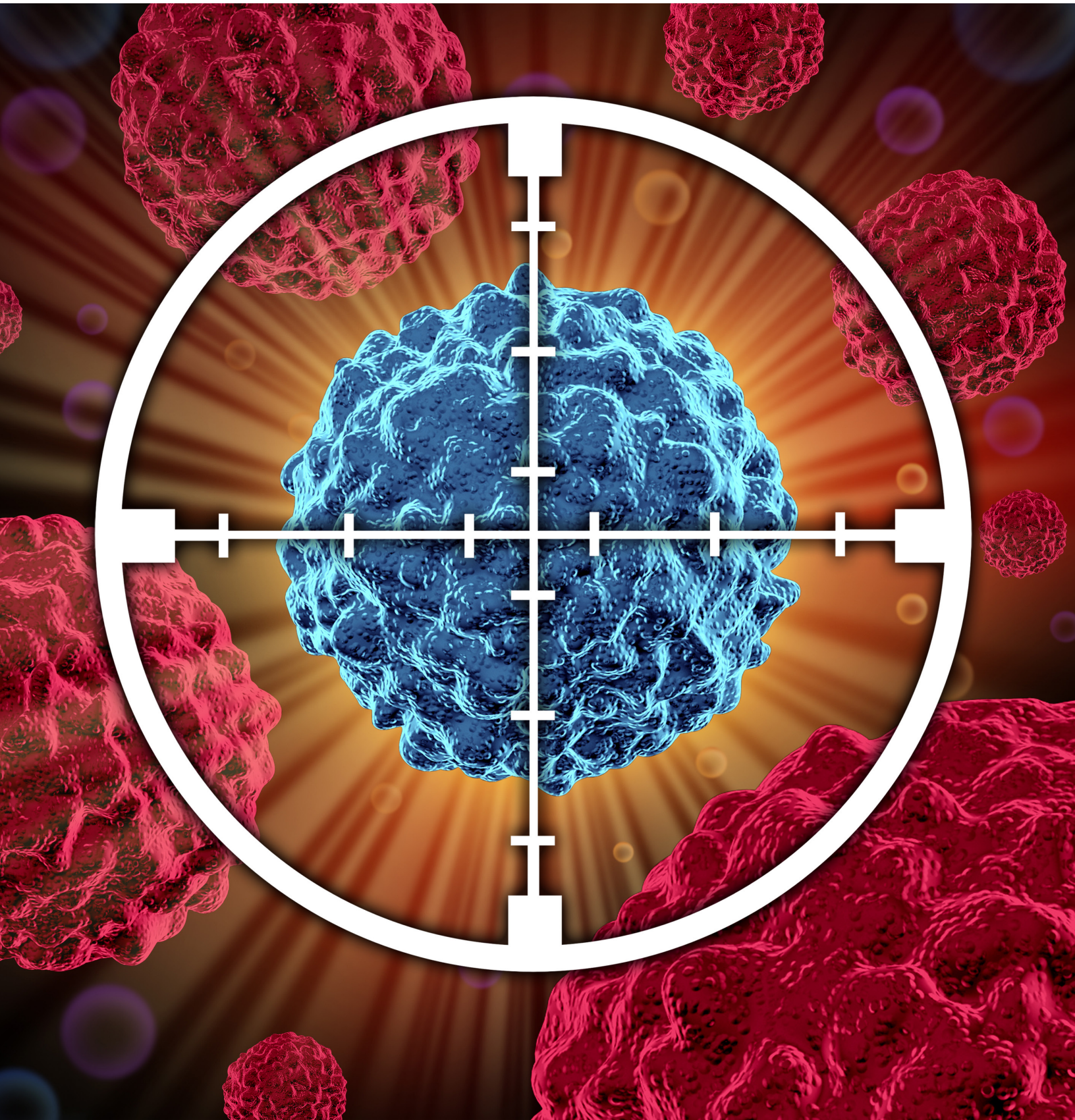
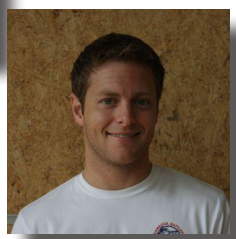
UAB MEDICINE

RADIATION ONCOLOGY

Knowledge that will change your world



WHAT'S INSIDE



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News from the Chairman

New Technology Improves Community Treatment Options

The high-quality, state-of-the-art care provided by UAB Radiation Oncology is not limited to the Hazelrig-Salter Radiation Oncology Center in downtown Birmingham. For years, we have been expanding the scope of our care, establishing strong treatment centers at both the Kirklin Clinic at Acton Road and UAB Medicine – The Cancer Clinic at Russell Medical Center in Alexander City.

The philosophy of both of these locations has always been providing state-of-the-art care in a convenient location. As technology has advanced, all UAB Radiation Oncology locations have continued to fulfill our commitment to this philosophy while remaining on the forefront of emerging technology. Our physicians stay apprised of the best methods of treating all cancers through the robust academic interactions that occur within our group and throughout the cancer center. They offer their special abilities at all of our centers but occasionally patients need to come to the Hazelrig-Salter Center if one of our novel protocols has not been implemented at the other centers. It is very important that our physicians' expertise is complemented by the most technologically advanced equipment.

