2018

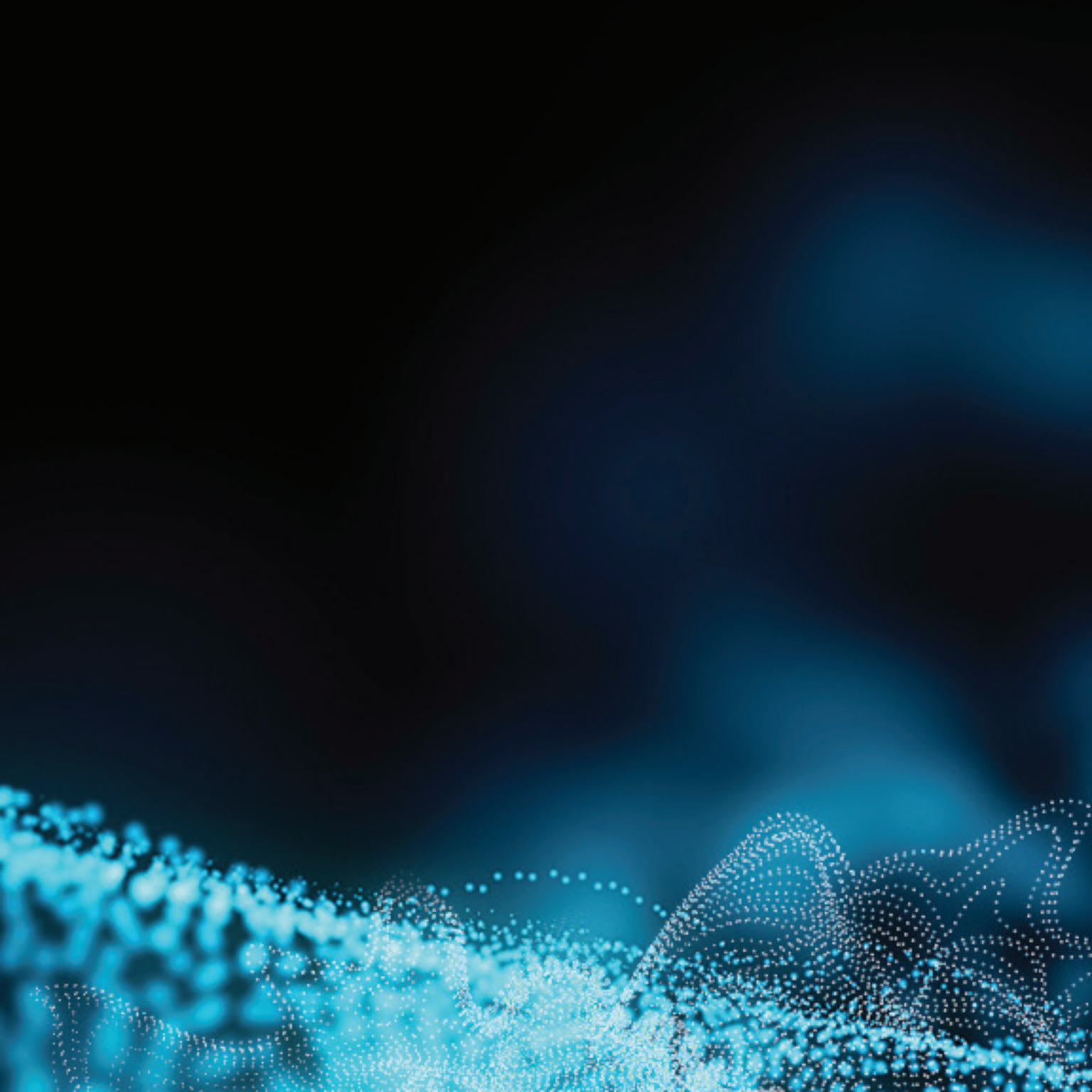
ANNUAL REPORT

Loma Linda University Cancer Center

TO MAKE MAN WHOLE

LOMA LINDA UNIVERSITY

Cancer Center



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Dear Friends of the Cancer Center,

Thank you for the opportunity to tell you about the current objectives and future direction of the Loma Linda University Cancer Center. We are focused on scientific discovery and providing education that translates into patient-centered comprehensive cancer care.

The Cancer Center continues to be the leader in providing complex multidisciplinary high-level cancer care to the Inland Empire of Southern California. Our patient care philosophy is driven by our focus on multidisciplinary teams made up of leaders in their fields with expertise in specific cancers. We have expertise in all areas of cancer surgery, including robotics, minimally invasive surgery, organ-preserving surgery and multivisceral organ resection. We are also very strong in radiation oncology, including the most experience of any center in the world in proton therapy for cancer. Our medical oncology services are world class, including targeted therapies, immunotherapy, both pediatric and adult bone marrow transplantation and integrated palliative care. We also provide state-of-the-art non-invasive diagnostic and therapeutic cancer techniques in interventional pulmonology, interventional gastroenterology and interventional radiology. In the imaging realm, we have added targeted imaging and diagnostics for neuroendocrine tumors and prostate cancer. Perhaps most important is the way that the Cancer Center ties all of this expertise together and provides navigators to guide patients through it.

As important as cancer treatment is, early detection and cancer prevention are truly the hallmarks for reducing and eliminating the scourge of cancer. Loma Linda University has long been a world leader in understanding how lifestyle changes can prevent cancer through the NCI-funded Adventist Health Studies. We also offer sophisticated and mature genetic risk assessment and counseling programs for specific cancers. In addition, we continue to sponsor a formal screening program for lung cancer that has been shown to save the lives of high risk patients.

Educationally, the Cancer Center is training the next generation of cancer professionals for the Inland Empire. Most cancer professionals stay and work near where they were trained rather than moving here after training elsewhere. We have mature accredited fellowships in each of the "Big 3" oncology specialties: medical oncology, radiation oncology and surgical oncology. To put this in perspective, we are only one of two cancer centers west of the Mississippi River that has accredited fellowships in all three of these specialties. In addition, we also have accredited training programs in oncology nursing, oncology pharmacy, psycho-oncology and radiation technology.

Research is the most important weapon in the battle against cancer. The Cancer Center's approach to research and its translation into clinical care is being guided by a strategic pathway towards NCI designation as a Comprehensive Cancer Center. We have made significant progress towards this important goal this year.

Organized research programs provide the basis for all NCI designated Cancer Centers. Our research programs are centered both around traditional strengths in cancer research at Loma Linda, and also areas that will speed new treatments into clinical practice for cancers that are particularly difficult in our catchment area. Our Cancer Population Sciences research program is centered around the NCI-funded Adventist Health Study. This landmark study has helped us to understand the mechanisms of what causes cancer through epidemiologic and molecular studies, and also how to lower cancer risk through lifestyle modification. Another research program focuses on why some groups of people are disproportionately affected by cancer, and is based in the NIH-funded Center for Health Disparities and Molecular Medicine.

In the last year, we have recruited and named program directors for three of our research programs. Kim Payne, PhD, is the new director of our Pediatric Leukemia Research Program, which focuses on developing, testing and translating treatments into the clinic that are targeted against specific forms of leukemia that are more aggressive and abundant in our region. Pramil Singh, DrPH, is the new director of our Tobacco Cessation research program. Cigarette smoking is responsible for 50 percent of cancer deaths in the US, and Loma Linda University has been a leader in the field of tobacco cessation for more than 70 years. This research program is studying the effects of tobacco on carcinogenesis, and studying low cost methods to reduce smoking-related cancer deaths

that can be applied in the Inland Empire. And Frankis Almaguel, MD, PhD, is the new director of the Molecular Imaging and Therapeutics research program. This research program develops new therapies that are targeted at the molecular level to specific cancers, and pairs this with imaging compounds that can tell our doctors if a specific patient's tumor will respond to these new therapies. This combination of imaging and therapeutics brings the ultimate in targeted treatment.

