MEDICAL COLLEGE OF WISCONSIN
DEPARTMENT OF SURGERY

Surgery Update
Leading the Way

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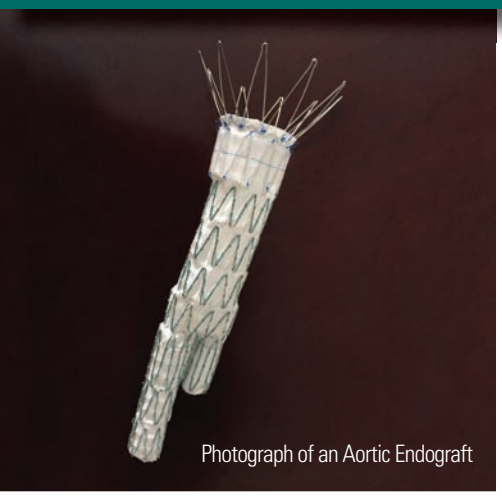
Photograph of an Aortic Endograft

Advances in Endovascular Surgery

The specialty of Vascular Surgery now combines the expertise of both open surgery and endovascular interventions. The multidisciplinary program at the Medical College of Wisconsin, based on a long-standing collaboration between the Departments of Surgery and Radiology (Division of Interventional Radiology), serves as a model for most other vascular surgery programs across the United States. Please refer to the next issue of *Leading The Way* for more information on endovascular surgery and the advances made in our quest to conquer aneurysmal and atherosclerotic disease affecting the aorta and peripheral arteries.

We Care

This edition of *Leading the Way* features the work of investigators supported by the We Care Fund for Innovation and Research. The "We Care Fund," as it is known throughout our city and beyond, is supported by the generous donations of all of you. This fund fuels the hope that patients and their families see in medical innovation and discovery. Research performed by faculty in the Department of Surgery (and their many collaborators across our institution as well as other academic medical centers) strives to take fundamental laboratory discoveries and transform them into meaningful treatments. Treatments for the many patients who suffer from cancer, organ failure, cardiovascular disease, trauma, and the health emergencies which effect all of us at the most unexpected time—including diseases of the newborn and the emerging field of fetal intervention. Research, innovation, and discovery offer hope for the patients of today and provide the only way that we will have better therapies for the patients of tomorrow.

If we are not moving forward, we are standing still—the quest for better treatments of human disease must move forward as the available medical therapies of today are simply not good enough. Physician scientists, such as those highlighted in the pages to follow, are the key to rapid translation of laboratory innovation into the realm of direct patient care. Progress will be made by those physicians/scientists who always ask *why*, accept nothing but success, and have a true passion for what they do. This philosophy is shared by those outside of medicine who we have been most fortunate to recruit to the "We Care Committee." A big thank you to those below who work tirelessly to support the fund that coveys our true feeling —"We Care." •

—Arlene Wilson and Douglas B. Evans, MD

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IN THIS ISSUE:

Working to Improve Quality of Life in Patients with Rectal Cancer

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Division of Colorectal Surgery

An increasing number of patients are surviving a diagnosis of rectal cancer. More than 40,000 patients undergo rectal resection for cancer each year. The majority of patients are treated with a low anterior resection, which involves resection of the tumor with anastomosis, or reconnection, of the remaining colon to the distal rectum. It is well known that up to 90% of these patients develop functional disorders following resection including frequency, urgency, and incontinence of bowel movements.[1] Taken together, these symptoms are known as low anterior resection syndrome. Recently, an international multicenter trial has shown that the quality of life of patients who have had rectal cancer is closely associated with the severity of low anterior resection experienced.[2] Although some of these changes may be due to anatomical changes, it is likely that changes in colonic motility are at play.

Involuntary control of the distal colon and rectum is regulated by the autonomic nervous system and enteric nervous system. The autonomic nervous system is further characterized by parasympathetic and sympathetic components. During the course of a standard resection for rectal cancer, both the sympathetic and parasympathetic fibers to the distal colon, which will become the neorectum, are transected. This leaves the neorectum under the control of the enteric nervous system. Serotonin is a neurotransmitter of profound importance in the enteric nervous system. About 95% of the serotonin in the body is found in the gastrointestinal tract. It plays a key role in the initiation of peristaltic and secretory reflexes. Although over 25 different types of serotonin receptors exist, 5-HT_3 and 5-HT_4 receptors play important roles in peristaltic reflexes.[3]

Our lab has previously shown in rats that damage to parasympathetic nerves innervating the colon causes a decrease in colonic motility.[4] However, this motility is restored with time. This led us to evaluate the enteric nervous system, namely 5-HT_3 and 5-HT_4 receptors, as a possible mechanism by which motility is restored. In fact, 5-HT_3 receptors were indeed upregulated in the colon of rats that underwent pelvic nerve transection[5] and 5-HT_4 receptors were also upregulated in the colonic mucosa of rats who had undergone complete colonic parasympathectomy, including transection of bilateral vagus nerves.[4] Although others have shown that mucosal 5-HT_4 receptors are increased in diseases of the human colon such as diverticulitis,[6] it is not known if the expression of these receptors can change based on damage to the autonomic nervous system in humans. It is plausible that patients suffering from low anterior resection syndrome may develop symptoms due to an upregulation of colonic 5-HT_3 and 5-HT_4 receptors within the enteric nervous system. If this can be demonstrated, these receptors would be potential targets for antagonists which may mitigate the effects of low anterior resection syndrome.