During the winter of 2011, we began work at Acton Road, installing a Varian Clinac iX Linear Accelerator with RapidArc capabilities. The accelerator was commissioned for treatment by Physics and the first patient was planned and treated using the iX on October 1, 2012. We are currently installing another Clinac iX at The Cancer Center at RMC. This installation has a projected completion date of February 2014. The addition of this new technology strengthens our position as a leader in treatment planning and delivery within the community. Our Varian Clinac iX Linear accelerators are built on the new, high performance iX platform. This platform incorporates a broad range of imaging and treatment options to best fit the needs of each patient's treatment. The iX is equipped with on-board imaging capabilities, both KV and Cone Beam Computed Tomography (CBCT), portal vision, a carbon-fiber Exact Couch for indexing patient immobilization devices, Real-time Position Management (RPM) system for respiratory gating, and RapidArc, which is perhaps the most exciting feature of the new linear accelerator.

"What these capabilities will translate to is a reduced incidence of side effects," said Dr. Rojymon Jacob, assistant professor and RMC physician. "You can take a small margin around the tumor and still treat it accurately, and since you are treating it so accurately, you are reducing side effects. This machine brings the RMC department on par with all modern radiation oncology centers."

Another distinct advantage of having Varian machines at Acton Road and the RMC is their provision to serve as backup. The Clinac iX

The Kirklin Clinic at Acton Road

machines at Acton Road and in Alexander City are compatible with the Clinac iX in downtown Birmingham. This allows patients to be transferred from one machine to the other, thus eliminating interruptions in their treatment.

The renovated Acton Road vault that houses the iX has a modernized, similar look to the Hazelrig-Salter Radiation Oncology Center. It is distinguished by sleek, wood, square panels along the walls with a new hardwood floor. The room is visibly brighter and is accented with an artistic skylight as well as with a local artist's canvas. The console area, too, has been renovated and reconfigured. It is equipped with new technology that provides a higher screen resolution on flat panel screens, allowing for improved visual acuity. In addition to these renovations, the second vault, which houses the Varian EX linear accelerator, will be renovated this fall to match the new design and décor of the iX vault, as well as provide much needed storage space. The currently under-construction second RMC vault will have a similar construction. The current RMC vault and accelerator will remain open for treatment use.

"The people in the Alexander City area are so thankful they have UAB collaboration and UAB physicians going there to treat them. It really brings "state-of-the-art" UAB cancer treatments closer to their home, that's the main thing. It's not just a brand that we are selling to people; we have the actual physicians go there to run the clinic," Dr. Jacob said. "With that, we have the quality assurance that UAB brings. We have multiple levels of quality assurance. We have peer review between the treating physicians and we have a completely independent senior physician and physicist oversight. That's the main advantage this new partnership has."

The addition of new technology to the Acton Road and Alexander City facilities has provided opportunities beyond increasing possible patient load.

"We will look into expanding our research abilities, looking into multi-institutional, national, and UAB protocols. That will require training research staff, but that is something we are interested in," Dr. Jacob said. "We are also looking into expanding our education conferences with our collaborating physicians at Russell as well as in the community. We want to foster greater interaction and collaborative efforts with the community physicians."

UAB Medicine-The Cancer Center at RMC

As we move into the future, we look forward to our patients experiencing a newer, sleeker atmosphere while continuing to receive the most technically advanced radiation therapies. In conjunction with cutting edge systemic cancer therapy delivered both on and off experimental protocols, these technologic advances continue to define Acton Road and the Russell Medical Center as two of the leading cancer therapeutic facilities in the Southeast.

Spotlight: Reception

The reception staff at the Hazelrig-Salter Radiation Oncology Center serves as the first point of contact for a majority of the patients and physicians who visit us. While some people might fold under such constant contact and work with such a wide variety of patients, researchers, and physicians, Keely Hawthorne, Ruth Lewis, India Moore, and Lisa Moore are all more than ready to meet the challenge.

"We don't even really look at our job as a job. We look at it as a mission," Lisa said. "There's a new miracle every day or unfortunately there's something, there's death, there's lots of sickness, but there's also a lot of miracles that go on."

The work of reception extends beyond clerical work and organization. Our staff works to make sure the entire treatment experience, from walking in to the first treatment to the leaving final follow-up exam, is as welcoming and comforting as possible. These encouraging acts often mean the world to those who visit.

Our reception staff is responsible for a great deal of essential information and work. Physicians, physicists, administration, and especially patients all make use of the work and skills provided by reception. The primary focus is assisting the patients in scheduling, locating, and managing their exams and treatment.

"The biggest part of our work is to help the patients," said Ruth. "They're number one."

Assisting the patients is no small task. Reception's work with patients goes far beyond simply keeping a small schedule. Initial exams and treatments are organized by the reception staff, as are follow-up exams, securing patient transportation, parking, and managing the physician-requested treatments for each patient.

"We are the center of the communication. Information is not going to get to a nurse or a doctor if we don't get it," Lisa said. "That's a huge part of our job. Probably the hardest part of our job is getting what needs to be communicated to the right person. We're the ones who have to initiate that. We like to say we're the front line defense. The patients aren't going to get to the doctors, they're not going to get to the nurses, and they're not going to get to anybody without coming to us first."