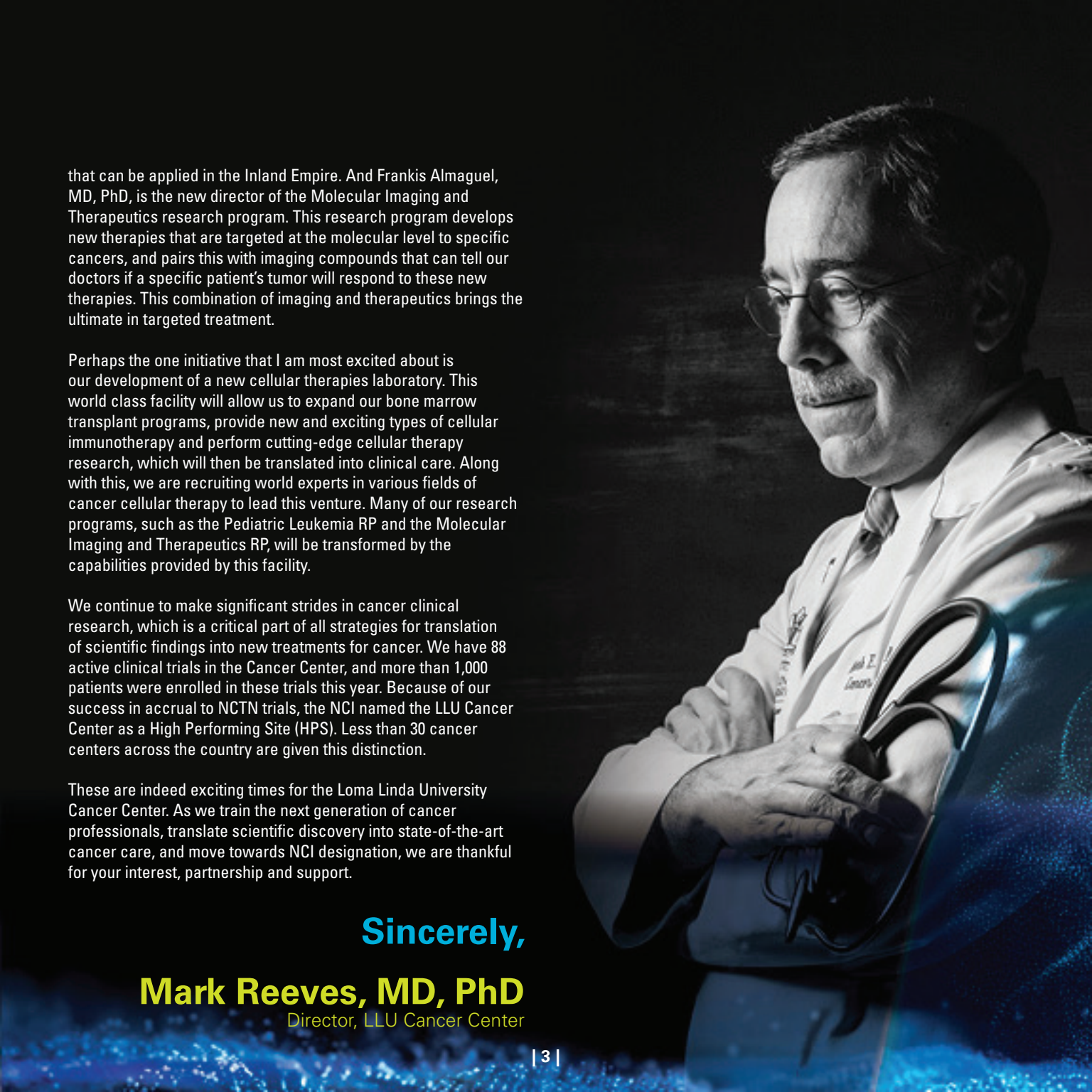
Perhaps the one initiative that I am most excited about is our development of a new cellular therapies laboratory. This world class facility will allow us to expand our bone marrow transplant programs, provide new and exciting types of cellular immunotherapy and perform cutting-edge cellular therapy research, which will then be translated into clinical care. Along with this, we are recruiting world experts in various fields of cancer cellular therapy to lead this venture. Many of our research programs, such as the Pediatric Leukemia RP and the Molecular Imaging and Therapeutics RP, will be transformed by the capabilities provided by this facility.

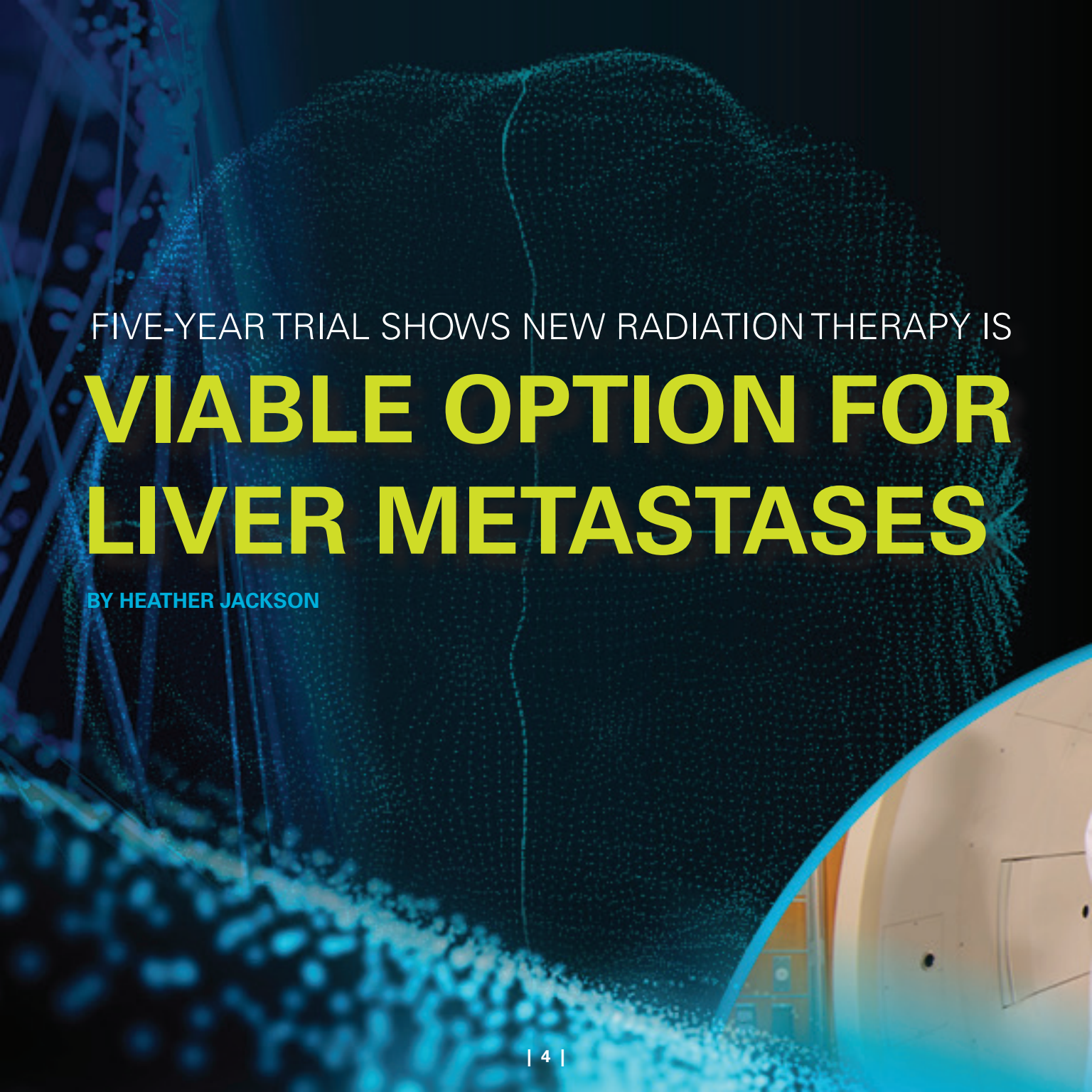
We continue to make significant strides in cancer clinical research, which is a critical part of all strategies for translation of scientific findings into new treatments for cancer. We have 88 active clinical trials in the Cancer Center, and more than 1,000 patients were enrolled in these trials this year. Because of our success in accrual to NCTN trials, the NCI named the LLU Cancer Center as a High Performing Site (HPS). Less than 30 cancer centers across the country are given this distinction.

