The Skeleton: A Foundation for Wellbeing

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CURRENT RESEARCH

Gaining a deeper understanding of the skeleton's connection with the body

Anyone who has fractured a bone understands the intensity of pain bone injuries induce and the extensive time required to heal. Although bones were once thought to simply provide a protective scaffold for the more fragile soft organs, bones actually contribute to many key biological processes including blood formation and metabolism. Bones are one of the most complex tissues in the body because of the multitude of structures, cell types, and matrix proteins. In addition, the functions of some of the cell types found in and around bone remain unknown, and even less is known about human bone formation because of the lack of suitable human models. We are thus currently limited in our ability to prevent or treat skeletal diseases.

Dr. Edward Hsiao, Assistant Professor of Medicine at the University of California, San Francisco, studies the skeleton to understand how different organs in the human body integrate together to control bone and tissue growth. By examining the pathways that allow the body to sense injuries and regulate the skeletal repair, Dr. Hsiao hopes to establish a foundation for preventing and treating diseases both in and out of the skeleton.

Human skeletal formation is genetically complex. Many skeletal traits and diseases (e.g., height and osteoporosis) are determined by multiple genes, thus making it difficult to understand how an individual gene may contribute to the final disease. Human diseases caused by mutations in a single gene provide an unparalleled opportunity to test how single genetic changes affect complex organs, such as bone, and provide a way to dissect the specific functions of key pathways. Dr. Hsiao and his team use samples from patients with genetic diseases as a...

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AFFILIATION

University Of California, San Francisco

EDUCATION

- Postdoctoral Research Fellow in 2009,Gladstone Institutes
- Endocrinology Clinical Fellow in 2007, University of California, San Francisco
- Residency in Internal Medicine 2004,Johns Hopkins Hospital
- Ph.D. in Molecular Biology 2001,Johns Hopkins Medical School
- M.D. in 2001,Johns Hopkins Medical School
- and 1 more.

AWARDS

- J. Haddad Young Investigator Award, 2007
- Young Investigator Award, 2007
- Sandler Postdoctoral Research Fellowship Award, 2007–2008
- Award of Excellence in Scientific Leadership, 2009
- March of Dimes Basil O'Connor Starter Award, 2012
- and 1 more...

RESEARCH AREAS

Life Science, Genomics / Congenital, Musculoskeletal, Regenerative Medicine

FUNDING REQUEST

Your contributions will support the continued research of Dr. Edward Hsiao and his team at the University of California, San Francisco as they try to identify new targets and therapeutic strategies for treating rare human diseases. Your donations will help fund the $1M needed to support personnel, supplies, and reagents. Partner with Dr. Hsiao as he ventures into the skeletal structure to find treatments for various diseases!