

~ Research Spotlight ~

Research Award Supporting New Collaborations Across Disciplines

Helping to advance new research projects across disciplines is the 2011 Joseph and Josephine Rabinowitz Award for Excellence in Research, presented to four Penn Dental Medicine faculty members at a special luncheon presentation on December 12.

This Penn Dental Medicine research award was established in 2002 through the generosity of the late Dr. Joseph “Jose” Rabinowitz, an active member of the School’s Biochemistry faculty for 29 years, and his wife, Josephine. The Rabinowitzes endowed this award to promote independent research among Penn Dental Medicine faculty members.

“This year, the award was directed to new projects that also involve new collaborations among our basic science and clinical faculty,” says Dr. Bruce Shenker, Associate Dean for Research at Penn Dental Medicine. “Promoting research across disciplines was a hallmark of Dr. Rabinowitz’ scientific career, and that legacy continues through this year’s award.”

This year’s recipients are Dr. Kathleen Boesze-Battaglia, Professor, Department of Biochemistry; Dr. Jon Korostoff, Associate Professor of Periodontics; Dr. Patricia Miguez, Assistant Professor, Department of Periodontics; and Dr. Elisabeth Barton, Associate Professor, Department of Anatomy & Cell Biology. The award will support a collaboration between Drs. Boesze-Battaglia and Korostoff on a project titled, “Defective Lysosome Maturation is Correlated with Chronic Periodontal Disease,” and one between Drs. Miguez and Barton on a project titled “Evaluation of Natural Cross-Linker



Josephine Rabinowitz (front, 2nd from right) and her children (left-right), Malva, Marty, and Lois with award recipients (back, left-right), Drs. Elisabeth Barton, Patricia Miguez, Jon Korostoff, and Kathleen Boesze-Battaglia.

Agents as Modulators of Muscle and Bone Growth Factors.” Award recipients received \$20,000 toward each of these two projects.

“It is well known that periodontitis is a chronic inflammatory disease that is driven by polymicrobial infection by red-complex periodontal pathogens – the best characterized of which is *P. gingivalis* (P.g.). To establish chronic infection in hostile host environments, pathogens devise mechanisms by which they evade or subvert host defense mechanisms designed to eliminate them,” explains Dr. Boesze-Battaglia. “In our studies, we will determine if a protein necessary in bacterial degradation is non-functional in patients with chronic periodontitis.” Their studies will involve isolation and characterization of clinical isolates by Dr. Korostoff in combination with live-cell imaging and biochemical analyses performed in Dr. Boesze-Battaglia’s lab.

In describing the project of Drs. Barton and Miguez, Dr. Miguez notes that their collaboration came together through a common interest in extracellular matrix-cell interaction. “We are particularly interested in the effects that phytochemicals have on muscle and bone matrix characteristics, and

specifically, if these effects are common to both tissue types and how they affect cell behavior,” she says.

“Understanding how these natural agents function could lead to the development of therapies to promote bone and muscle regeneration in various pathologies.” Currently, they are working to find the best culture conditions to study muscle and bone cells in the presence of these compounds; she notes that ideally they would like to test the compounds in concentrations close to physiological conditions (i.e. those found in plasma after ingestion).

Both projects embody the spirit of inquiry that defined the career of Dr. Rabinowitz. Dr. Rabinowitz was known for his research in lipid and steroid biochemistry, and made the seminal discovery that HMG CoA was a key intermediate in cholesterol biosynthesis. His research helped lead to the development of the important class of cholesterol-lowering drugs known as statins.