These are indeed exciting times for the Loma Linda University Cancer Center. As we train the next generation of cancer professionals, translate scientific discovery into state-of-the-art cancer care, and move towards NCI designation, we are thankful for your interest, partnership and support.

Sincerely,

Mark Reeves, MD, PhD
Director, LLU Cancer Center





FIVE-YEAR TRIAL SHOWS NEW RADIATION THERAPY IS

VIABLE OPTION FOR LIVER METASTASES

BY HEATHER JACKSON

A researcher at Loma Linda University Health has found that proton stereotactic body radiotherapy (SBRT) provides additional treatment options for patients with cancer that has spread to the liver because of its high rate of local tumor control, minimal toxicity and ability for multiple courses.

In the United States alone, there are nearly 150,000 new cases a year with colon or rectal cancer, according to the American Cancer Society. Out of those diagnosed, 25 to 50 percent of patients will experience the disease spreading to the liver and causing metastases — also known as tumors.

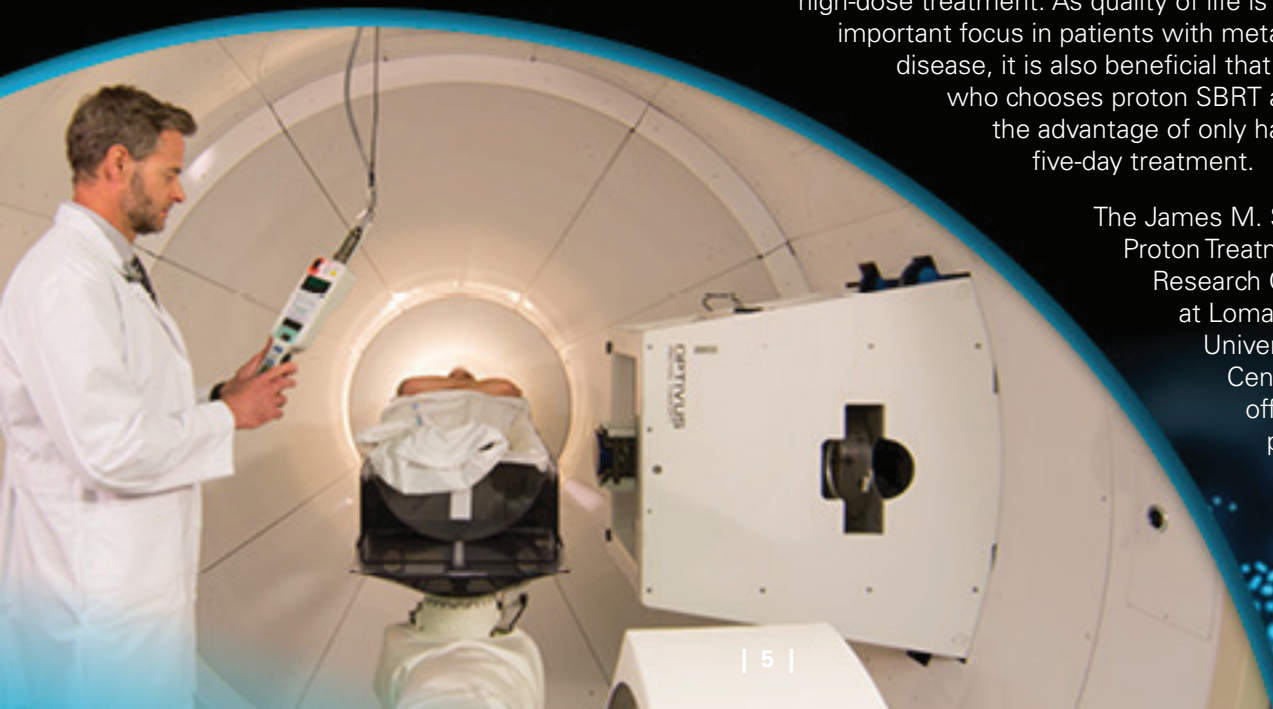
Only 10 to 20 percent of patients with liver metastases can undergo surgery. Presently, there are limited treatment options for tumors in the liver: chemotherapy, surgery and X-ray based SBRT. Unfortunately, 80 percent of those who are diagnosed with liver metastases are unable to undergo surgery, leaving them with limited options.

Both chemotherapy and X-ray based radiation are not confined or localized to just the cancerous area. It usually affects surrounding areas when used. As such, it can limit the amount of treatment the patient can receive due to toxicity. This especially becomes important because there is a high incidence of subsequent metastases appearing elsewhere in the liver that can need additional treatment.

These limited and sometimes damaging alternatives set the stage for the trial of usage of proton SBRT on liver metastases, led by radiation oncology specialist Gary Yang, MD. Proton SBRT treatment differs from the other three treatments in its ability to be not only non-invasive but also target-specific (Figure). "It can pinpoint the exact location of the tumor, and like a fine-tuned laser beam, can hit the exact location with radiation without affecting any other area of the body," Yang said.

Yang and his team at Loma Linda University Health create a customized plan for each patient that uses highly conformal proton beams to accurately deliver high-dose treatment. As quality of life is such an important focus in patients with metastatic disease, it is also beneficial that a patient who chooses proton SBRT also has the advantage of only having a five-day treatment.

