to Evaluate the Safety of a Cell-Based Therapy, Comprised of Placental Stromal Cells, in Subjects Suffering From Incomplete Hematopoietic Recovery Following Hematopoietic Cell Transplantation (HCT)
016-264	ALL, CML	NCT02629692	Whiteley, Andrew	A Two-Part Phase 1/2 Study to Determine Safety, Tolerability, Pharmacokinetics, and Activity of K0706, a Novel Tyrosine Kinase Inhibitor (TKI), in Healthy Subjects and in Subjects with Chronic Myeloid Leukemia (CML) or Philadelphia Chromosome Positive Acute Lymphoblastic Leukemia (Ph+ ALL)
016-266	Pancreatic Cancer	n/a	Celinski, Scott	Retrospective Assessment of Candidate Molecular Prognosticators in Pancreas Cancer Patients with Localized Disease
017-200	Pancreatic Cancer	n/a	Celinski, Scott	(TGen) Integrated Genomic Biomarkers for the Early Detection of Pancreatic Cancer
017-330	Lung, Pancreatic, Solid Tumors, Urothelial Cancer	NCT03139370	Becerra, Carlos	A Phase 1 Study Evaluating the Safety and Efficacy of MAGE-A3/A6 T Cell Receptor Engineered T Cells (KITE-718) in HLA-DPB1*04:01 Positive Subjects with Advanced Cancers
017-478	Breast Cancer	NCT03255070	O'Shaughnessy, Joyce	A Phase 1, Multicenter, Open-label, Multiple Dose-escalation Study of ARX788, Intravenously Administered as a Single Agent in Subjects with Advanced Cancers with HER2 Expression
018-127	DLBCL, Lymphoma	NCT03263026	Levy, M Yair	A Randomized, Placebo-Controlled, Phase 3 Study to Evaluate the Ability of a Novel Genomic Biomarker to Predict Survival of Treatment Naïve, High-Risk Subjects with Diffuse Large B-Cell Lymphoma Treated with R-CHOP plus Enzastaurin
018-159	Solid Tumors	NCT02549937	Paulson, Scott A	A Multi-Center, Open-Label, Clinical Trial to Evaluate the Safety, Tolerability, Pharmacokinetics of Sulfatinib in Advanced Solid Tumors
018-170	LTFU	NCT02840110	Holmes, Houston	Long-term Follow-up Study of Subjects Treated with an Autologous T Cell Product Expressing an Antibody Coupled T Cell Receptor (ACTR)
018-503	AML	NCT03435848	Burch, Micah	A Phase 2b Open-Label, Single Arm, Multi-Center Study to Assess the Efficacy and Safety of BST-236 as a Single Agent for the Treatment of Adult Patients with Newly Diagnosed Acute Myeloid Leukemia (AML), not Eligible for Standard Induction Therapy
018-566	MM	NCT03544281	Levy, M Yair	(DREAMM-6) A Phase I/II, Open-label, Dose Escalation and Expansion Study to Evaluate Safety, Tolerability, and Clinical Activity of the Antibody-Drug Conjugate GSK2857916 Administered in Combination with Lenalidomide Plus Dexamethasone (Treatment A), or Bortezomib Plus Dexamethasone (Treatment B) in Participants with Relapsed or Refractory Multiple Myeloma
018-597	Colorectal	NCT03439462	Becerra, Carlos	A Phase 1/2 Multi-Center Investigation of ABI-009 (Nab-Rapamycin) in Combination with FOLFOX and Bevacizumab As First-Line Therapy in Patients with Advanced or Metastatic Colorectal Cancer
018-617	DLBCL, NHL	NCT03575351	Holmes, Houston	A Global Randomized Multicenter Phase 3 Trial to Compare the Efficacy and Safety of JCAR017 to Standard of Care in Adult Subjects with High-Risk, Transplant-Eligible Relapsed or Refractory Aggressive B-Cell Non-Hodgkin Lymphomas (TRANSFORM)
018-634	ALL, AML, MDS, Other	NCT03555955	Burch, Micah	A Phase 1 Trial to Evaluate the Potential Impact of Renal Impairment on the Pharmacokinetics and Safety of CPX-351 (Daunorubicin and Cytarabine) Liposome for Injection Treatment in Adult Patients with Hematologic Malignancies