Thanks to a generous grant from the We Care Fund for Medical Innovation and Research, which is funded through private gifts from grateful patients and families, friends, faculty, and alumni, we are now extending this research to humans. This represents an extremely important step in our research as we translate our previous findings in rats to a potential intervention in humans. We are currently enrolling patients with a diagnosis of early rectal cancer in a study to investigate the changes in 5-HT receptors that occur following low anterior resection. We hope that our research will ultimately result in improved quality of life in those surviving a diagnosis of rectal cancer. •

FOR ADDITIONAL INFORMATION on this topic, see references below, visit mcw.edu/surgery, or contact Dr. Ridolfi at tridolfi@mcw.edu; 414.805.1690.

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Ex vivo Lung Perfusion

JOHN DENSMORE, MD
Division of Pediatric Surgery

We would like to thank the We Care Fund for Medical Innovation and Research for supporting this work presented at the most recent Shock Society Meeting. This was preliminary work completed by a multidisciplinary team comprised of surgeons, optical engineers, mitochondrial redox biologists, and research pulmonologists from Marquette University, the University of Wisconsin-Milwaukee, and the Medical College of Wisconsin via the Center for Translational Science Institute of Southeast Wisconsin.

Ex vivo lung perfusion (EVLP) may provide an opportunity to assess and rehabilitate lung allografts. Currently 80% of donated lungs are unfit for direct transplantation. As long-term allograft failure rates approach 50% and are secondary to early ischemia, measuring early tissue mitochondrial dysfunction via NADH and FAD autofluorescence could allow graft-saving early intervention. We hypothesize that changes in explanted lung mitochondrial metabolism can be detected in *ex vivo* lung perfusion via surface NADH and FAD autofluorescence.

Adult sheep (n = 2) lungs and hearts were harvested *en bloc* and cannulated for EVLP with ventilation. Pulmonary artery and left atrial pressure were continuously monitored and maintained between 3 and 5 mmHg. Every 30 minutes, perfusate samples were obtained for blood gas analysis and lactate measurement. Lung surface autofluorescence of NADH and FAD was measured using a fiberoptically-coupled UV laser/gated spectrophotomer with appropriate filters. Once steady state was achieved, pentachlorophenol (PCP, 4 mM), an electron transport chain (ETC) uncoupler, was added to the perfusate. Subsequently, potassium cyanide (KCN, 4 mM), an ETC complex IV inhibitor, was added to the perfusate. Lung biopsies were obtained at baseline, prior, and following addition of each toxin for cryo-imaging.

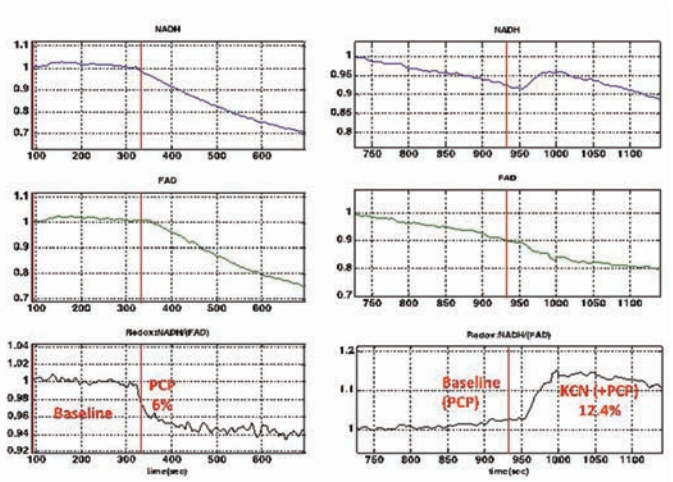

FIGURE 2—Redox ratio over. After the administration of PCP, the redox ratio markedly dropped whereas a significant increase in redox ratio was observed after KCN administration.

We found that administration of PCP resulted in an average NADH signal drop of 8.5% (±2.5) with an FAD signal reduction by 2.5% (±2.5). This corresponded to a 6.5% (±0.5) drop in NADH/FAD redox ratio. After administering KCN, NADH signal increased by 8% (±4) with a 6.5% (±0.5) drop in FAD signal, corresponding to a redox ratio increase of 14% (±2). Cryo-imaging showed an average reduction in NADH/FAD ratio by 19.5% (±16.5), validating our real time detection of PCP's oxidative effect. Perfusate analysis revealed significantly increased production of lactate after the administration of PCP (123% ±23).

This study shows that fluorometric measurement of NADH and FAD signals can be used to detect alterations in mitochondrial redox state during perfusion *ex vivo*. The opposite effects of PCP (oxidized mitochondria) and KCN (reduced mitochondria) on the ETC and hence NADH/FAD ratio delineate the dynamic signal range. Surface fluorometry does reflect the state of the lung mitochondria, and improvements in dynamic range are feasible. •

FOR ADDITIONAL INFORMATION on this topic, visit mcw.edu/surgery, or contact Dr. Densmore at jdensmore@chw.org; 414.266.6553.

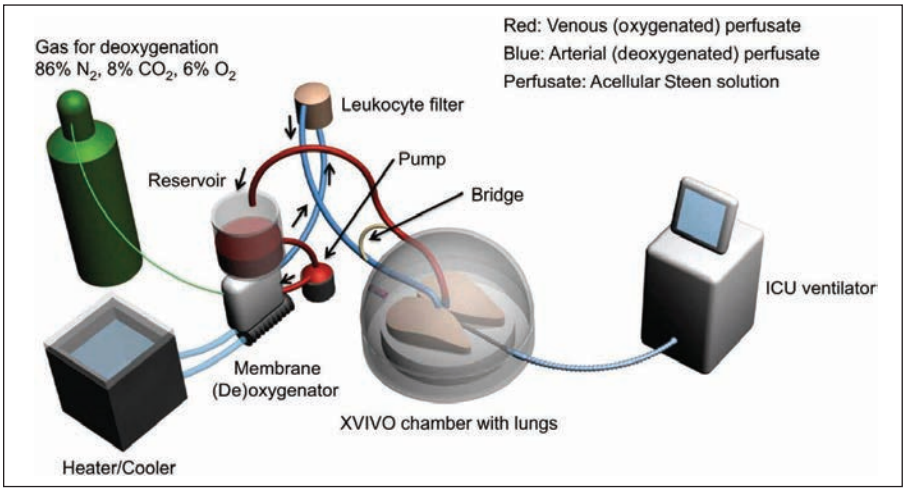

FIGURE 1—*Ex vivo* lung perfusion setup. Perfusate from the reservoir is deoxygenated and filtered of leukocytes as it is pumped to the lung via the pulmonary artery cannula. An ICU ventilator provides room air for gas exchange in the lung. Oxygenated perfusate then leaves the lung via the left atrial cannula and circulates back to the reservoir to form a continuous circuit. A water heater maintains the perfusate at 37°C.