The James M. Slater, MD Proton Treatment and Research Center at Loma Linda University Cancer Center first offered the proton SBRT on protocol



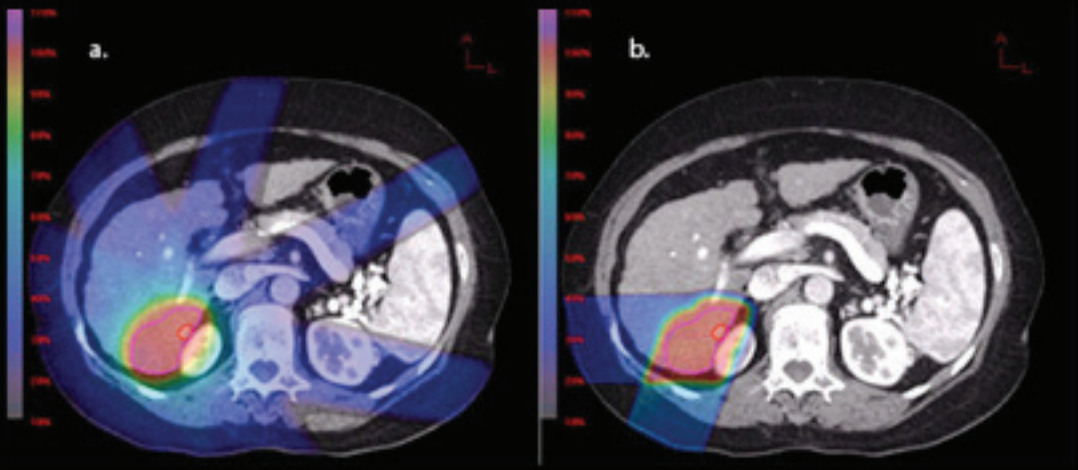
in 2012 and still provides it on protocol for eligible patients with liver metastases. Yang and a team of researchers conducted their trial from 2012-2017 with a total of 40 patients and 80 lesions. The average age was 65.5 years, but ages ranged from 33 to 87 years old. Yang said the trials demonstrate that proton SBRT "provides excellent target coverage, tumor control and minimal toxicity compared with traditional radiation treatment."

Now, using proton SBRT, Loma Linda University Health is among only a handful of centers in North America that can precisely target the liver metastases with high-dose radiation while minimizing the exposure of healthy tissue.

Outcomes data on Loma Linda University Health patients who underwent proton SBRT for liver metastases will be presented at the 2018 Annual Meeting of the American Society for Radiation Oncology (ASTRO) by Loma Linda University Health's Department of Radiation Medicine.

PROTON THERAPY AT LOMA LINDA UNIVERSITY CANCER CENTER

The James M. Slater, MD Proton Treatment and Research Center at Loma Linda University Cancer Center was the first hospital-based treatment center in the world when it opened in 1990. James M. Slater, MD, pioneered the field of proton therapy at Loma Linda University Medical Center. By 2005, 10,000 patients had received treatment at the LLUMC Proton Treatment and Research Center. Over the next decade, installation of a robotic-assisted position unit allowed additional precision to the proton beam positioning. The center has over 25 years of experience and has treated more than 18,000 patients with over 20 different cancers. Some cancers currently being treated include prostate, breast and lung.



Comparison plans between X-ray SBRT and Proton SBRT where color is proportional to dose. (A) X-ray based plan using 7 beams with intensity modulation technique, note the low dose scatter (in blue) throughout the liver; (B) two field proton plans, note the minimal exit dose, resulting in significantly less integral dose.

Proton treatment at Loma Linda University Cancer Center

2018

18,000 patients with over 20 different cancers.

40 patients treated with proton SBRT at LLUCC.

28 years of experience treating patients with proton therapy.

Proton Stereotactic Body Radiotherapy

BY THE NUMBERS

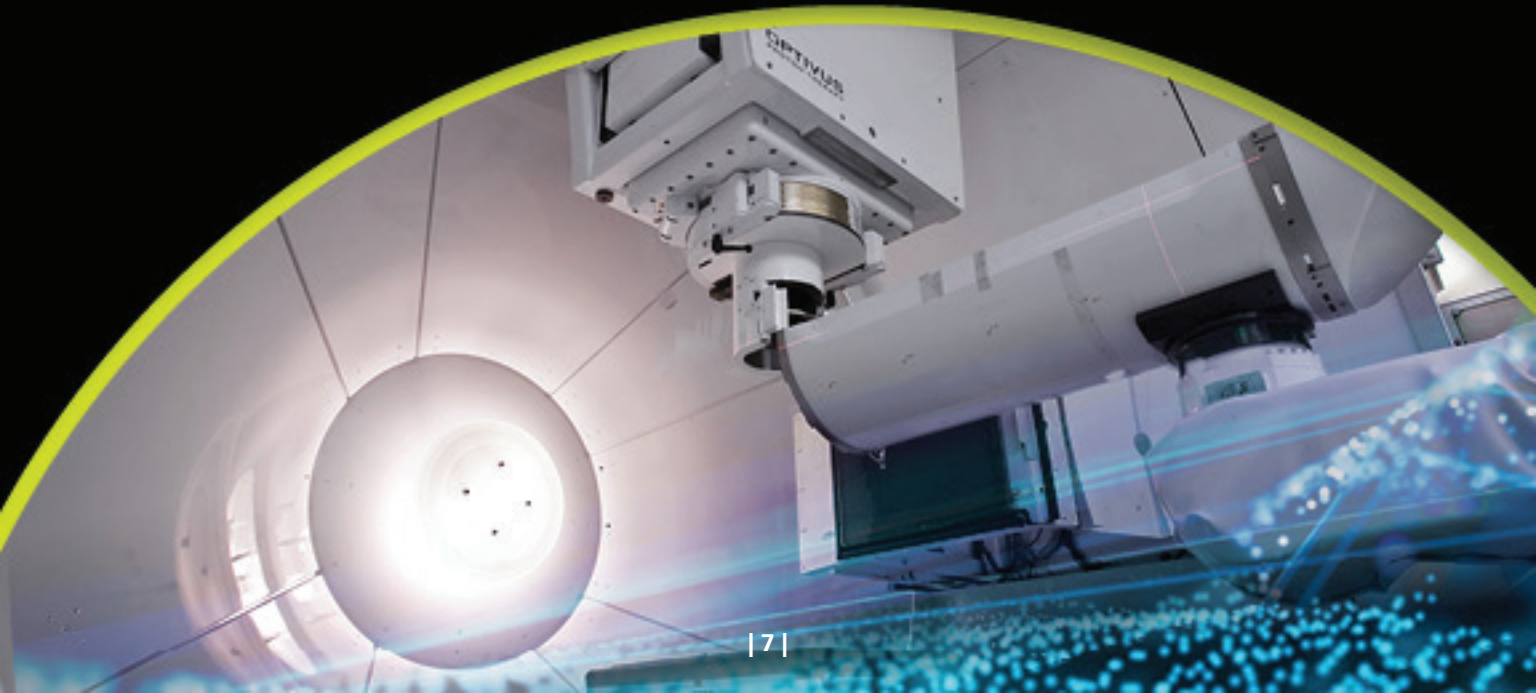
40 PATIENTS, 80 LESIONS

ages 33-87 – average age was 65.5

trials conducted 2012-2017 demonstrate excellent target coverage, tumor control and minimal toxicity compared with traditional radiation treatment.

FUTURE

Now, using proton SBRT, Loma Linda University Health is among only a handful of centers in North America that can precisely target the liver metastases with high-dose radiation while minimizing the exposure of healthy tissue.



TOBACCO CESSATION PROGRAM'S RESEARCH PAVES THE WAY FOR POLICY ENHANCEMENTS IN ASIA

BY HEATHER JACKSON

In Mongolia, School of Public Health finds cigarettes are being sold to children

Researchers from the School of Public Health say Mongolian children are targeted for illegal sales of cigarettes near their schools, cementing the foundation for policymakers to implement enhanced regulations for tobacco control in their communities.

In 2017, the National Institutes of Health (NIH) awarded a $1.4 million grant to a team of researchers from the Loma Linda University School of Public Health to study tobacco control in Asia — specifically in Mongolia, Laos and Cambodia — and to create a database that shows where smokers are buying cigarettes.