Study ID	DX	NCT#	Principal Investigator	Study Title
018-635	DLBCL, Lymphoma, NHL	NCT03677154	Holmes, Houston	A Phase I/II Study of BTCT4465A in Patients Who Do Not Achieve CR to 1L Therapy for DLBCL and as IL Therapy for Patients Unfit to Receive Full-dose Anthracycline-based Chemotherapy
018-651	Other, MDS	NCT03682536	Whiteley, Andrew	A Phase 3, Open-label, Randomized Study to Compare the Efficacy and Safety of Luspatercept (ACE-536) Versus Epoetin Alpha for the Treatment of Anemia Due to IPSS-R Very Low, Low or Intermediate Risk Myelodysplastic Syndromes (MDS) in ESA Naïve Subjects Who Require Red Blood Cell Transfusions
018-679	DLBCL	NCT03570892	Holmes, Houston	Tisagenlecleucel Versus Standard of Care in Adult Patients with Relapsed or Refractory Aggressive B-Cell Non-Hodgkin Lymphoma: A Randomized, Open Label, Phase III Trial (BELINDA)
018-741	MM	NCT03269136	Levy, M Yair	A Phase I, Open-Label Study to Evaluate the Safety, Pharmacokinetic, Pharmacodynamic and Clinical Activity of PF-06863135, a B-Cell Maturation Antigen (BCMA) - CD3 Bispecific Antibody, in Patients with Relapsed/Refractory Advanced Multiple Myeloma
018-745	Breast		O'Shaughnessy, Joyce	Pilot Clinical Trial of Treatment with Oral LY302023414 to Inhibit Homologous Recombination (HR) Followed by Prexasertib in Patients with Chemotherapy-Pretreated Metastatic Triple Negative Breast Cancer
019-021	Esophageal, Gastroesophageal	NCT03044613	Kelly, Ronan	Phase IB trial of induction nivolumab or nivolumab/relatlimab prior to concurrent chemoradiation plus nivolumab or nivolumab/relatlimab in patients with operable stage II/III
019-029	AML	NCT03504410	Levy, M Yair	A Phase III, Multicenter, Open-Label Randomized Trial to Evaluate Efficacy and Safety of CPI-613 in Combination with High Dose Cytarabine and Mitoxantrone (CHAM) Compared to High Dose Cytarabine and Mitoxantrone (HAM) in Older Patients (>60 years) with Relapsed/Refractory Acute Myeloid Leukemia (AML)
019-030	Other	NCT03394365	Pineiro, Luis	Multicenter, Open-Label, Phase 3 Study of Tabelecleucel for Solid Organ Transplant Subjects with Epstein-Barr Virus-Associated Post-Transplant Lymphoproliferative Disease After Failure of Rituximab or Rituximab and Chemotherapy (ALLELE)
019-038	Gastric/Cholangio-carcinoma	NCT03656536	Paulson, Scott A	A Phase 3, Open-Label, Randomized, Active-Controlled, Multicenter Study to Evaluate the Efficacy and Safety of Pemigatinib (INCB054828) Versus Gemcitabine Plus Cisplatin Chemotherapy in First-Line Treatment of Participants with Unresectable or Metastatic Cholangiocarcinoma with FGFR2 Rearrangement
019-046	CLL, Leukemia	NCT03624036	Holmes, Houston	(ZUMA-8) A Phase 1/2 Multicenter Study Evaluating the Safety and Efficacy of KTE-X19 in Adult Subjects with Relapsed/Refractory Chronic Lymphocytic Leukemia
019-074	GBM	NCT03018288	Fink, Karen	A Randomized, Double Blind Phase II Trial of Radiation Therapy Plus Temozolomide and Pembrolizumab with and without HSPPC-96 in Newly Diagnosed Glioblastoma (GBM)
019-075	Neuroendocrine	NCT04042714	Paulson, Scott A	An Open-Label, Phase II Investigation of TAS-102 in Patients with High Grade, Extrapulmonary Neuroendocrine Carcinoma