Utility of Cell Free DNA for Monitoring

SUSAN TSAI, MD, MHS
Division of Surgical Oncology

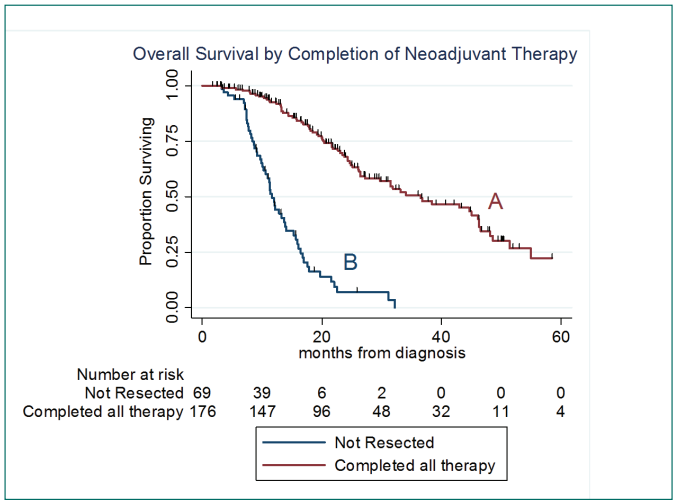

FIGURE 1—Overall survival of patients treated with neoadjuvant therapy

Pre-operative (neoadjuvant) multimodality therapy for localized pancreatic cancer, followed by surgery, has been associated with a median survival of 36 months—surpassing the median survival rates reported for a surgery-first approach.[1] A patient's ability to complete all neoadjuvant therapy, including surgery, is a powerful predictor of outcome and allows clinicians to identify patients who have metastatic disease which may have been radiographically occult at the time of diagnosis (Figure 1). Recent funding generously provided by the We Care Fund for Medical Innovation and Research, the American Cancer Society Pilot Fund, and the Ronald Burkland Eich Pancreatic Cancer Research Fund has allowed our laboratory to further examine molecular biomarkers of therapeutic response. Cell free DNA (cfDNA) is composed of small fragments of nucleic acids that are released from cells during the process of cell death. Since cfDNA can be released from both normal and cancer cells, the use of cfDNA as a novel biomarker has gained interest.[2] We hypothesized that global changes in genomic stability occur as a result of neoadjuvant therapy and can be detected by variation in whole genome copy number within cfDNA. To study this, we utilized serial blood specimens collected from pancreatic cancer patients at diagnosis prior to treatment (baseline), after neoadjuvant therapy prior to surgery (post neoadjuvant), and after surgery (post-op).

First, we compared the chromatograms of a patient with metastatic pancreatic cancer and a non-cancer patient. Chromatograms are visual representations of chromosomal variability. The red line represents the number of chromosomal copies present and is centered at zero if a person has two copies of a gene. Gene amplifications are depicted as a break and elevation of the red line, whereas gene deletions are depicted as a break and depression of the red line. In general, gene amplification or deletion is referred to as copy number variation (CNV). As illustrated in Figure 2, the metastatic patient had multiple CNVs which are not observed in the normal control.