The work of reception extends beyond clerical work and organization. Our staff works to make sure the entire treatment experience, from walking in to the first treatment to the leaving final follow-up exam, is as welcoming and comforting as possible. These encouraging acts often mean the world to those who visit.

"Think about something as simple as coffee. That coffee doesn't make itself. The patients don't make it. We make it," Lisa said. "It's an all-day, every-thirty-minutes type of thing that the four of us have to do. It doesn't seem like much to a lot of people, but it is extremely important to the patients." This comfort and attention to patients extends beyond the reception desk. Our reception staff is always willing to make that all-important extra gesture of kindness to ensure a patient's happiness and comfort.

"Just yesterday, we had a patient who only had use of one hand. In the hand that he has use of, he has a cane. He had fixed his coffee and was sitting down, ready to drink, when he got called in for treatment. He had wanted to carry it with him, but he only had one hand free," Keely recalled. "I said 'You know what, let me take the coffee for you.' Little things like that that help the patients and let them know that we do care about them."

In addition to these acts of kindness, the reception staff also works to encourage and support patients.

"We listen and we also encourage. This is not a typical place that people want to be. So sometimes we act like counselors, putting on a good listening ear," India mentioned. "Also, we encourage them throughout the process. I don't think that a lot of people realize that since we are the first people patients see throughout the treatment process, we do a lot of encouraging. We encourage them that they can make it through this. Sometimes, that's all they might need."

"We're their cheerleaders. We have some patients who come in alone and leave alone and they just may need someone to talk to," Keely said. "We do our best to talk to them just so they don't have to go through this process by themselves. Patients have said 'Thank you for making this easier for me. Thank you for being here with a smile on your face. That makes this treatment much easier to deal with.'"

The reception staff believes that the HSROC is unique and admirable, an individual specimen in the UAB Hospital system. "A lot of patients come in and say that there is no other clinic like this," Ruth said.

"There have been secretary positions open in other departments, but why would you leave this place? There's no one to talk to! You cannot find a better place to have as your office in this whole campus." Lisa said.

"I like working in this space. It doesn't feel like your typical outpatient clinic. What other clinics have libraries and computers that you can offer to patients?" India asked. "There are positive things in this clinic that we all notice every day. Since it's so open, you never really miss a beat." The work can sometimes be stressful, but the staff's dedication to this clinic and its patients helps them stay positive.

"We enjoy what we do." Ruth said. "That's not to say it's not stressful and the particulars of the work don't sometimes get in the way, but we deal with it pretty well," said Lisa.

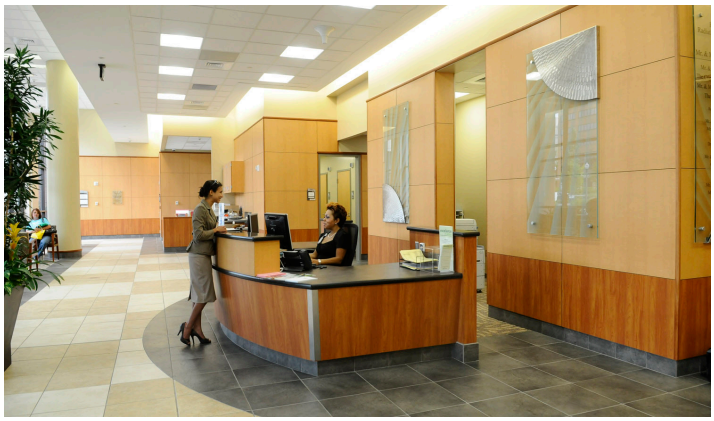
"When I'm not at work, I miss this place! If we have time off on the calendar…" Ruth began.

"…we usually change it!" Lisa concluded. "We're afraid we're going to miss something. You don't want to miss out on anything! You don't want to miss that one thing that might happen when you're not here."

After years of experience with patients and work with medical staff, our reception staff understands the importance of this center's work, the dramatic impact it can have on those who enter, and the hard work done by our staff.

"Cancer does not discriminate at all," Lisa explained. "We have people from all ethnic back grounds, we have people from all financial backgrounds, we have children, and we have 90-year-old adults."

"The doctors here are the best at what they do and will continue to be the best at what they do and we will try to be the best in what we do," Keely declared. "We do strive to be the best."

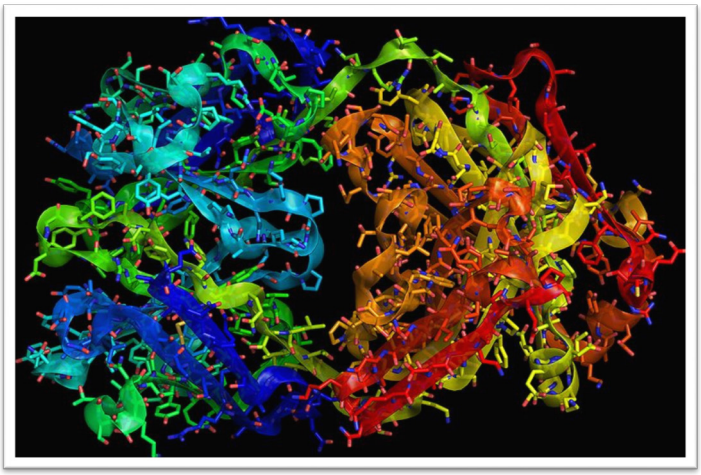


UAB Radiation Oncology's Dr. Ruby Meredith is exploring the intra-peritoneal applications of the agent 212Pb-TCMC-trastuzumab.