The grant's principal investigator is Pramil Singh, DrPH, Director of the Center for Health Research at the Loma Linda University School of Public Health and the Director of the Cancer Center's Tobacco Cessation Research Program. He says tobacco companies have been able to attract buyers in Southeast Asian countries by selling low-cost cigarettes.

"Tobacco companies are losing ground in the west but are gaining ground in the east in Asia by selling them at really low rates," Singh says. "When we started our research, they were being sold for 20 cents a pack in Cambodia."

In a study titled "Spatial and economic proximity of cigarette sales to school children in Mongolia," researchers found that although the price of a pack of cigarettes has risen to the equivalent of U.S. $1.80, students who couldn't afford packs at that price were

still more likely to be cigarette users even if they couldn't afford them. The study said students who were given less than U.S. $2 a week of pocket money were two times more likely to be current cigarette users. Additionally, of those who smoke, 37.5 percent smoked single cigarettes. When vendors were found near children's schools, that number increased to 47.5 percent.

For their NIH grant, Singh and his colleagues are developing mobile applications for surveys in Asia. Street researchers will ask smokers for permission to photograph the tax stamps on their cigarette packets and geo-code the location of where the cigarettes are purchased. They are also recording information about cigarettes that were sold without tax stamps, indicating they were purchased illegally.

The directory will help Singh and his team provide information to the Mongolian government about patterns of tobacco sales and use. Mongolia, Laos and Cambodia all ratified the World Health Organization's 2005 Framework Convention on Tobacco Control Treaty. In signing the treaty, the three countries agreed to tax cigarettes so heavily as to put them beyond the reach of teenagers and average consumers. They also agreed to ban cigarette advertising on billboards and television as well as cigarette advertisements aimed at women and children. However, even with this treaty in place, Singh and his colleagues conclude that cigarettes still find their way into the hands of young children.

Singh and his team presented these results to the 17th World Conference on Tobacco and Health in Capetown, South Africa, in March of 2018.

Singh says this NIH-funded research is part of the team's larger catalog of work they are hoping to do in Eastern countries. In November of 2019, 17 Mongolian hospitals will open their doors to hundreds of local adults who will take part in the tobacco cessation program thanks to research by the School of Public Health. The program, funded by the Pfizer Foundation, will use a new medication called cytisine on 350 patients, while a control group of 350 will go through usual cessation care. The program is free for the patients and uses a medication that only costs U.S. $20 compared to other pricier cessation drugs that can run up to U.S. $500.

"No one in the developing world has $500 to spend on treatment," Singh says. "This creates the most cost-effective smoking cessation treatment on the market for the under-developed world."

ABOUT THE SCHOOL OF PUBLIC HEALTH GLOBAL TOBACCO PREVENTION AND CONTROL PROGRAM

In 2002, the School of Public Health Global Tobacco and Prevention and Control program received a $1 million grant to start tobacco control efforts in Southeast Asia. As of 2018, grants from the NIH, Pfizer and other organizations help fund their work in Cambodia, Laos and Mongolia. Their ultimate aim is to reduce tobacco dependence to zero. In Mongolia, they are testing cytisine, a plant-based smoking cessation treatment, costing U.S. $20 for the entire course of medication. Using geographic information system software, researchers identify locations where tobacco vendors and companies violate World Health Organization (WHO) regulations on package and price of cigarettes. In Cambodia, researchers were able to increase the price of cigarettes from 20 cents to 45 cents per pack. The School of Public Health discovered that high rates of infant mortality occurred among pregnant women who chewed tobacco during morning sickness.

School of Public Health Tobacco Cessation Program

2018

$1.4 million research grant to study tobacco control in Asia.

GOAL

$20 plant-based, cystine smoking cessation treatment. Compared to other pricier cessation drugs that can rup up to U.S. $500.

What the Research in Mongolia Shows

SCHOOL CHILDREN

STUDENTS WHO WERE GIVEN LESS THAN U.S. $2:

Two times more likely to be current cigarette users.

37.5 percent of those smoked single cigarettes. When vendors were found near children's schools, that number increased to **47.5 percent**.

TREATMENT EXPERIMENTS MOVE RESEARCHERS CLOSER TO CURE FOR A LEUKEMIA TYPE IN CHILDREN

BY HEATHER JACKSON AND GENESIS GONZALEZ

Researchers believe they are closer to a cure for B-cell acute lympphoblastic leukemia (B-ALL), the deadliest cancer in children and in a disproportionate number of Hispanic Children.

B-ALL, one of the most common childhood malignancies, is created when the development of the B-lymphocyte, a type of white blood cell, goes wrong in the human body. Approximately 90 percent of B-ALL is curable. The other 10 percent is what's most critical. More children die of B-ALL than any other cancer, and it disproportionately targets Hispanic children with Native American ancestry — largely the patient base at Loma Linda University Children's Hospital.

Kimberly Payne, PhD, is the CEO of Elf Zone, Director of Translational Research at Loma Linda University School of Medicine and the Cancer Center, and is the Director of the Cancer Center's Pediatric Leukemia Research Program. She is a world expert on this type of cancer. Payne believes she and her team are closer to a treatment after their recent discovery — patients who were given high levels of a molecule required to produce leukemia killed the leukemia cells while also helping normal immune cells grow. This particular molecule both kills the leukemia cells and also helps normal B-cells recover and come back stronger, according to the team's data.

Payne has received approximately $800,000 in combined grants from the National Institutes of Health to move the biologic molecule forward as a drug. She will continue experiments and learn more about the molecule's mechanisms and functions. She believes that once they understand how it works, the team can modify it to work more effectively and learn what other drugs work best in combination for the treatment of B-ALL.

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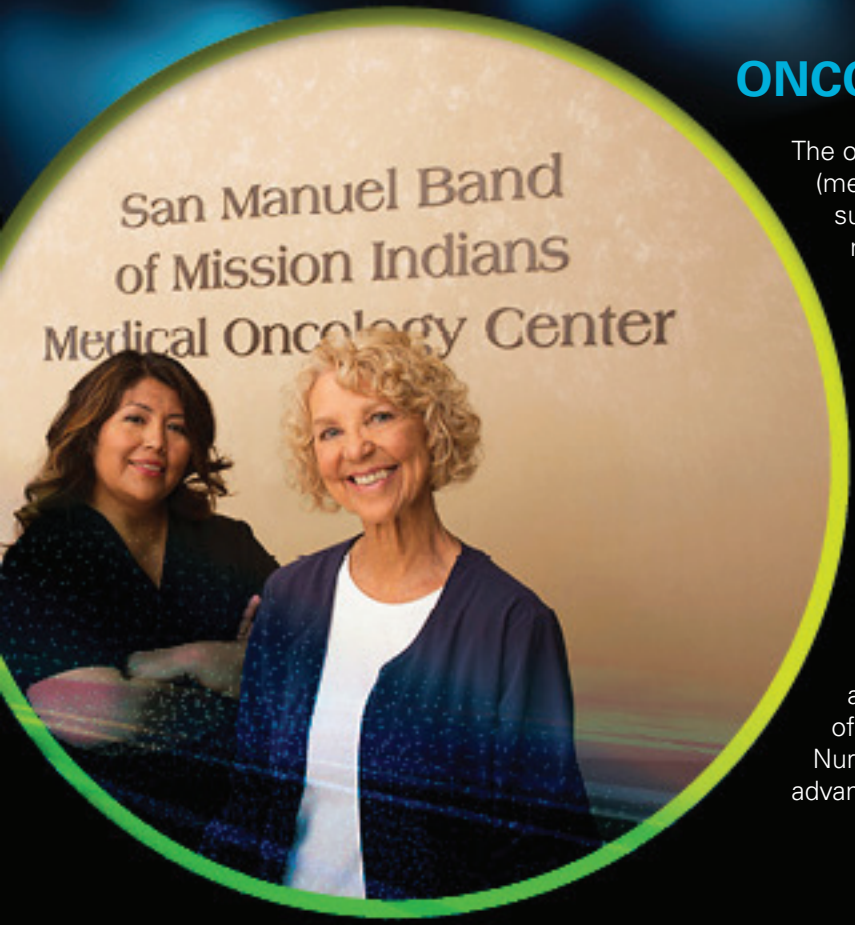