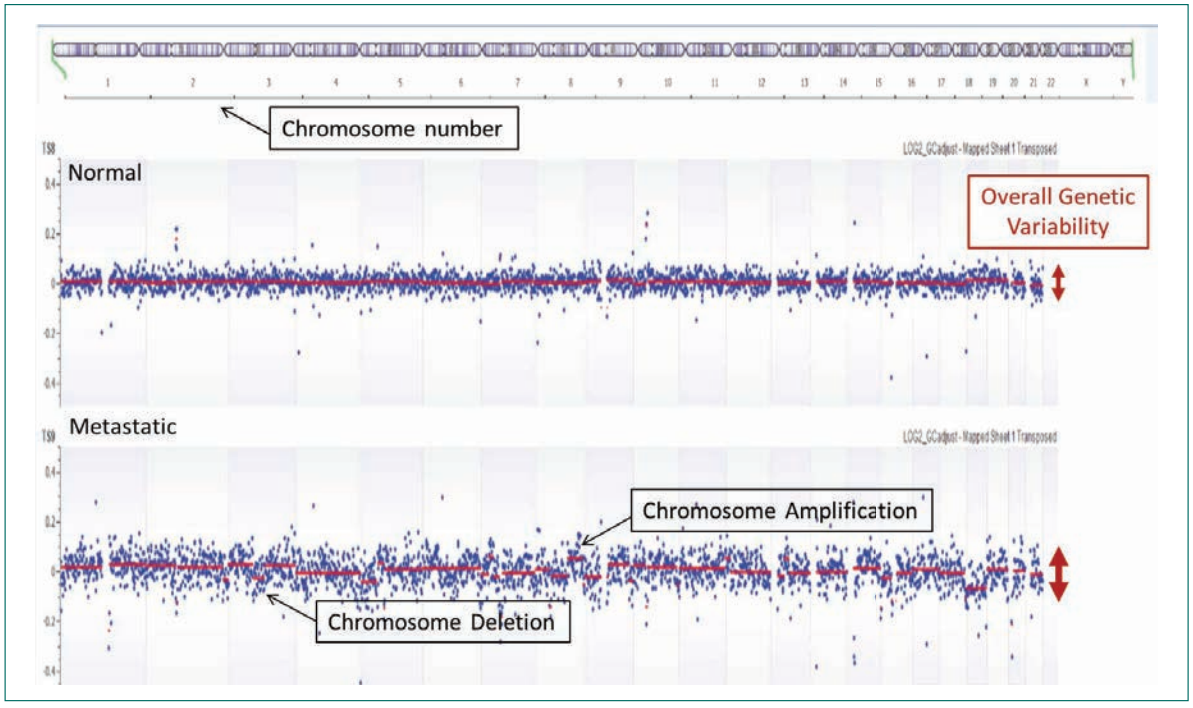

FIGURE 2—Comparison of chromatograms from a metastatic pancreatic cancer patient and a normal control. Note the variability in copy number variation as illustrated by breaks in the red line.

Treatment Response

We then examined nine patients who underwent neoadjuvant therapy for localized pancreatic cancer; examples of changes in CNV associated with treatment resistance and response are illustrated in Figure 3. Figure 3A illustrates worsening genomic instability in cfDNA CNV associated with treatment resistance. This patient had a baseline CA 19-9 of 1259 U/mL and received neoadjuvant FOLFIRINOX therapy. At restaging, the patient developed radiographic evidence of metastatic disease and an elevation of the CA 19-9 level to 1365 U/mL. After neoadjuvant therapy, the chromatogram demonstrated several new amplifications/deletions (highlighted in red) and one area of improvement (highlighted in green). We hypothesize that the worsening CNV represents the evolution of new chemotherapy-resistant clones. In contrast, figure 3B illustrates the improvement in cfDNA CNV variation with treatment response. This patient responded to neoadjuvant FOLFIRINOX therapy as evidenced by a decrease in CA19-9 from 841 U/mL at baseline to 146 U/mL after neoadjuvant therapy and normalization of CA 19-9 after surgery. Radiographic imaging similarly demonstrated no disease progression after neoadjuvant therapy. The chromatogram after neoadjuvant therapy demonstrated the disappearance of CNV in multiple areas (green) with one area of new genetic abnormality (red). After surgery, the single new CNV observed after neoadjuvant therapy disappeared and all other CNVs remained stable. In contrast to the first example, we hypothesize that the disappearance of CNV suggests a decrease in overall tumor cfDNA in response to therapy.

In summary, changes in cfDNA CNV appear to be correlated with clinical disease status. We are planning to expand the assessment of cfDNA CNV to a larger cohort of patients and perform deep sequencing of targeted tumor-specific cfDNA mutations for quantitative analysis. The use of cfDNA as a biomarker may be particularly useful in the subset of pancreatic cancer patients who are CA 19-9 non-producers, or in circumstances when equivocal radiographic or biochemical response to therapy exists. In the future, utilization of cfDNA may be a surrogate for traditional staging strategies which rely heavily on radiographic imaging. Ideally, cfDNA may allow clinicians to minimize patient exposure to non-effective therapies by providing rapid real-time assessment of treatment efficacy. •

FOR ADDITIONAL INFORMATION on this topic, see references below, visit mcw.edu/surgery, or contact Dr. Tsai at stsai@mcw.edu; 414.955.7646.