Ruby Meredith, M.D., Ph.D.

Dr. Meredith and the UAB team have been exploring the clinical effects, biodistribution, and pharmacokinetics of 212Pb-TCMC-trastuzumab. Trastuzumab (commercially known as Herceptin) is a humanized monoclonal antibody which has therapeutic efficacy by immunologic mechanisms in tumors that over-express the HER-2 receptor [6]. Dr. Meredith believes this antibody carrying the radioactive 212Pb will be particularly useful in the treatment of peritoneal carcinomatosis patients with HER-2 expressing malignancy who have failed standard therapies.

"In this case, most tumors in the abdomen are adenocarcinomas and 50% or more will have the level of HER-2 expression we need to qualify for this study," Dr. Meredith said. "We don't need as high a level as we do for treating things like the HER-2 positive breast cancer, because we're only using the HER-2 in this case for targeting, not primarily as a therapeutic agent itself." The physical decay of 212Pb results in the emission of two short-lived alpha particles, which possess potent therapeutic efficacy to cellular nuclei. Dr. Meredith's current research goal is to maximize the therapeutic use of these alpha particles.



Trastuzumab is a monoclonal antibody that interferes with certain types of breast cancer.

212Pb-TCMC-trastuzumab is currently being developed to improve upon other radionuclide conjugates that have been proposed or evaluated for IP therapy [9]. Ideally, this antibody conjugate will provide more potent radiation to targeted malignant cells while limiting radiation exposure to normal tissues. 212Pb has a shorter half–life and path length (range of alpha radiation) when compared to radionuclides that predominantly emit beta particles [1-5, 8].

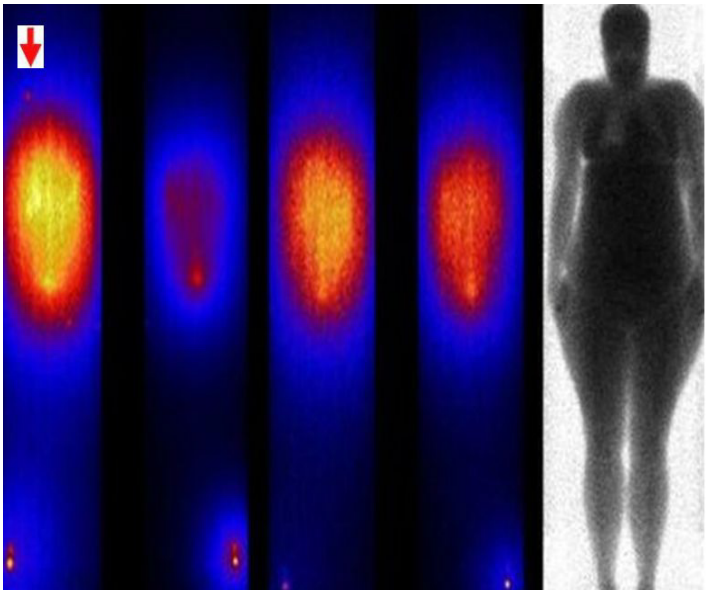
"212Pb-TCMC-Trastuzumab has the possibility of even better outcome for microscopic disease because this radionuclide is predominantly an alpha emitter," Dr. Meredith said. "The radiation is very powerful, but also a very short length, so if you target it to the tumor cell, then it relatively spares the normal tissue. It's only a few cells of penetration as opposed to the other agents we were using which were usually millimeters of penetration."

Intra-peritoneal therapy using other alpha-emitting conjugates has shown promise as an adjuvant therapy for ovarian cancer in patients with no evidence of gross disease [7]. Based on clinical experience and pre-clinical data, Dr. Meredith and previous researchers have reasoned that treatment at the time when disease deposits are only microscopic should provide the maximum therapeutic benefit [2, 3, 5, 7].

For the AREVA Med trial currently conducted by Dr. Meredith, 212Pb-TCMC-trastuzumab was delivered intra-peritoneally less than four hours after a delivery of 4mg/kg intravenous trastuzumab. All patients were also treated with SSKI and diuretics used as protective agents. The first cohort of this trial was followed with gamma imaging, body counts, blood pharmacokinetics, and urine collection. All patients were monitored post-treatment to detect any toxicity.

The patients had an IP catheter placed 1 to 2 days prior to therapy and had free flow of fluid in the peritoneal cavity. No patients had evidence of significant leakage from the cavity at 2 hours after the initial test. All patients tolerated the therapy well. All later adverse events were mild and connected to adjuvant medications, rather than the experimental agent.

"We give an intravenous, loading dose of the regular, unlabeled Trastuzumab," Dr. Meredith said. "This is to saturate any systemic receptors, because we don't want the radiation to go to any area that might be otherwise targeted. Most of these patients have disease which is confined to the abdomen."



The immediate anterior and posterior whole body scan images after IP 212Pb-TCMC-trastuzumab (left) are compared to the repeat scan the next day. 99mTc marker at the right shoulder (arrow), plus the 212Pb standard adjacent to the right ankle, provides anatomic locations outside the abdominal area as does the transmission scan (right) that displays body anatomy.