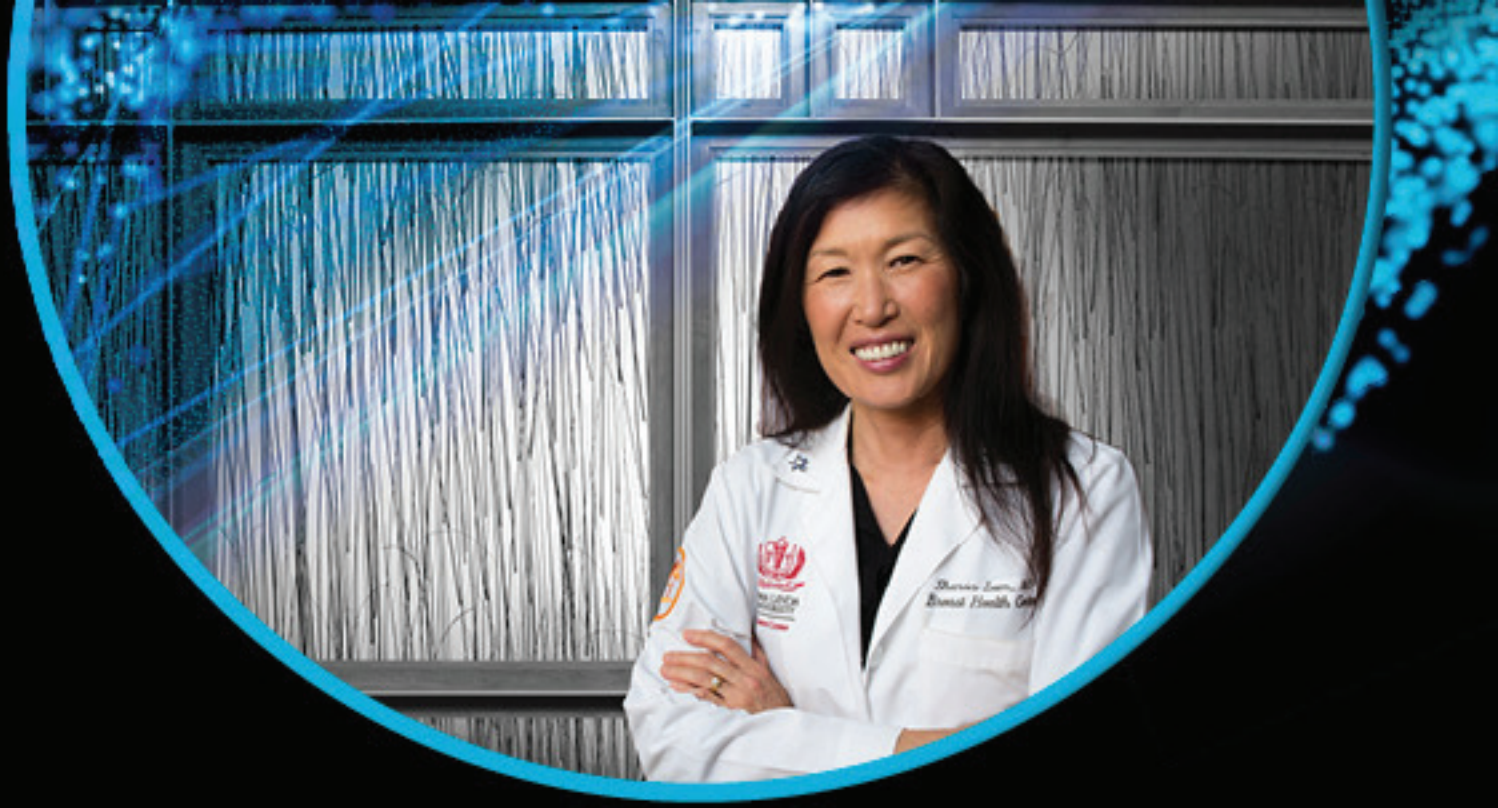
ONCOLOGY NURSING TEAMS

The oncology nursing teams in the Cancer Center (medical oncology/hematology and women's cancer/surgical oncology) are composed of registered nurses (RN) and licensed vocational nurses (LVN). The team is at the center of patient care to influence the quality of care provided and ultimately patient outcomes. The scope of the oncology nursing team spans from prevention and early detection to treatment – surgery, radiation, chemotherapy/biotherapy — through symptom management, palliative care and survivorship. One hundred percent of the nurses who administer chemotherapy/biotherapy medications have attained the Oncology Nursing Society's chemotherapy/biotherapy certificate. The course validates knowledge of chemotherapy and biotherapy administration and safe handling. Fifteen percent of all RNs are nationally certified by the Oncology Nursing Certification Corporation and validates the advanced oncology knowledge of cancer care.

NSIVE CARE

CLINICAL TRIALS UNIT

The Loma Linda University Cancer Center (LLUCC) has been active in participating in the Children Oncology Group (COG) clinical trials since 1978 and in adult clinical trials in 1971. LLUCC is a main member of the Southwest Oncology Group (SWOG) with the VA Loma Linda as an affiliate member for adult clinical trials. LLUCC also participates in industry clinical trials for specific disease types and as components of cooperative group trials. The Cancer Center Clinical Trials Unit (CCCTU) of the LLUCC administers and manages clinical trials for regulatory compliance, reimbursement and enrollment of cancer patients into our open trials. The CCCTU has been a recipient of the St. Baldricks Foundation Infrastructure Grant for two years, providing additional support for managing pediatric oncology clinical trials. In addition, because of our success in accrual to NCTN trials, the NCI named the LLU Cancer Center as a High Performing Site (HPS). Less than 30 Cancer Centers across the country are given this distinction. Adult and pediatric clinical research coordinators work closely with physicians and nursing staff to conduct clinical trials adhering to study protocols and good clinical practice. A listing of the current study trials for both adult and pediatric cancer patients is provided on the LLUCC website at llucc.org. Currently, the CCCTU has 88 trials open for enrollment, which includes 43 pediatric oncology trials and 45 adult oncology trials. To date, there have been 46 patients enrolled in adult treatment trials in 2017 with 33 enrolled for pediatric treatment trials.