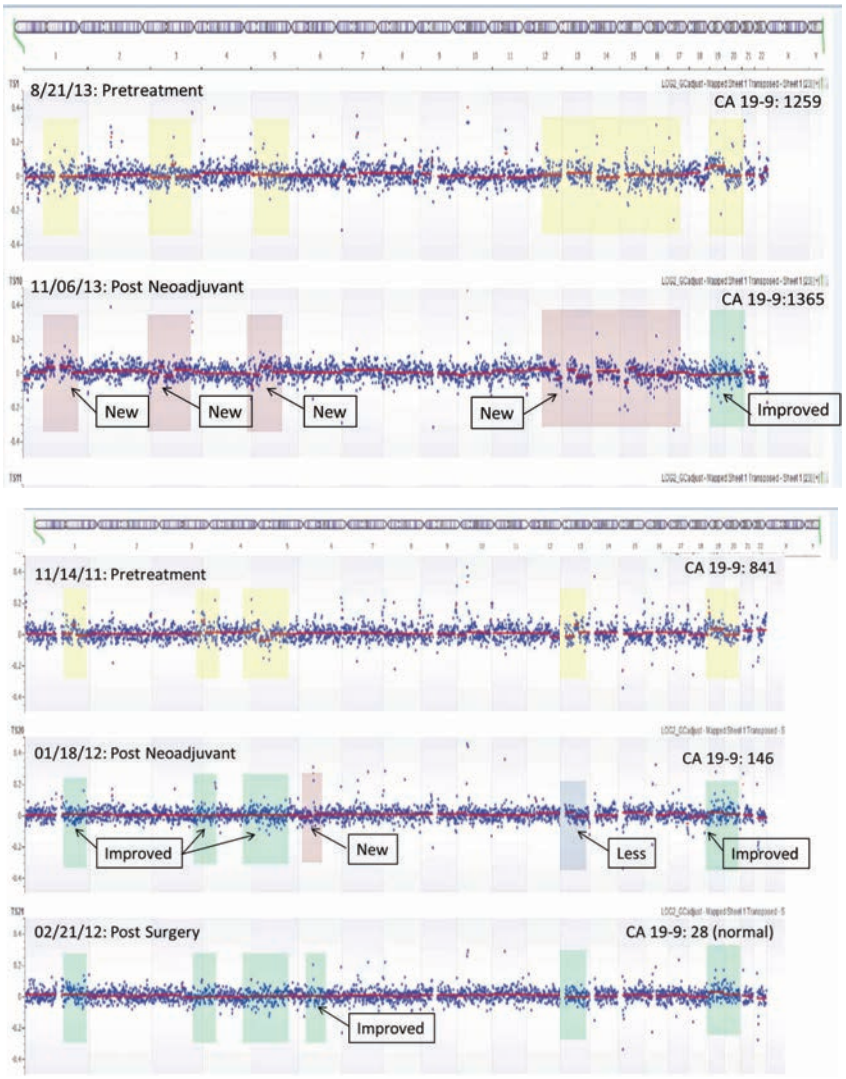

FIGURE 3—Comparison of CNV changes in patients with (A) treatment resistance and (B) treatment response.

To follow changes, yellow bars represent baseline status, red bars represent newly acquired amplification or deletions, blue bars represent partial disappearance of amplifications or deletions, and green bars represent complete disappearance of an amplification or deletion.

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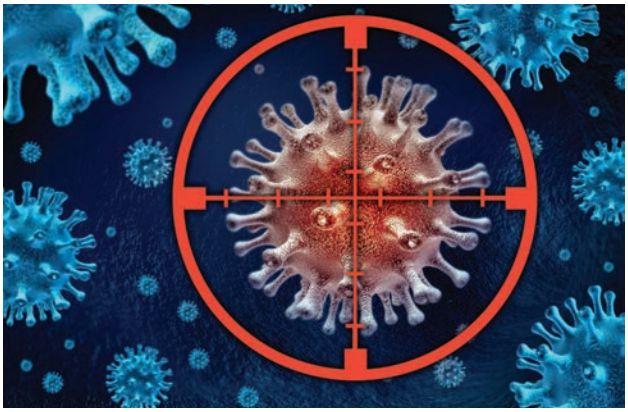
Is Nogo-B Receptor on the New List for Breast C

QING (ROBERT) MIAO, PhD
Pediatric Surgery and Pediatric Pathology

Breast cancer is the most common carcinoma in women and the second most common cause of female cancer death.[1] In 2013, an estimated 232,340 new cases were expected to be diagnosed and an estimated 39,620 deaths were expected to occur in the United States.[2] Early detection through screening programs, in conjunction with the advent of more efficacious and targeted adjuvant systemic therapy, has contributed to the decrease in breast cancer mortality. The effectiveness of pathway-specific targeted and patient-tailored therapeutics demands the need for continued advances in our understanding of the cell biology of breast cancer progression and discovery of new prognostic markers.[1]

Approximately 60–70% of breast cancer is estrogen receptor alpha-positive (ER-positive). Estrogen receptors (ERs) are members of the nuclear receptor superfamily. They are important for regulating the physiological functions of estrogen required for the reproductive system, bone metabolism, and the maintenance of the cardiovascular and central nervous systems. However, estrogen is associated pathologically with an increased risk for breast and endometrial cancer. ERs have been found to be essential in the initiation and development of breast cancer.[3] Many studies also show that estrogen promotes tumor resistance and results in decreased efficacy of chemotherapy in ER-positive breast cancer.[4]

Current adjuvant therapy for the treatment of ER-positive breast cancers includes the use of tamoxifen or aromatase inhibitors as anti-estrogen therapies.[3] However, despite these endocrine therapies, patients with ER-positive tumors also demonstrate 17–30% recurrences.[5] Therefore, chemotherapy has been used in the setting of recurrent ER-positive breast cancer that has failed endocrine therapy or patients showing high recurrence risks.[6] The use of chemotherapy in the neoadjuvant setting also is increasing for patients with locally advanced disease, those who desire breast-conserving surgery in the setting of a larger tumor, or have a high recurrence score on molecular gene assays such as Oncotype Dx.[7] From previously published data, we know that patients who achieve a pathological complete response (pCR) have a better prognosis and overall survival.[8] However, the ER-positive breast tumors after chemotherapy have a much lower pCR rate (7–16%) than ER-negative breast tumors (30–50%).[9] Many studies show that current chemotherapy has much less efficacy in ER-positive breast cancer because estrogen promotes tumor resistance.[4] Therefore, ER-mediated tumor resistance for chemotherapy has become a challenge for clinical treatment, both in the neoadjuvant and adjuvant settings.



The Nogo-B receptor (NgBR) was identified as a cell surface receptor required for Nogo-B-induced endothelial cell migration and angiogenesis.[10] Our recent findings demonstrated that NgBR binds Ras, a well-known oncogene, and recruits Ras to the plasma membrane, which is a critical step required for the activation of Ras signaling in human breast cancer cells and tumorigenesis. In collaboration with Dr. Hanfa Zou, a proteomics expert in China, we used a comprehensive proteome quantification approach to reveal NgBR as a new regulator for the Epithelial-Mesenchymal Transition (EMT) of breast tumor cells.[11] As we reported previously, we also examined the expression and localization of NgBR in three cohorts for a total of 656 breast tumor tissues and 15 normal breast tissues by immunostaining approaches. The statistical analysis demonstrated that NgBR is highly associated with ER-positive breast cancer as well as the expression of survivin, which is a well-known apoptosis inhibitor. Our results further demonstrated that NgBR is not only required for estradiol-induced survivin expression, but also higher NgBR expression in ER-positive breast tumor cells are more responsive to estradiol stimulation with respect to expressing survivin and cell growth.[12] This finding suggests that higher expression of NgBR in ER-positive breast tumor cells may be the predominant factor of promoting the ER-mediated signaling. These simple data have a profound input on our understanding of ER-mediated resistance to chemotherapy.