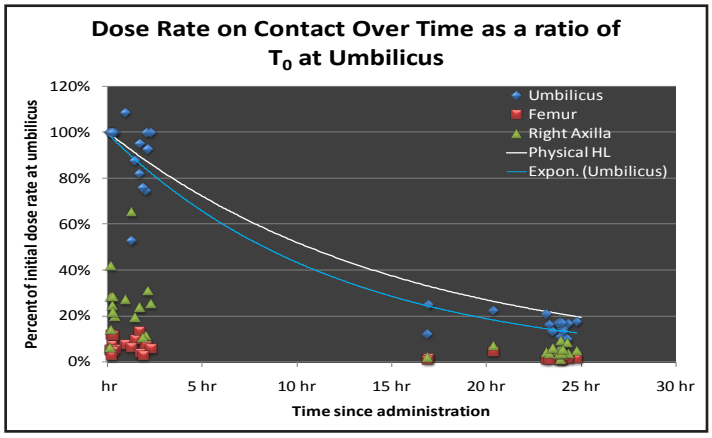
The post-treatment status of each patient has been positive. There has been no evidence of symptomatic marrow suppression, prolonged laboratory abnormalities, or cardiac toxicity within 6 post-treatment weeks. No late toxicity attributed to the investigational agent has been discovered for over 12 months for the first group, and between 3 and 10 months for the 2nd and 3rd groups.

Gamma camera imaging has shown no distribution of radioactivity out of the peritoneal cavity or normal organ uptake following the IP delivery. The camera-measured drop in radioactivity from the abdomen in Day 2 was similar to that of the other body regions that showed no evidence of accumulation. All were consistent with the physical decay half-life of 212Pb. Slow absorption and distribution occurred based on detectable radioactivity in the blood and urinary loss. Cumulative urinary loss ranged from 0.3% to 6% in 24 hours among the first 3 patients. All subsequent patients have had blood levels mainly within the expected range of the initial group.

"We know that some gets out because of tracking the blood and urine. We have now studied this agent and have gotten to the fourth dose level," Dr. Meredith said. "We have not seen significant toxicity with this. We have seen modest amounts getting into the bloodstream and the urine. We have two patients where very little got into the blood and subsequently, very little out in the urine."

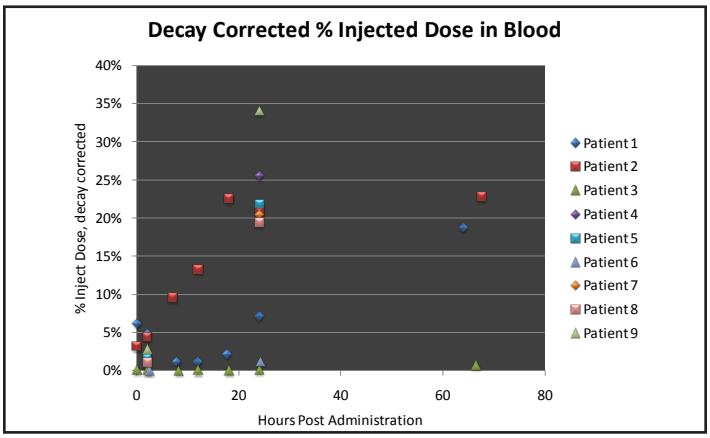
Detector-measured exposure rates at 4 body sites were monitored over 24 hours. The maximum dose rate immediately post-infusion over the abdomen in the first group averaged 7.67mR/h and dropped to 0.67 (range 0.55-0.8) within 24 hours. The rate at the other monitored sites (axilla, chest, and femur) was proportional to their distance from the abdomen. The data points for all 9 patients correlate closely with 212Pb decay curve, even without adjustment for urinary excretion of radioactivity.

"We've looked at this in terms of impact noted in prior studies. In those therapies with beta emitter-conjugates, even with limited amounts of the therapeutic agent getting in the blood stream, enough still got in to irradiate the marrow and cause marrow suppression. In this case, we've not seen significant toxicity," Dr. Meredith said. "Another concern could be toxicity of the kidney if in the metabolism significant radioactivity goes through the kidney. Thus far, we have had some patients who have been out for over a year. They've already had a lot of chemotherapy and we haven't seen any sign of late renal toxicity."



Data points represent exposure rate of radioactivity at 4 times points in the initial 24 hours after IP 212Pb-TCMC-trastuzumab for all 9 patients. Measurements over the abdomen are compared to those at the axilla, and femur. The actual data points are shown along the curve of physical readioactive decay (theoretical). There was no adjustment for urinary excretion of radioactivity.

To date, this trial has completed treating nine patients at 3 dose levels and is now moving to treatment at a fourth dose level. Serial planar imaging studies in the first cohort show little redistribution of radioactivity out of the peritoneal cavity and no significant uptake in major organs. Non-decay corrected cumulative urinary excretion in the first cohort was < 6% in 24 hours (2.3 half-lives). Peak blood activity for the first cohort (determined by decay correction) was 23% of injected dose at 63 hours. Maximum radioactivity concentration in the first cohort was 6.3nCi/ml at 18 hours.



Data points represent percent of decay corrected radioactivity found in blood after IP 212Pb-TCMC-trastuzumab administration for all 9 patients. Blood volume is calculated using Nadler's method.