BREAST HEALTH CENTER

In order to provide comprehensive cancer services to those seeking care at the Loma Linda University Breast Health Center, we offer cancer risk assessment for all new patients. Using a tablet-based application, a patient's breast cancer risks are recorded and entered into a series of validated statistical models. A personalized assessment of the patient's risk of developing breast cancer or carrying a cancer-causing gene mutation is calculated. This information can then be used to guide the patient into a breast cancer screening program appropriate to her level of risk or to obtain genetic testing for a cancer-causing gene. For patients who have already been diagnosed with breast cancer, this risk assessment tool can help to identify those who have a much higher chance of developing a second cancer. For those who have not developed cancer, we have the ability to aggressively screen and potentially prevent cancer in high-risk individuals by identifying them with the use of this risk assessment tool. In 2016, a total of 770 risk assessments were performed, and 192 patients were referred for genetic testing. An often overlooked aspect of cancer care is the realm of screening and prevention: with the Loma Linda University Breast Health Center Cancer risk assessment program, we aim to address this critical component of the cancer continuum.

MULTIDISCIPLINARY CARE

The LLUCC medical oncology/hematology and women's cancer/surgical oncology departments provide an interdisciplinary, holistic approach to outpatient care and infusion services for adult patients. Treatment plans are developed by a multidisciplinary healthcare team that includes a social worker, a dietician, a chaplain, pharmacists, registered nurses, nurse practitioners, licensed vocational nurses, patient flow assistants, surgery schedulers and unit secretaries. Other disciplines provide consultative services as needed.

Special needs of the elderly, including but not limited to fall risk and ambulatory restrictions, are addressed and managed as part of patient treatment plans. The scope and complexity of patient treatment plans are based on diagnoses. The physician provides a plan to outline the appropriate course of treatment, diagnostics required and support services needed based on each patient's individual needs.

PSYCHOLOGICAL SERVICES

As the impact of a cancer diagnosis can be devastating, the distress that can accompany diagnosis, treatment and survivorship can be overwhelming. Our behavioral oncology team works to help patients and families with practical, emotional and social needs. Each behavioral oncology practitioner has training specific to oncology needs.

During new patient appointments, each patient completes a psychosocial distress screen. The behavioral oncology team will then follow-up with the patient. This provides a unique opportunity for the team to assess for any potential psychosocial needs or barriers to care.

It also allows patients to be immediately oriented with our behavioral oncology services, which can continue throughout survivorship.

PALLIATIVE CARE

Palliative Care is medical treatment aimed at improving the quality of life for patients and their families facing serious illness such as cancer. We focus on preventing and relieving suffering that might come from pain or other symptoms that cause distress, such as nausea, vomiting, anxiety, constipation, shortness of breath or insomnia. Patients and their loved ones are given emotional and spiritual support. We help patients think through complex medical decisions and make sure we know what their healthcare wishes are for the future. Palliative care is given at the same time as chemotherapy, radiation or any other treatments the team recommends. We see patients in the hospital as well as in clinic to provide continuity of care. We want to make sure patients have the best quality of life possible.

SAN MANUEL BAND OF MISSION INDIANS BIOSPECIMEN LABORATORY

Significant efforts in translational research aim to reduce cancer morbidity and mortality by using clinical and molecular data from individual patients to develop and validate targeted therapies, treat patients with greater specificity and determine disease predisposition to allow early detection and prevention of cancer. At present, variability in the collection, processing, storage and annotation may affect the majority of human biospecimens available for research. It may generate biospecimens of unknown molecular integrity and contribute to irreproducible research results.

The San Manuel Band of Mission Indians Biospecimen Laboratory (BL) acquires, processes and stores large numbers of high-quality and well-annotated tumor tissue specimens. Specimen collection by the BL will help scientists to access consistent and high-quality human tissue to understand the biology of cancer and identify new ways to diagnose cancer and develop new treatments for cancer. The BL is providing Institutional Review Board approved investigators with access to optimally preserved tissue that is linked to relevant demographic and clinical data. All samples are identified by control numbers to protect patient confidentiality. Samples are provided for research purposes only.

The BL is collecting, preparing, preserving and storing malignant, diseased and normal fresh human tissues and blood according to established protocols from cancer patients. Departments which are collaborating with biospecimen collections are: surgical oncology, gynecology and obstetrics, orthopedic surgery, medical oncology, thoracic surgery, ear nose and throat (ENT) and urology. Veterans Affairs Loma Linda Healthcare System (VALLHCS) is another collection site. Between 2009-2017, the BL has a total of 5,100 consented participants and collected more than 25,500 specimens including tumor tissues, adjacent normal tissues, cells, plasma, peritoneal fluid and bone marrows. The BL has developed standard operating procedures to reduce variability around biospecimen collection and storage. The BL supports and trains fellows in the oncology/hematology

fellowship program as part of the program's research requirement. It also provides a research facility for scientists who need research space to perform cancer research.

Recently, the BL was awarded a grant by the Loma Linda University School of Medicine to promote collaborative and translational research (GCAT 2015-2017) which will enhance collaborations between clinical and basic scientists.

The numbers of projects in the BL and studies that were provided specimens (inside and outside of USA) from the BL are more than 15 and the numbers of publications are more than 18.

The BL occupies approximately 1,200 square feet on the first floor of the Chan Shun Pavilion. The BL is a biosafety level 2 (BSL-2) laboratory and contains an area with five benches, one tissue culture room, one freezer room and one freezer/refrigerator and chemical compounds room. This facility is equipped with one laminar flow hood, liquid nitrogen vapor phase freezer (with capacity of 20k samples), minus 80 freezer (with capacity of 45k samples), minus 30 and minus 20 degree freezers, MVE cryogenic storage system, ALLEGRA X15R centrifuge, microcentrifuge 22R with refrigerator, upright microscope with digital camera, inverted microscope, NuAire 8700 water-jacketed dual chamber incubator, digital dual chamber water bath, barcode printer and scanner, UVP gel-doc-it gel imaging system, NanoVue spectrophometer to quantify DNA, RNA and protein, Eppendorff thermal cycler for polymerase chain reaction. A LAN-networked computer system is in use. Also, the BL is utilizing a sophisticated database, inventory, tracking and management tool (OpenSpecimen), which can manage specimens from multiple collection sites, repositories and studies. OpenSpecimen interfaces with the surgical pathology clinical database in the department of pathology to provide optimal and accurate pathologic diagnosis.

