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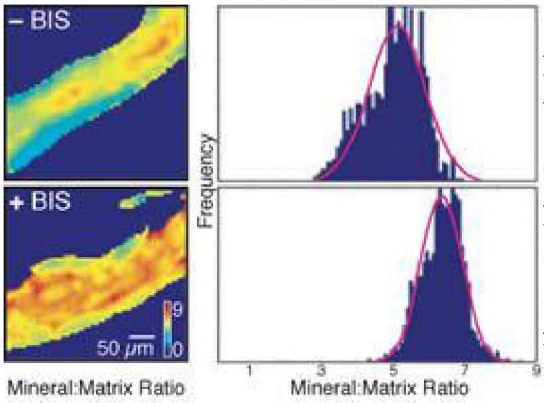
Travel fellowship paves the way to conference



Sometimes, you just have to take one step at a time. That's what Dr. Eve Donnelly did when she submitted a presentation abstract for consideration to the 2011 Orthopaedic Research Society. (At left, a figure from her paper.)

"I wasn't sure how I would get there if my paper was accepted," said Donnelly, a postdoctoral fellow at the Hospital for Special Surgery, which is affiliated with Weill Cornell Medical College. "My travel budget was already exhausted, and the opportunity to present my work at the ORS, network with colleagues, and see the newest research is critical to my career."

So with an acceptance letter from the Orthopaedic Research Society in hand, Donnelly applied for – and received – the Kappa Delta / American Academy of Orthopaedic Surgeons (AAOS) Travel Award. The fund was established by Dr. Cornelia Farnum in 2010 after she won the Kappa Delta Elizabeth Winston Lanier Award, which is presented annually by the American Academy of Orthopaedic Surgeons. The travel award promotes orthopaedic research at Cornell University by providing up to $1,500 in travel expenses for a trainee who will be presenting research at the annual meeting of the Orthopaedic Research Society, which is the research society of the AAOS.

Donnelly's research, which she presented last month in California, investigates an aspect of osteoporosis: the effects of a class of drugs known as bisphosphonates on bone tissue composition near femoral fracture sites in osteoporotic patients. Bisphosphonates reduce fracture incidence in the majority of osteoporotic patients, but their effects on bone composition are incompletely understood. In this study, Donnelly and colleagues showed that the bone of bisphosphonate-treated patients was more compositionally homogeneous than the bone of untreated patients. The effects of these changes in bone composition on fracture incidence could not be examined because all of the patients in the study were osteoporotic with fractures. Although loss of heterogeneity has not yet been directly related to fracture risk, it is associated with fragility, Donnelly said, explaining that osteoporotic bone is more homogeneous in composition when compared with normal bone. Similar studies examining bone from treated and untreated patients without fractures are needed to understand how bone tissue composition affects fracture resistance.

"Submissions for the 2011 fellowship covered a wide range of topics," said Dr. Cornelia Farnum, James Law Professor of Anatomy at Cornell's College of Veterinary Medicine (pictured at left). "It was exciting to see the breadth of orthopaedic

research being conducted at Cornell, from both the Weill and the Ithaca campuses. After a thorough review of the applications, the four-person review team agreed to offer two awards this year."

Successful proposals discussed a comprehensive body of basic science research that has potential for significant impact, including clinical application; illustrated work of a multidisciplinary nature in which the applicant had a major role; and described work that is likely to influence the direction of the applicant's career.

Katherine Melville, a graduate student from the College of Engineering, earned the second award in 2011, for her presentation entitled Cortical and Cancellous Adaptation of Mouse Tibiae to In Vivo Mechanical Loading is a Purely Local Response (read an abstract). Her research investigated the skeleton's response to external forces, finding that the limb bearing the additional force adapted in isolation from the opposing limb.

"We believe this validates the hypothesis that the osteogenic response seen in the dense, outer tissue of the bone (cortical) and the porous inner bone structure (cancellous) in our tibial compression model is not systemic, but rather, the effects of external pressure are handled by the affected limb," said Melville. "With this information, we have confirmed that future use of this model in studying local bone adaptation to mechanical forces is a viable option."

Melville and Donnelly were selected from a pool of about a dozen researchers. Donnelly works with Dr. Adele Boskey at the Hospital for Special Surgery, and Melville works with Dr. Marjolein van der Meulen, at Cornell's Sibley School of Mechanical and Aerospace Engineering.

"Their research is exciting," said Farnum. "I am looking forward to next year's conference and the opportunity to review submissions that will showcase the inspiring advancements made at Cornell."