"Early on there was some cardiac toxicity with anti-HER-2 therapies, especially when given with certain chemotherapy," said Dr. Meredith. "Our anti-HER-2 targeting uses an intravenous loading dose of unlabeled trastuzumab in an attempt to minimize any possibility that there could be toxicity from putting the HER-2 conjugate into the peritoneal cavity…what generally happens with these agents is that they slowly get into the systemic circulation."

Dr. Meredith is continuing her work on this clinical trial for the foreseeable future. The initial results of this study are in the final stages of the publication process with Mary Ann Liebert Publishing.

Additional information on this trial can be found online at www.targetedtrials.com and http://clinicaltrials.gov/ct2/show/NCT01384253

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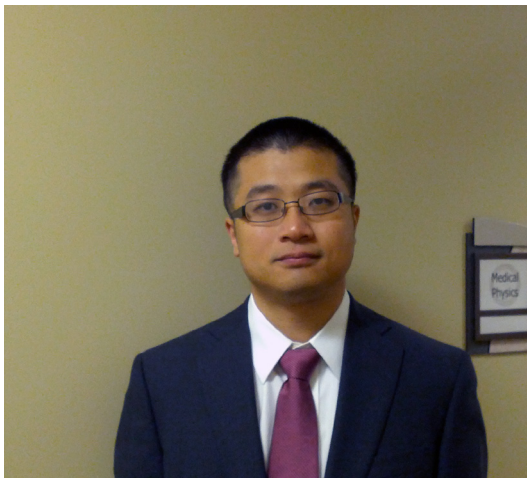
Medical Physics Residency Program Achieves Accreditation with CAMPEP

Richard Popple, Ph.D.

Medical physics has been central to achieving the clinical and educational objectives of the Department of Radiation Oncology. Starting in 1965 with the first medical physicist to practice in the state of Alabama, the medical physics faculty has grown to the current level of 6 PhDs. The establishment of a medical physics training program within the Department of Radiation Oncology was a natural complement to the medical residency program, which has contributed to the educational mission of UAB for over 40 years.

The foundation was laid for a medical physics residency program in 2008 with an internal grant from the Blackburn endowment to study the feasibility of such a program. The grant funded attendance to a workshop provided by the Commission for Accreditation of Medical Physics Education Programs (CAMPEP) and a day long planning retreat. The entire medical physics and radiation oncology faculty enthusiastically embraced the concept of a training program and felt that the stringent requirements could be met. The remaining obstacle, reliable funding, was overcome in the late fall of 2010 when the hospital and medical school agreed to fund two residency slots. The first resident, Yu Yuan, Ph.D., was recruited shortly thereafter, and started the program in August 2011.

An important milestone for a residency program is accreditation. CAMPEP, a nonprofit organization whose objectives are the review and accreditation of educational programs in medical physics, offers accreditation of clinical residencies. In 2014, the American Board of Radiology (ABR) will require completion of a CAMPEP accredited residency as a pre-requisite of certification in radiologic physics. Accreditation began with preparation and submission of a self-study report describing all aspects of the UAB Department of Radiation Oncology medical physics residency program. After review of the report, a survey team visited UAB in April to validate the assessment. Typically, provisional accreditation is granted until the program graduates their first resident. However, the site visitors had only minor comments, and recommended full accreditation for a period of 5 years, which was awarded in June.



UAB Medical Physics's First Resident Yu Yuan, Ph.D.

The goal of the Clinical Medical Physics Residency Program is to prepare individuals to practice independently as a certified medical physicist in Radiation Oncology. Upon completion, the graduate

The program is young and will evolve over the coming years. Plans are underway to incorporate training at The Kirklin Clinic at Acton Road and, possibly, Russell Medical Center. The curriculum will be continuously reviewed to ensure that it keeps pace with the rapidly changing technological and clinical environment. As our program matures, our residents will contribute significantly to our clinical, academic, and educational mission.

will have the experience and knowledge base necessary to implement and maintain routine clinical procedures, and establish novel techniques. The training takes place under the close supervision of experienced radiation oncology medical physics faculty. The program emphasizes all areas of training and experience that will be needed by a radiation oncology medical physicist in a "state-of-the-art" treatment facility, as well as expose them to management of a single accelerator community-based free-standing facility.

The program is 24 months long and includes 8 rotations, attendance at conferences, recommended readings, didactic courses, written report assignments, and oral examinations. In addition to the experiences from didactic training and clinical rotations, the medical physics residents receive clinical training through their participation in monthly quality assurance on the linear accelerators, perform IMRT quality assurance measurements, and perform electron cutout measurements. As the resident progresses through the clinical rotations they begin to participate in post-planning and weekly chart review, high dose rate brachytherapy quality assurance, and become the "physicist of the day" providing first response physics support to all activities within the clinic. The progression of the resident through these clinical responsibilities is evaluated and discussed with the resident during quarterly reviews with the faculty.

The program is young and will evolve over the coming years. Plans are underway to incorporate training at The Kirklin Clinic at Acton Road and, possibly, Russell Medical Center. The curriculum will be continuously reviewed to ensure that it keeps pace with the rapidly changing technological and clinical environment. As our program matures, our residents will contribute significantly to our clinical, academic, and educational mission.