With the support of the We Care Fund for Medical Innovation and Research, we are working with our collaborators (Dr. Amanda Kong, Department of Surgery; Dr. Yee Chung Cheng, Department of Medicine; Dr. Irene Aguilera-Barrantes, Department of Pathology) to test our hypothesis that: *"NgBR overexpression in ER-positive breast cancer promotes estrogen-mediated tumor resistance to chemotherapy"*. This application studies the important problem in ER-mediated tumor resistance by elucidating the mechanism by which the NgBR, in conjunction with the ER, promotes breast tumor resistance to chemotherapy. We anticipate identifying NgBR as a co-factor to promote the ER-mediated tumor resistance and this will allow for development of strategies to selectively target NgBR to reduce ER-mediated tumor resistance. Findings from our proposed studies will provide a novel therapeutic target for the treatment of ER positive breast cancer as a part of both neoadjuvant and adjuvant chemotherapy. •

ancer Targeting Therapies?

FOR ADDITIONAL INFORMATION on this topic, see references below, visit mcw.edu/surgery, or contact Dr. Miao at qmiao@mcw.edu; 414.955.5701.

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2014 C. Morrison Schroeder Visiting Professor

Anna M. Ledgerwood, MD

by Gary R. Seabrook, MD, Professor and Chief, Division of Vascular Surgery

Anna M. Ledgerwood, MD, who is currently the President of the American Surgical Association, was the 28th Annual C. Morrison Schroeder Visiting Professor and delivered the Schroeder Memorial Lecture "Words of Wisdom – 47 Years Later" on September 30, 2014. Dr. Ledgerwood graduated from Marquette University School of Medicine in 1967 and was a medical student on Dr. Stuart Wilson's "Blue Surgery" service at Milwaukee County General Hospital. She completed her General Surgery Residency training at Detroit Receiving Hospital and has spent her entire career on the faculty of the Wayne State University School of Medicine. Dr. James Wallace, Professor of Surgery in our Division of Minimally Invasive GI Surgery, was trained by Dr. Ledgerwood as a surgery resident in the Wayne State University Department of Surgery and Dr. Gary Seabrook, Professor and Chief of Vascular Surgery, was Dr. Ledgerwood's medical student at Detroit Receiving Hospital.

Dr. Ledgerwood also presented Surgery Grand Rounds "Lessons Learned in the Management of Injured Patients" and provided a collection of case histories with a comprehensive list of principles to guide critical decision making in the care of trauma patients. During her visit, Dr. Ledgerwood made rounds with our Critical Care Service in the Surgical Intensive Unit.

Gary Seabrook, MD; Anna Ledgerwood, MD; James Wallace, MD, PhD; and Stuart Wilson, MD.

The Genetic and Molecular Etiology of Congenital Heart Disease Update

AOY TOMITA-MITCHELL, PhD
Division of Cardiothoracic Surgery

MICHAEL MITCHELL, MD
Division of Cardiothoracic Surgery

The Mitchell Lab is a collaboration between the Herma Heart Center of Children's Hosptial of Wisconsin and basic science researchers at the Children's Research Institute and the Medical College of Wisconsin. Together, we have developed a large tissue biorepository from the generous participation of children and families with congenital heart disease (CHD). The following article describes the Mitchell Lab's major research projects.

Genetic Etiology of Congenital Heart Disease

Congenital Heart Disease (CHD) is one of the leading causes of infant mortality. However, the etiology of CHD in the majority of cases remains largely unknown. Our laboratory is interested in studying underlying genetic risk factors of CHD and in understanding molecular changes in CHD at the RNA and protein levels. We are also interested in studying how genetics can affect patient outcome. We are fortunate to work at an institution that allows us to work with state-of-the art tools in the field of genomics. Using next-generation sequencing technologies, we perform whole exome sequencing and transcriptome sequencing to identify novel genetic risk factors and to understand the molecular pathways that are impacted. We are also fortunate to be able to take advantage of recent advances in stem cell research and use bioengineered induced pluripotent cells (iPSCs) from tissue of patients and parents. The use of these reprogrammed iPSCs permits us to both investigate the etiology of CHD and to test possible compounds with applications. In addition, we have interest in the clinical application of stem cells and its regenerative potential.

Cell Free DNA Technology

Development of a Non-Invasive Diagnostic Screening Test to Monitor Fetal Health

An increasing number of fetal medical conditions can be successfully managed during the neonatal period if an early diagnosis is made. Because of the inadequate sensitivity and specificity of currently available non-invasive tools, amniocentesis and chorionic villus sampling (CVS), both invasive procedures, remain the standard for the definitive detection of fetal genetic and chromosomal abnormalities. Both of these procedures carry health risks for the developing fetus. We are interested in a non-invasive approach using maternal plasma to identify fetal genetic variation associated with CHD. We believe that early intervention, including immediate postnatal access to cardiac care, will improve neonatal mortality rates and long-term outcomes.

Creation of a Highly Sensitive and Specific Non-Invasive Test for Monitoring Transplant Rejection by Quantifying Circulating Donor-Specific Cell Free DNA

Donor organs release small quantities of fragmented, cell free DNA at basal levels into the circulation of recipients, and these levels increase during cellular injury from immune-mediated rejection. We are employing a novel targeted approach which is cost effective, scalable, sensitive and specific to evaluate this relationship and bring this test from laboratory to clinical use. Our team is conducting a large-scale, prospective, blinded, multicenter study, funded by the National Institutes of Health, at MCW/CHW.

