

Center for Musculoskeletal Research Newsletter

APRIL 2024

EVENTS

CSR Friday Research Seminar *with UCSF*

Friday, April 5, 2024 • 3:30-5:00 pm ET

Occurs every first or second Friday of the month. [Click here](#) for full schedule.

UCSF SPEAKER

“Distinct Cell Populations Drive Fibrosis and Adipogenesis in Chronic Muscle Injury”

Steven Garcia, MD

Resident, Department of Orthopaedic Surgery UCSF

&

MGH SPEAKER

“From genetics to precision medicine in osteoarthritis”

Michelle Yau, PhD, MPH

Assistant Scientist II, Assistant Professor in Medicine, HMS and BIDMC

Email CSRmail@partners.org for Zoom information

CSR Meet the Editor

Wednesday, April 17, 2024 • 12:00 – 1:00 pm ET

Jerome A. Staal, PhD

Senior Editor, Nature Medicine

More information to come

Email CSRmail@partners.org for Zoom information

Musculoskeletal Research Symposium

Monday, May 6, 2024 • 8:00 am – 5:00 pm ET

In person event: MGB Assembly Row, 440 Foley Street Somerville, MA 02145

REGISTER for the event [HERE](#).

Submit an abstract [HERE](#). All abstracts are invited to be posters!

Deadline for posters-only abstract submission: April 8, 2024

We encourage our clinical colleagues to submit abstracts!!

[Click here for the agenda](#)

KEYNOTE SPEAKERS:

“Fibrous Dysplasia/McCune-Albright Syndrome: Interplay of osteoclast/osteoblast function”

Alison Boyce, MD

Chief, Metabolic Bone Disorders Unit
Lasker Clinical Research Scholar
National Institute of Dental and Craniofacial Research
National Institutes of Health



Alison Boyce, MD is a pediatric endocrinologist and Chief of the Metabolic Bone Disorders Unit in the National Institute of Dental and Craniofacial Research, National Institutes of Health. The goal of her work is to enhance health and well-being for children with skeletal disorders by developing novel tools and treatments informed by pathophysiologic studies. She leads investigations in fibrous dysplasia/McCune-Albright syndrome, a rare disease affecting the bone and endocrine systems, and has characterized many aspects of this disorder and its treatment. Dr Boyce is a faculty member in the NIH Endocrinology fellowship training program. She is a member of the Fibrous Dysplasia/McCune-Albright Syndrome International Consortium and serves as Chair of the Medical Advisory Committee to the FD/MAS Alliance.

AND



“Sympathetic tone and cellular senescence: Leveraging integrative physiology for new osteoporosis treatments”

Sundeep Khosla, M.D.

Dr. Francis Chucker and Nathan Landow Research Professor
Mayo Foundation Distinguished Investigator
Mayo Clinic College of Medicine and Science

Dr. Sundeep Khosla is the Dr. Francis Chucker and Nathan Landow Research Professor of Medicine and Physiology and a Mayo Foundation Distinguished Investigator. Dr. Khosla received his A.B. degree from Harvard College and his M.D. from Harvard Medical School. He was subsequently a resident in Internal Medicine and a fellow in Endocrinology at the Massachusetts General Hospital. In 1988 he moved to Mayo Clinic, where his research has focused on mechanisms of age-related bone loss and osteoporosis. Dr. Khosla has served as Director of the Center for Clinical and Translational Science and Dean for Clinical and Translational Science at Mayo Clinic. He has received numerous awards and honors for his work, including the Frederic C. Bartter Award for Clinical Investigation and the William F. Neuman Award for Outstanding Scientific Contributions from the ASBMR, the Outstanding Clinical Investigator Award and Plenary Lecture from the Endocrine Society, and election to the ASCI and AAP.

NEWS

CSR Mentorship Program

sponsored by the **Early Stage Investigator Committee*

Are you interested in finding a mentor to guide you on your academic journey? Are you facing challenges in certain aspects of your training or career?

The CSR has mentorship resources and offers valuable one-on-one mentorship experiences.