Graduating Medical Physics Resident Yu Yuan, Ph.D. and incoming Medical Physics Resident Sidi Benhabib, Ph.D.

Medical Physics Residency Program Statistics

					Employed by sector			
Year	Number of applicants	Number accepted	Number completing program	Total number certified	Industry	Clinical	Academic	Other
2011	12	1	0	0	0	0	0	0
2012	72	1	0	0	0	0	0	0
2013	100	1	1	0	0	1	0	0

Dr. Jennifer De Los Santos

The recent work of UAB's Dr. Jennifer De Los Santos has earned several noteworthy honors and secured important and influential positions within the field of radiation oncology. Dr. De Los Santos has received the "Editor's Pick, Physics" award in the May 2013 ESTRO newsletter, been appointed to the ASTRO Clinical, Transitional, and Basic Science Advisory Committee, and is an editorial board member of the American Journal of Breast Cancer Research. She has also published several new published manuscripts, book chapters and abstracts.

The piece that earned Dr. De Los Santos the Editor's Pick award has its roots in a former ASTRO committee project.

"When I served on the previous Emerging Technologies Committee, I was co-chair of a project that summarized image-guided radiation therapy (IGRT) for pre-treatment imaging alignment," Dr. De Los Santos said. "That was a project that was commissioned in 2009 and we assembled a team of physicists and physicians who wrote about IGRT in their respective areas of expertise and Dr. Chetty and I edited and pulled together the pieces into a summary article."

Prior to final review and approval from the ASTRO Board of Directors, the committee was disbanded and restructured into different committees.

"A lot of people who had put significant time into the project felt disenfranchised and upset that all the work they had put in was not being seen to fruition," Dr. De Los Santos said. In March 2012, ASTRO re-approached the original committee, asking them to update and resubmit the work. The long additional updating and reviewing processes lead the committee to decommission the piece from ASTRO. Fortunately, Dr. Anthony Zeitman, current Editor-in-Chief of the Red Journal, provided the opportunity for the committee to submit their work as a critical review article for the journal.

"We got back the initial reviews and there were 51 critiques. It was a huge amount of work to address initially, and after these edits were resubmitted, the journal wanted an additional 12 points to be further addressed." Dr. De Los Santos said. "In the end we saw it to fruition. We were able to get all of the people who had put work in recognized."

Following the publication's acceptance, Eric Kline, head editor of the Red Journal's physics portion, contacted Dr. De Los Santos, letting her know that the recently-completed article was being recommended for recognition by ESTRO.

"That additional recognition was really nice after all that hard work," said Dr. De Los Santos.

In addition to her work through ASTRO, Dr. De Los Santos has been active in the Translational Breast Cancer Research Consortium (TBCRC). A multi-institutional project that she headed through this group was recently published in Cancer. The primary endpoint of this large, multi-institutional retrospective study, (TBCRC-017) was to assess the accuracy of breast MRI for predicting pathologic response in patients who had received neoadjuvant chemotherapy for invasive breast cancer.

"We have since gone back and are about to submit a second manuscript for TBCRC-017, looking at patterns in surgical care amongst the 770 patients included in this study across the 8 participating institutions," Dr. De Los Santos said.

The TBCRC-017 project's goal was to collect data in support of a developing concept in the NCI Cooperative Cancer Research Groups.

"This developing trial that I am leading in conjunction with Dr. Mark Basik through the NRG

The recent work of UAB's Dr. Jennifer De Los Santos has earned several noteworthy honors and secured important and influential positions within the field of radiation oncology.

Oncology Group is investigating whether patients with invasive breast cancer who have a complete radiographic response and a negative biopsy at the clip site following neoadjuvant chemotherapy can receive successful therapy with radiation therapy alone, omitting surgery," Dr. De Los Santos said.

"This is a paradigm-shifting trial. There's additional data required prior to proceeding with a full scale non-inferiority randomized trial that explores RT alone in patients with complete responses to neoadjuvant chemotherapy. We need to understand how biopsy of the breast tumor site following chemotherapy adds to the predictive information we receive from post-treatment imaging alone, and we are still trying to get this initial run in trial through CTEP, so hopefully there will be more updates on that large prospective randomized trial in the near future," Dr. De Los Santos said. "My biggest focus is getting that trial initiated as it is something I've been working on since 2008. It has the potential to change the standard of care in breast cancer management for the subset of patients who respond well to systemic treatment."

Dr. De Los Santos has also been selected for committee and editorial board positions. She believes her upcoming work as a member of the ASTRO Clinical, Transitional, and Basic Science Advisory Committee dovetails well with previous and developing work in breast cancer research at UAB.

Dr. De Los Santos is eager to begin work on the editorial board of the American Journal of Breast Cancer Research. "It really gives you a broader perspective about the work that is currently being done in breast cancer research," she said. "While I review for multiple journals and I have some insight into work that's going on, I think that being on an editorial board gives you a great breadth of exposure."

Dr. De Los Santos has also been collaborating with various departments and scientists to discover novel treatment and prevention options for breast cancer. One such collaboration is the Harvest for Health study, a trial run by Wendy Demark-Wahnefried, a UAB nutritional scientist. Demark-Wahnefried was interested in seeing if pairing stage 1-3 breast cancer survivors with master gardeners would both allow them to increase vegetable consumption and increase their physical activity. Ideally, this change in diet and activity level would promote personal health and ideally correlate with a reduction in risk of breast cancer recurrence.

