

Donald Miller, MD Retirement

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Philharmonic), and the Metropolitan Opera. His passion for music has continued in Seattle where he has served on the Board of Directors of the Seattle Symphony Orchestra (1983-1987) and on the Board of Trustees of Seattle Opera (1984 to 2007). Along with a love of music, Don loves books. He has written two books on heart surgery: *The Practice of Coronary Artery Bypass Surgery* (1978) and *Atlas of Cardiac Surgery* (1983). A third one, *Heart in Hand* (1999), delves into the philosophy of Arthur Schopenhauer, film, science, religion, music, and life as a heart surgeon.

Since retirement, Don and his wife Linda reside in Leavenworth with their Bichon Frisé dog, George. Don spends his time hiking, skiing, reading, listening to music, and writing articles on a variety of subjects. He and Linda have four children: one at Microsoft; one, a physician in Boston; one in the boat business, currently living on a sailboat moored at Shilshole Marina; and one who has formed a new Seattle opera company, the Vespertine Opera Theater. In addition, he and Linda have four grandchildren.

Researcher Profile: Kimberly Riehle, MD

Improving Liver Regeneration in Liver Fibrosis



Kimberly Riehle, MD

The normal human liver is unique among mammalian organs in its ability to regenerate after injury. Most of the time cells in the liver are not dividing, but if the liver is injured, for instance if a toxin such as alcohol kills off some of the cells, the remaining liver cells will somehow get a signal to start dividing to replace the damaged cells. Likewise, if part of the liver is surgically removed, the liver will grow back to its original size in just a

few months, and then stop growing. Unfortunately, many patients who undergo liver resection to cure primary or secondary liver tumors have underlying liver disease, such as liver fibrosis or steatohepatitis, which hinders normal regeneration processes.

Fibrotic livers in particular do not regenerate well, leading to a significant increase in post-resection complications, including a high risk of post-operative liver failure, which is the major cause of death after resection. The cellular mechanisms behind the defective regeneration seen in this setting remain unknown. Specifically, it is not yet known whether the underlying mechanism is related to structural inhibition of regeneration by fibrotic scar, abnormal function of non-parenchymal cells in the liver; or whether fibrosis causes liver cells to fundamentally change at a genetic or epigenetic level and thus stop responding to normal signals.

[Kimberly Riehle, MD](#), Assistant Professor of Surgery in the Division of Pediatric Surgery, has spent the past two years collaborating with Jean Campbell, PhD, Assistant Research Professor of Pathology, to develop a mouse model in which progressive fibrosis develops, leading to worsening regeneration and outcome after hepatectomy. Her current work focuses on ways to improve regeneration in liver fibrosis, such as by pre-treatment with the tyrosine kinase inhibitor Imatinib. The next step will be to translate these studies into therapies that will ameliorate liver fibrosis in patients such that a patient with liver cancer can tolerate a potentially curative resection and regenerate normally afterward.

Dr. Riehle's work has been supported by the 2012-2013 American College of Surgeons Louis C. Argenta Faculty Research Fellowship and the American Surgical Association Foundation Fellowship (2013-2015). In 2012, Dr. Riehle also received a competitive award from the Department of Surgery Research Reinvestment Fund to study a specific subtype of liver cancer that occurs primarily in children, fibrolamellar carcinoma. In collaboration with Raymond Yeung, MD, Professor of Surgery in the Division of General Surgery, she is working to identify critical signaling pathways that drive the formation of these tumors in otherwise healthy children.

While Dr. Riehle is making significant progress in these areas, there remains an increasing need to provide more treatment options to the 500 patients that pass through the University of Washington Liver Tumor Clinic annually. To address this need, Drs. Riehle and Yeung recently joined with fellow Department of Surgery faculty members, Venu Pillarisetty, MD, Assistant Professor in the Division of General Surgery, and James Park, MD, Associate Professor in the Division of General Surgery, along with several

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Researcher Profile: Riehle

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members of the Department of Pathology, to form the Northwest Liver Research Program (NLRP). The program's major goals are to foster a culture of interdisciplinary collaboration between clinicians and scientists in order to develop state-of-the-art techniques to study liver diseases, and maximize bench-to-bedside translation of basic knowledge into clinical care. Key focus areas for NLRP include cancer, regeneration, injury and inflammation, metabolism, and immunology. Some of the questions the group hopes to answer include how to enable earlier detection of liver tumors; how to improve liver regeneration after resection in humans with disease; and how to identify the roles of the immune cells in the liver so as to better harness the body's own immune system to fight cancer.

In addition to monthly meetings to review individual research progress and strategize on collaborative grant proposals, members of the NLRP have begun work to establish a core facility for the isolation, purification, and culture of primary liver cells from resection specimens and unused portions of donated livers. The cell isolation core facility will support the basic research of NLRP investigators and will be expanded in the future to include other gastrointestinal tumors. Once established, the NLRP intends to make the cell isolation core available to faculty in the School of Medicine, as well as other investigators in the region, so as to further enhance collaborative efforts in finding treatment options benefiting each and every patient.

20th Annual Helen & John Schilling Lecture & 2014 Research Day



Timothy R. Billiar, MD

Photo credit: Patricia L. McGiffert
UW Photographer

On Friday, January 31, 2014, the Department of Surgery proudly hosted [Timothy R. Billiar, MD](#) as the 20th Annual Helen & John Schilling Lecturer. Dr. Billiar is the George Vance Foster Endowed Professor and Chair of the Department of Surgery, and Director of the Trauma Research Center at the University of Pittsburgh in Pittsburgh, PA. His laboratory studies the mechanisms leading to the initiation of the inflammatory response and organ injury after trauma. In his talk, "Of Men and Mice: An Iterative Strategy to Dissect the Immune Response to Trauma,"

Dr. Billiar discussed recent findings in humans and experimental models on the mechanisms regulating immune dysfunction following trauma. His talk also provided a framework around which to pursue a complex human disease through an iterative strategy between clinical data and mouse models.

Dr. Billiar graduated *summa cum laude* 1979 from Doane College in Crete, Nebraska with a BA in Natural Sciences. He then received his medical degree from the University of Chicago in 1983 followed by general surgery training and four years of surgical research training at the University of Minnesota and the University of Pittsburgh. In 1992, Dr. Billiar joined the University of Pittsburgh faculty as the Samuel P. Harbison Assistant Professor in the Department of Surgery and in 1999 was named Department Chair.



From left to right: John T. Slattery, PhD, Vice Dean of Research and Graduate Education in the School of Medicine, David R. Flum, MD, MPH, Carlos A. Pellegrini, MD, FACS, FRCSI (Hon.) and Timothy R. Billiar, MD

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Dr. Billiar has a long standing interest in shock and sepsis and as a result of his research he has gained an international reputation for his contributions

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