The Kirwan Lab focuses on obesity related diseases, particularly Type 2 diabetes, metabolic syndrome, non-alcoholic fatty liver disease, and colon cancer. Abdominal fat accumulation and insulin resistance are features of these conditions. Exercise and dietary interventions can effectively target visceral abdominal fat, and insulin resistance in muscle and the liver, leading to a reversal of many of these chronic disease states.

“We are currently funded through an NIH RO1 grant to investigate the effect of glycemc index diets and exercise training on metabolism in older, obese patients with diabetes and metabolic syndrome. The study is entering its third year of patient recruitment and data collection and makes broad use of the facilities at CCF, including the General Clinical Research Center, the Fitness Center at Walker, and Core labs at Lerner. In addition, we have close ties with scientists at Case with whom we collaborate on diet design (Dr. Hope Barkoukis, Dept of Nutrition) and imaging of muscle fat (Dr. Chris Flask, Case Imaging Research Center). The expertise within our group allows us to investigate most aspects of metabolism: insulin sensitivity, energy substrate utilization, body composition, and whole body and localized imaging to determine partitioning of fat in muscle and the abdomen.”

“Our work in non-alcoholic fatty liver disease is focused on the contribution of both fat accumulation in the liver and hepatic insulin resistance in patients with non-alcoholic steatohepatitis (NASH). We are recruiting patients in collaboration with Dr. Art McCullough (Chair, Gastroenterology/Hepatology), and Dr. Sangeeta Kashyap (Endocrinology), and assessing different types of fat accumulation in the liver using a non-invasive imaging approach that employs Magnetic Resonance Spectroscopy to identify saturated and unsaturated lipids in the liver. This work holds the potential of developing a non-invasive diagnostic test for NASH, and also of providing insight into the potential cellular mechanisms that lead to NASH.”

“Thanks to Dr. Richard Hanson at Case, we were recently involved with an exciting study of bioenergetics and exercise using his PEPCK-C skeletal muscle overexpressing mouse. These studies showed that overexpression of PEPCK-C, the key rate limiting enzyme of gluconeogenesis, results in an increased capacity to exercise, reduced body fat, greater capacity to utilize fat as a fuel, and a marked extension of reproductive capacity. The work was featured as a paper of the week (POW) in the Oct 19th issue of JBC, and a cartoon of the PEPCK Super Mouse sat loud and proud on the journals cover!”

Our research team includes: Julianne Filion, a RN Clinical Research Nurse Coordinator; Marc Cook, MS, an exercise physiologist; Hazel Huang, MS is Lead Technologist and laboratory manager. We recently welcomed three new postdocs: Dr Thomas Solomon from the University of Birmingham, UK; Dr Jacob Haus, Ball State University; and Dr Karen Kelly, University of Southern California. Graduate PhD students in the group include Amy Patrick-Melin from Kent State and Yanjun Li from Case. The summer also saw Dr Valerie O’Leary and Dr Latina Brooks move to the next step in their careers. We wish them luck in their new roles.”


Claudio Fiocchi, M.D. Immunopathogenesis of inflammatory bowel disease: fundamental differences between Crohn’s disease and ulcerative colitis. Symposium on Similarities and differences in ulcerative colitis and Crohn’s disease. October 19, 2007 Moscow, Russia

The inaugural “International Breath Analysis Summit” was recently presented by the Department of Pulmonary Allergy and Critical Care Medicine. The Summit was directed by Raed A. Dweik, M.D., of the Department of Pulmonary Medicine who brought together industry executives, entrepreneurs, scientists and clinicians from 23 countries and 18 states to discuss key trends, future directions and upcoming technologies in breath analysis and medicine. Breath testing is an innovative new approach for non-invasive disease diagnosis and monitoring, and represents the new frontier in medical testing.

Carol de la Motte, Ph.D.– Inflammation Session Chair, presented: Generation of proinflammatory, pro-angiogenic hyaluronan fragments by platelets. International Society of Hyaluronan Sciences, 7th International Conference on Hyaluronan, April 2007, Charleston, SC.

Presentations at National and International Meetings

The Pathobiology Department welcomes our newest members:
Kathy Nagle, Medical Secretary I

Tannisha Goggans, Jamie Eberly, Technician, Manisha Sharma, Sr. Technologist, Georgiana Cheng, M.D. (Aronica Lab)

Natalia Grob, Research Student (Dweik lab)

Sonia Bains, M.D. and Saeko Murase, M.D. (Hsieh Lab)


Florian Reider, MD and Franco Scaldaferri, MD both postdoctoral fellows (Fiocchi Lab)

Julianne Fillion, Res. Nurse Coord., Hazel Huang, Sr. Res. Tech. postdoctoral fellows Jacob Haus, PhD, Karen Kelly, PhD, Thomas Solomon PhD, (Kirwan lab)

Srinivasan Dasarthy, MD, Milan Dodig, MD and Takhar Kasumov, PhD, all Staff GI (McCullough lab)

Amy Richmond, Sr. Technician and Craig Homer (McDonald lab)

Pamela Soda grad student, Honglian Huang, PhD, Res. Scholar, Emmanuelle Ogier, An. Husbandry Technician, Hui Tang, Ph.D., Lei Sun, Ph.D. fellow, Samjhana “Sam” Thapaliya, Technican (Nagy lab)

Ashis Biswas, PhD, Postdoc. Fellow and (Stuehr lab)

Maricruz Crespo, grad student (Kalhan lab)

We wish Molly Wang, Ph.D. all the best in her new position at Kent State.

New Personnel

Education

Raed Dweik, M.D., Director of the Pulmonary Vascular Program, Pulmonary, Allergy, Critical Care Medicine, received the Division of Medicine Distinguished Teacher award for the 2006-2007 academic year. This award is given to one staff member in the Division of Medicine annually, and the recipient is nominated by residents. This is the fourth time Dr. Dweik has been selected for this award.
The mission of the Department of Pathobiology is the discovery of mechanisms and origins of human disease, and the use of that knowledge for the development of basic and applied strategies for detection, prevention and control of diseases.

The Cleveland Clinic Foundation has a long and distinguished history in research. Most of the 127 research laboratories are housed in the state-of-the-art Lerner Building. The scientists who conduct research in the LRI welcome applications from qualified individuals who wish to further their scientific careers by participating in and contributing to leading edge biomedical research.