CANCER CENTER BY THE NUMBERS 2010-2017

OVERVIEW

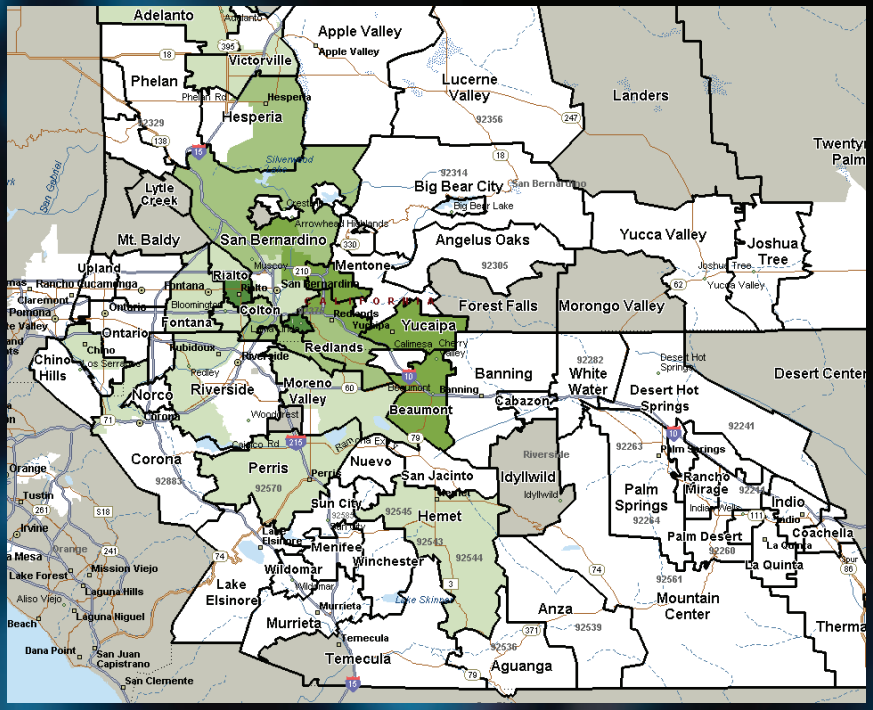
Case Year	2010	2011	2012	2013	2014	2015	2016	2017
MOUTH/THROAT	157	177	204	179	161	209	187	189
LIVER	114	118	98	132	122	133	161	152
PANCREAS	40	61	65	79	80	99	87	77
COLORECTAL	131	120	136	140	158	136	141	154
OTHER GASTROINTESTINAL	67	77	68	73	61	70	88	81
LUNG	121	132	135	133	158	143	176	191
BLOOD AND BONE MARROW	104	133	151	133	135	137	135	124
BONE/SOFT TISSUE	68	77	63	79	80	78	53	80
SKIN	71	76	83	100	89	109	95	101
BREAST	234	249	265	257	256	255	254	259
GYNECOLOGICAL	210	224	238	233	215	270	342	267
PROSTATE	893	1,004	770	652	523	521	491	484
OTHER UROLOGICAL	15	19	14	11	15	23	19	20
URINARY SYSTEM	180	183	186	181	199	183	251	197
EYE	11	22	20	15	19	18	16	9
BRAIN/CNS	131	171	144	131	114	126	131	118
THYROID/ENDOCRINE	145	168	164	186	192	243	192	252
LYMPHOMA	84	80	100	76	105	75	81	100
OTHER	30	30	27	29	39	29	28	24

NUTRITION SERVICES

2017 | 2018	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
Patients seen in cancer center	128	115	109	133	140	176	128	150	125	156	93	148	**1,601**
	142	139	130	161	130	68	123	144	133				**1,170**
New patient consultations	53	36	51	43	67	61	55	64	44	40	40	51	**605**
	54	42	59	55	64	19	57	77	57				**484**
Cancer Fighting Foods cooking demo		22		30		28		26		35		31	**172**
		35		33		30							**98**
Nutrition talks (2nd Thursday of month)	9	10	9	3	10	9			10	12	9	6	**87**
	3	6	36	8	8	8			7				**76**
Proton support group				50			50						**100**
				40									**40**
Other*	60					12							**72**
					51								**51**

OTHER* Audience may be patients, students or dietitians:
Presentation to dietetic students | Presentation to clinical dietitians | Laryngectomy conference
Women's cancer support group | LLUMC Women's Health Conference | San Manuel Health Fair presentations
Presentation at Conference (7+1 Lifestyle Conference) | Mentoring 10-14 dietetic students per year

INPATIENT ADULT ONCOLOGY PATIENTS

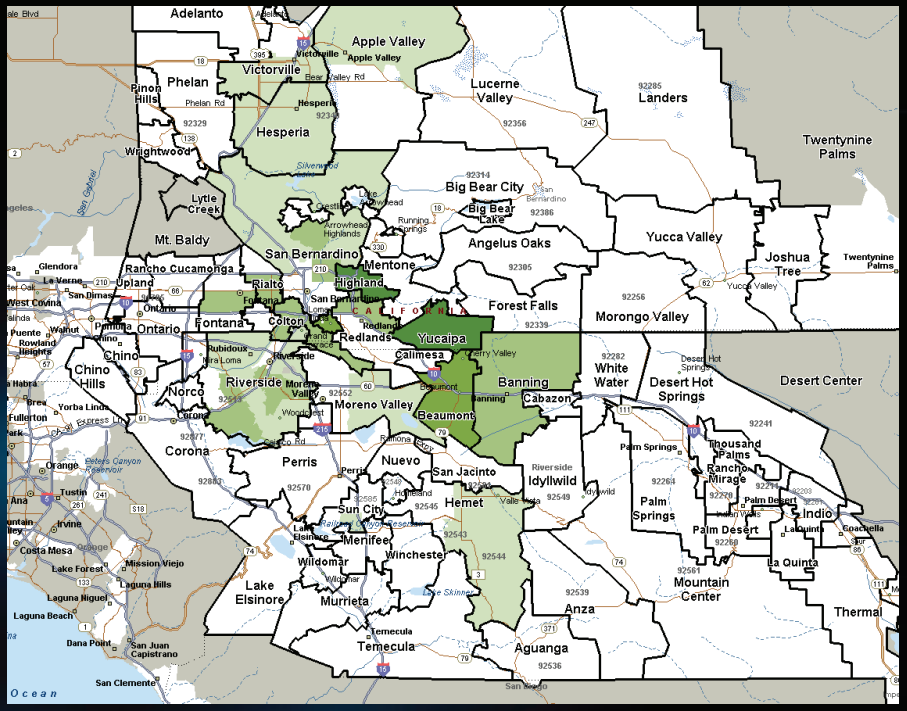


Discharges by Patient Zip Code

- 64-80
- 48-63
- 32-47
- 16-31
- 1-15

ZIP CODE	CITY	2017
92324	Colton	**93**
92404	San Bernardino	**47**
92571	Perris	**25**
92313	Grand Terrace	**39**
92359	Mentone	**18**
93535	Lancaster	**11**
92553	Moreno Valley	**30**
92335	Fontana	**35**
92879	Corona	**12**
92316	Bloomington	**18**
Other Zip Codes		**1,228**
Total		**1,556**

OUTPATIENT ADULT ONCOLOGY PATIENTS



ZIP CODE	CITY	2017
92373	Redlands	**347**
92346	Highland	**310**
92399	Yucaipa	**285**
92223	Beaumont	**243**
92354	Loma Linda	**212**
92374	Redlands	**203**
92220	Banning	**190**
92324	Colton	**177**
92376	Rialto	**162**
92404	San Bernardino	**153**
Other Zip Codes		**6,732**
Total		**9,014**

Discharges by Patient Zip Code

- 280-350
- 210-279
- 140-209
- 70-139
- 1-69

RADIATION MEDICINE STATISTICS

LOMA LINDA UNIVERSITY HEALTH

BEAUMONT – BANNING *(formerly Highland Springs Medical Plaza)*

Conventional – **85**

Intensity-modulated radiation therapy (IMRT) – **37**

LOMA LINDA UNIVERSITY MEDICAL CENTER

Conventional – **295**

Intensity-modulated radiation therapy (IMRT) – **70**

Proton – **521**

Proton Stereotactic Body Radiation (SBRT) – **125**

Proton Stereotactic Radiosurgery (SRS) – **22**

TOTALS: 1,155

TUMOR BOARD STATISTICS

TUMOR BOARDS – TOTAL CASES

Breast – **385**
ENT – **353**
General – **289**
Gynecology – **238**
Liver – **474**
Melanoma – **29**
Neuro-Oncology – **356**
Pediatric – **250**
Thoracic – **251**
Urology – **50**

TOTALS: 2,675

Loma Linda University Cancer Center
11234 Anderson Street, Loma Linda, CA 92354
800-78-CANCER | cancer@llu.edu

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