Development of Population-Based Screening for 22q Deletion Syndrome

With our MCW collaborators, we have optimized a highly sensitive and specific assay for the detection of DiGeorge syndrome (22q11.2 DS), a significant risk factor for CHD, that is suitable for newborn screening. This work formed the basis for presentation to the Federal Secretary's Advisory Committee Meeting on Newborn Screening in Washington, D.C. (January 26, 2012), at which the case was made for a national newborn screening program for 22q11.2 DS using our platform. This assay is now clinically available through the CHW Molecular Diagnostics Program. This work was previously funded through the NIH R21 and a supplemental grant as well as the Shaw Foundation. The work continues with funding from the Hohenwalter Foundation. A blinded validation study with the Newborn Screening Ontario Program is ongoing using dried blood spots.

Role of Metakaryotic Stem Cells in Vascular Stenosis Including Transplant Atherosclerosis, Coronary Artery Disease, and Progressive Pulmonary Venous Stenosis

The Metakaryotic Biology Project continues as an active collaboration between the Children's Hospital of Wisconsin/Children's Reseach Institute/ Medical College of Wisconsin and the Massachusetts Institute of Technology. We have observed that metakaryotic stem cells are present and enriched in a variety of both normal and pathologic tissue in the developing heart, as well as in conditions such as coronary atherosclerosis associated with chronic rejection of heart transplant patients and also in progressive pulmonary venous stenosis. •

FOR ADDITIONAL INFORMATION on this topic, visit mcw.edu/surgery, or contact Dr. Tomita-Mitchell at amitchell@mcw.edu; 414.955.2355.

Leading the Way!

Melodie Wilson Oldenburg Breast Cancer Symposium Draws Crowd, National Leaders

The Melodie Wilson Oldenburg Breast Cancer Symposium was held Friday, October 3, at the Medical College of Wisconsin. More than 140 people attended this inaugural event to hear presentations from national leaders in breast cancer research.

The symposium honors the legacy of Melodie Wilson Oldenburg, an accomplished Milwaukee news reporter and anchor on WITI-TV (Channel 6) and WTMJ-TV (Channel 4) who was among the first to publicly share her battle with breast cancer. Melodie Wilson Oldenburg became Milwaukee's leading advocate for breast cancer awareness and support for breast cancer prevention, education, and research programs until her death in 2009. The event was made possible by the generous support of the Oldenburg family and friends of Melodie Wilson Oldenburg.

Melodie Wilson Oldenburg served as a member of the MCW Board of Trustees and was the co-founder of the MCW Cancer Center Advisory Board. She also founded and led ABCD: After Breast Cancer Diagnosis, an organization that provides free one-on-one help, support and hope for breast cancer patients.

Convocation Awards

Susan Tsai, MD, MHS, Division of Surgical Oncology, received the Community of Innovators Award in the Early Career Faculty Innovator category, presented at MCW's convocation in September. Dr. Tsai is a multi-talented faculty member at MCW; her accomplishments for program growth across departments are inspirational. One of Dr. Tsai's most impressive accomplishments is the initiation of her rapid autopsy program, which is one of only four such Institutional Review Board-approved programs for pancreatic cancer in the country. The program has begun to generate critically important specimens for basic research.

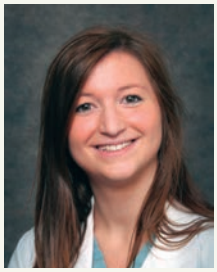
A Learning Resources Fund Innovative Educational Project Award was presented to Philip Redlich, MD PhD; Amanda Kong, MD, MS; and Caitlin Patten, MD, for the project entitled Development of a Clinical Breast Exam (CBE) Web-Based Module Useful Throughout the Medical School Curriculum. Members of the project team not pictured include Anna Purdy, NP; Robert Treat, PhD; and Amy Leisten. The module has been well-received by students and is now an integral component of the surgery clerkship curriculum.

Courtney Johnson, PA-C, Receives 2014 APP PA Excellence Award

Congratulations to Courtney Johnson, PA-C, the 2014 recipient of the Advanced Practice Provider Physician Assistant Award for Excellence. Courtney was nominated by her colleagues and selected by her peers in recognition of her outstanding contributions to patient care in the Division of Vascular Surgery in the Department of Surgery.

The Advanced Practice Provider Coordinating Council directs the annual APP Awards for Excellence. This year's award recipients were honored at the 5th Annual APP Meeting and Recognition Event held on May 8.

Sarah Misustin named PA of the Year



Sarah Misustin, inpatient Physician Assistant (PA) on the Breast, Endocrine, and Pancreas Services in the Division of Surgical Oncology, was named PA of the Year by the Wisconsin Academy of Physician Assistants (WAPA) at its annual awards banquet in Stevens Point on October 9. Misustin, and Lindsey Kulbacki, a PA at Bellin Health Generations and Gynecologic Oncology in Green Bay, were honored for their significant contribution in offering patients access to high-quality and cost-effective health care.

The annual PA of the Year award honors an outstanding physician assistant who demonstrates excellence in service to patients and the community, promotes awareness of the PA's role in healthcare to the general public, and bolsters workforce development by educating potential future PAs.

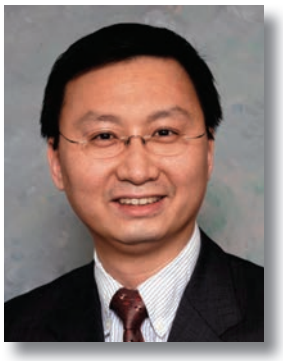
Misustin was the first PA in General Surgery at the Medical College of Wisconsin and through example, has led the college to employ more surgical PAs. She developed informational patient education brochures for pancreatic cancer patients and conducts extensive research on pain control for these patients. She teaches PA students about breast cancer care and promotes the many options available to PAs. Both in and out of the operating room, she cares for her patients and proactively works to educate patients, residents and students alike. According to her nomination, submitted by colleagues at Froedtert and the Medical College of Wisconsin, she is an integral part of the multidisciplinary team with energy, enthusiasm and a genuine concern for others.