019-088	NHL	NCT02180711	Levy, M Yair	An Open-Label, Phase 1b/2 Study of Acalabrutinib Alone or in Combination with Rituximab in Subjects with Indolent B-Cell Non-Hodgkin Lymphoma

Study ID	DX	NCT#	Principal Investigator	Study Title
019-101	AML, Other	NCT03386513	Holmes, Houston	A Phase 1, Multi-center, Open-label Study of IMGN632 Administered Intravenously in Adult Patients with Relapsed/Refractory CD123-positive Acute Myeloid Leukemia and Other CD123-positive Hematologic Malignancies
019-137	MM	NCT03651128	Holmes, Houston	A Phase 3, Multicenter, Randomized, Open-Label Study to Compare the Efficacy and Safety of b2121 Versus Daratumumab (DARA) in Combination with Pomalidomide (POM) and Lowdose Dexamethasone (dex) (DPd) in Subjects with Relapsed and Refractory Multiple Myeloma (RRMM)
019-140	GvHD	NCT03657160	Pineiro, Luis	A Randomized, Double-Blind, Placebo-Controlled, Multicenter Study to Evaluate the Efficacy and Safety of Vedolizumab in the Prophylaxis of Intestinal Acute Graft-Versus-Host Disease in Subjects Undergoing Allogeneic Hematopoietic Stem Cell Transplantation
019-157	CLL, Leukemia	NCT03331198	Levy, M Yair	(TRANSCEND) An Open-Label, Phase 1/2 Study of JCAR017 in Subjects with Relapsed or Refractory Chronic Lymphocytic Leukemia or Small Lymphocytic Lymphoma (017004)
019-177	MPN	NCT02718300	Holmes, Houston	A Phase 2 Study of the Safety, Tolerability, and Efficacy of INCB05465 in Combination with Ruxolitinib in Subjects with Myelofibrosis
019-207	NHL	NCT01796171	Maisel, Christopher	A Phase I/II Study of Lutetium (177Lu)-Lilotomab Satetraxetan (Betalutin®) Antibody-radionuclide-conjugate for Treatment of Relapsed Non-Hodgkin Lymphoma
019-227	AML	NCT03217838	Levy, M Yair	A Phase I/II, Open-Label, Multicentre 2-Part Study to Assess the Safety, Tolerability, Pharmacokinetics, and Efficacy of AZD2811 Nanoparticle as Monotherapy or in Combination in Treatment-Naïve or Relapsed/Refractory Acute Myeloid Leukemia/Myelodysplastic Syndrome Patients Not Eligible for Intensive Induction Therapy
019-256	CLL, Lymphoma, NHL	NCT03786926	Burch, Micah	A Phase 1, Open-Label Study to Evaluate the Safety, Tolerability, Pharmacokinetics and Preliminary Efficacy of HMPL-689 in Patients with Relapsed or Refractory Lymphoma
019-377	AML, MDS	NCT03248479	Whiteley, Andrew	A Phase 1b Trial of Hu5F9-G4 Monotherapy or Hu5F9-G4 in Combination with Azacitidine in Patients with Hematological Malignancies
019-410	Head & Neck	NCT03937141	Nadler, Eric	A Phase 2 Efficacy and Safety Study of ADU-S100 and Pembrolizumab in Adults with Head and Neck Cancer
019-451	AML	NCT03969420	Burch, Micah	A Phase 2, Open-Label, Randomized, Two-Stage Clinical Study of Alvocidib in Patients with Relapsed/ Refractory Acute Myeloid Leukemia Following Treatment with Venetoclax Combination Therapy
019-491	AML	NCT03616470	Burch, Micah	A Phase III Randomized, Double-Blind Trial to Evaluate the Efficacy of Uproleselan (GMI-1271) Administered with Chemotherapy Versus Chemotherapy Alone in Patients with Relapsed/ Refractory Acute Myeloid Leukemia (GMI-1271-301)
020-031	Melanoma	NCT04068181	Cowey, Lance	Phase 2 Study of Talimogene Laherparepvec in Combination with Pembrolizumab in Subjects with Unresectable/Metastatic Stage IIIB-IVM1D Melanoma Who Have Progressed on Prior Anti PD-1 Based Therapy

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