"We know that lifestyle intervention including a low-fat diet and exercise can contribute to a lower risk of breast cancer recurrence. This project was looking at a mechanism to increase those two endpoints," Dr. De Los Santos said. "The pilot project was a success and was published recently. This expanded study has since been submitted for a NIH R21 grant and received a very favorable score of three percent." Dr. De Los Santos is proud of the collaboration and collective work done by UAB Radiation Oncology and other UAB Medicine departments.

"Our team has had a very successful history of collaborating on protocols that have moved our entire group forward. That collaboration has included work done with BRCA-positive patients, triple negative breast cancer patients, imaging and novel drug studies through the Translational Breast Cancer Research Consortium (TBCRC), NCI cooperative group concept proposals through the RTOG and upcoming NRG group and work with industry," she said. "I think that part of our strength as a group has been that collaboration. We have developed a rhythm in the interdisciplinary clinic that promotes identification of patients who would be eligible candidates for clinical trials, and reinforces trial recruitment. This synergy is present throughout our monthly breast cancer working group meetings where we discuss new ideas, new research strategies, new protocols, and new potential collaborations and directions for our group."

Dr. De Los Santos sees such collaboration as crucially important to the growth of the UAB cancer program.

"I would like to see that collaboration grow and move forward. One of our goals is to further expand the interdisciplinary breast clinic, to expand our reach, expand our number of patients, and to grow that great process because that process has been a fruitful one in regard to funding, research, our national recognition and our cancer program at UAB."

M.D./Ph.D. Student Spotlight

Evan Thomas

Evan Thomas is an M.D./Ph.D. student who has been studying and working at UAB Radiation Oncology since 2009, focusing on advanced treatment planning, treatment efficiency, and integrating new technology into radiation oncology.

"I'm currently finishing my Ph.D. Dr. Fiveash is my primary advisor, but I work a lot with Dr. Popple, as well. Dr. Willey and Dr. Dobelbower are also on my thesis committee," Thomas said. "I'm writing my thesis right now, so it's kind of crunch time."

After initially focusing only on medical practice, Thomas soon came to remember his desire to work in research and technology.

"My background before I came to medical school was in materials engineering and nuclear engineering. I started out in the M.D. program. After my first year of medical school, I realized how much I missed doing research," he said. "I applied to switch into the M.D./Ph.D. route knowing that I wanted to integrate research into my medical career."

Thomas' background in materials and nuclear engineering has been beneficial in his current thesis work.

"My thesis project is centering on using dual-energy CT, which is a new type of imaging that has recently become available to treatment planning for patients who have implanted metal devices. These devices cause what we call 'high-z' or metallic streak artifact," he said. "The metal devices make it harder for treatment planning to identify important anatomical structures, boundaries of the structures. It also confounds the dosimetric simulations we do. My project has been evaluating this type of imaging and seeing how it can help patients by improving the accuracy of treatments they receive."

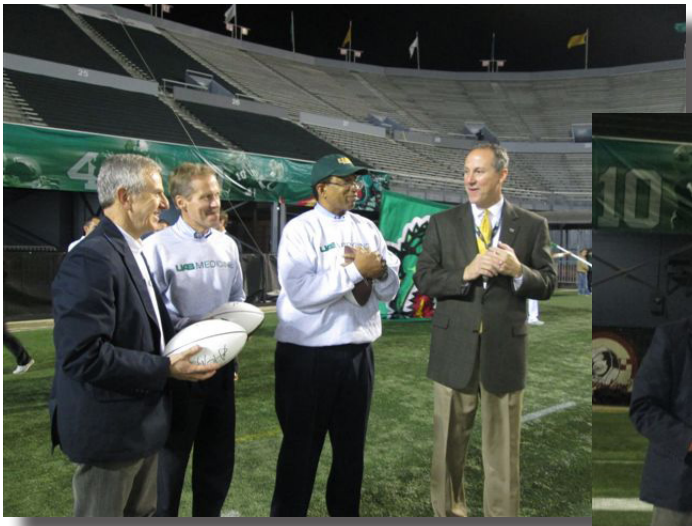
Thomas' thesis work is of key importance to him, but it is not his only academic medical work.

"I've also done a lot of work on optimizing radiosurgery for brain metastases. In addition to that, I have some peripheral projects with Dr. Burnett looking into using a new software program to improve our residents' ability to do contours in a systematic fashion. I have an additional project with Dr. Whitley, which is looking at the role of dose to the vascular bed in ocular brachytherapy."

Thomas has greatly valued his time studying at UAB and the life he has found in Birmingham.

"I've had a great experience at UAB and within our department. It has been an extremely good environment for collaboration. Everyone is very enthusiastic about doing quality research and optimizing patient care. Our faculty are top-notch," Thomas said. "I really can't say enough good things about this department."

Radiation Oncology Highlights



James A. Bonner,M.D., Chairman and President of University of Alabama Health Services, attended the UAB versus Rice football game.

A kindergarten class from Bethany Christian Academy in Montgomery, AL sang for the patients at the Hazelrig Salter Radiation Oncology Center. After entertaining the patients, the group met with some of the staff and then took a tour of the building, including the laboratories.

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