Physician assistants play an increasingly critical role on the team of healthcare workers providing patient care. Physician assistants are medically trained and licensed to provide high quality health care, treat illnesses, plan prevention strategies, and prescribe medications. PAs practice medicine as part of a physician-directed medical team, and are making health care more accessible every day.

INNOVATION wecare DISCOVERY

We Care Fund Grant Recipients

by Meg M. Bilicki, Director of Development for the Department of Surgery



Qing (Robert) Miao, PhD

Timothy J. Ridolfi, MD

The Department of Surgery is pleased to announce the recipients of the 2014 We Care Fund for Medical Innovation and Research faculty seed grants. The We Care Scientific Review Committee carefully reviewed a total of six exceptional submissions and selected two seed grant proposals for funding by the Department of Surgery.

Two researchers were awarded a combined total of $50,000. The awardees and their proposals are:

- Qing (Robert) Miao, PhD, Associate Professor, Division of Pediatric Surgery
  NgBR is a Novel Therapeutic Target for Reducing Chemotherapy Resistance of Estrogen Receptor Positive in Breast Cancer
- Timothy J. Ridolfi, MD, Assistant Professor, Division of Colorectal Surgery
  Alterations in Colonic 5-HT Receptor Density Following Low Anterior Resection for Rectal Cancer in Humans

This internal award encourages and supports funding for innovative basic, clinical or translational research by investigators within the Medical College of Wisconsin's Department of Surgery.

Established in 2010, the "We Care Fund" has raised over $250,000 from more than 500 grateful patients, families, friends, faculty, and alumni. Contributions to the We Care Fund support physicians and researchers in the Department of Surgery for innovative medical research and clinical projects in the fields of cancer, cardiovascular disease, diseases of the newborn/child, organ transplantation, and trauma.

The We Care Committee plays a critical role in raising private funds for research and increasing community awareness. To quote Committee Chair Arlene Wilson: "Research and philanthropy are partners in discovery. This partnership can produce extraordinary benefits to patients and their families." The committee includes a number of professional business and community leaders who are committed to advancing sophisticated medical research at MCW and have generously donated their time and many extra efforts.

Private gifts from generous donors help sustain the We Care Fund, therefore, grant cycles are not predetermined and will be announced. Philanthropic supports plays a vital role in providing seed grants.

If you would like to learn more about the We Care Fund, or are interested in making a gift, please visit the website at www.mcw.edu/wecare or contact Meg Bilicki, Director of Development for the Department of Surgery, at mbilicki@mcw.edu or 414.805.5731. •

To refer a patient or request a transfer/consultation, please use the references below:

Froedtert & the Medical College of Wisconsin

All non-cancer requests
Referrals: 800-272-3666
Transfers/Consultations:
877-804-4700
mcw.edu/surgery

Clinical Cancer Center
Referrals: 866-680-0505
Transfers/Consultations:
877-804-4700

Children's Hospital of Wisconsin

Referrals/Transfers/
Consultations: 800-266-0366
Acute Care Surgery:
414-266-7858

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*** Community Surgery**

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MEDICAL COLLEGE OF WISCONSIN

Department of Surgery
9200 West Wisconsin Avenue
Milwaukee, WI 53226

MARK YOUR CALENDARS

Upcoming Events

April 17, 2015: Acute Care Surgery: Trauma, Critical Care, and Emergency General Surgery Symposium
This day-long educational activity is designed to provide updates and general information regarding the practice of emergency general surgery, surgical critical care, and trauma care.

May 1, 2015: Symposium on Metastatic Colorectal Cancer
This day-long educational activity is designed to highlight challenges, controversies, and advances in the field of metastatic colorectal cancer. There will be a specific focus on new and innovative Regional Cancer Therapies.

May 12–13, 2015: 8th Annual Jonathan B. Towne Visiting Professor—Gilbert R. Upchurch, Jr., MD
The Department of Surgery and the Division of Vascular Surgery are honored to welcome Gilbert R. Upchurch, Jr., MD as the 8th Annual Jonathan B. Towne Visiting Professor. Dr. Upchurch is currently the Chief of the Division of Vascular and Endovascular Surgery at the University of Virginia Health System.

May 19–20, 2015: 35th Annual Milton Lunda Trauma Lecturer—Joseph Minei, MD, MBA
Dr. Minei is currently the C. James Carrico, MD Distinguished Chair in Surgery for Trauma and Critical Care at UT Southwestern Medical Center.

June 3, 2015: Marvin Glicklich Visiting Professor—John Meara, MD
The Department of Surgery and the Division of Pediatric Surgery are honored to welcome John Meara, MD, DMD, MBA as the 2015 Marvin Glicklich Visiting Professor. Dr. Meara is currently Plastic Surgeon-in-Chief and Associate Professor of Surgery, Global Health, and Social Medicine at Harvard Medical School.

June 12, 2015: 55th Annual Carl W. Eberbach Visiting Professor—Michael Sarr, MD
The Department of Surgery is honored to welcome Michael Sarr, MD as the 55th Annual Carl W. Eberbach Visiting Professor. Dr. Sarr is currently Professor of Surgery at the Mayo Clinic.

June 19 & 20, 2015: Medical College of Wisconsin and University of Texas M. D. Anderson Cancer Center Endocrine Surgery Symposium
The 2015 Endocrine Symposium will highlight current issues in the management of disorders of the thyroid, parathyroid, and adrenal glands through didactic lectures, panel discussions, and case presentations. Invited speakers include well-known academic surgeons who are extensively published in their respective fields and who will provide up-to-date summaries of the topics.

Please contact Dana Schmidman (dschmidm@mcw.edu) for more information on any of these events.