How to get started: email us at CSRmail@partners.org to let us know what you need help with!

Why Mentorship Matters

- Gain personalized guidance.
 - Expand your network.
 - Resolve issues.
 - Elevate your academic and professional journey.
-

NEW: CSR Clinical Phenotyping Core Mini-grant RFA

Director: Ata Kiapour, PhD

Mini-grants of up to \$10,000 are available to support the acquisition of critical preliminary data for grant submission or the use of clinical phenotyping to support existing work for a manuscript submission. Funds must be used for services provided by the Clinical Phenotyping Core (CPC; <https://csr-mgh.org/cores/clinical-phenotyping-core-2/>). Awarded funds will cover essential efforts at the CPC including personnel support for conducting the analyses. **Please contact Dr. Ata Kiapour** (ata.kiapour@childrens.harvard.edu) to discuss opportunities and advantages to using CPC services to support your ongoing and future research programs.

[Click here](#) for application details.

NEW: CSR Directed Differentiation Core Mini-grant RFA

Director: April Craft, PhD

Mini-grants of up to \$10,000 are available to support the acquisition of critical preliminary data for grant submission. Funds must be used for services provided by the Directed Differentiation Core (DDC). Awarded funds will cover essential lot-tested cell culture reagents and consumables in the core, and other associated experimental costs. **Please contact Dr. April Craft** (april.craft@childrens.harvard.edu) to discuss opportunities and advantages to using DDC services to support your ongoing and future research programs.

[Click here](#) for application details.

General CSR Core Mini Grants

Center for Musculoskeletal Research Core mini-grants (up to \$2,000 direct costs only) will be awarded for the purpose of obtaining critical preliminary data for an upcoming grant submission. Funds must be used for CSR Core services.

[Click here](#) for application details. Email applications to CSRmail@partners.org

CSR Innovation Awards

Innovation awards are designed to promote the ability of Center investigators to visit outside laboratories to gain expertise in novel methodologies which can be integrated into one of the Resource Cores so our community can benefit from these new technologies. Funds (up to \$5000) are available to cover the costs of supplies and reagents

required, as well as any necessary travel. Applications are accepted on a rolling basis. Discussion with the relevant Core director is highly encouraged prior to preparing an application.

[Click here](#) for application details. Email applications to CSRmail@partners.org

OPEN POSITIONS

2 Open Positions: **Postdoctoral Research Fellow** and **Research Technician** **Dr. Tadatoshi Sato lab at UMass Med**

The Sato Lab at UMass Med, starting June 1st, is seeking an enthusiastic postdoctoral fellow and research technician to join our team at the forefront of gene editing and cell therapy research. Our research group is at the forefront of cutting-edge science, focusing on elucidating the molecular mechanisms underlying rare diseases and autoimmune disorders. Through innovative approaches such as gene editing and cell therapy, we aim to develop novel therapeutic strategies to combat these conditions and improve patient outcomes.

Project Highlights:

- Utilize cutting-edge CRISPR gene editing techniques
- Engineer and explore cell therapies for disease treatment
- Investigate the genetic basis of rare skeletal and connective tissue diseases
- Unravel mechanisms underlying autoimmune disorders

Position 1: Postdoctoral Fellow – [click here](#) for full job description

Position 2: Research Technician – [click here](#) for full job description

To apply for a position at the Sato lab, please email: tadatoshi.sato@umassmed.edu

1 Open Position: **Research Scientist** **Dr. Andreia Ionescu lab at Northeastern University**

Position: Research Scientist in the laboratory of Dr. Andreia Ionescu at Northeastern University. Research in Dr. Ionescu's laboratory focuses on cartilage and bone stem cell driven regeneration using mouse models. The successful candidate will support projects investigating the molecular mechanisms of osteoarthritis and epiphyseal cartilage regeneration, as well as helping with general daily laboratory upkeep tasks. The position involves a substantial amount of mouse work as well as mammalian cell culture, general biochemistry and molecular biology techniques, flow cytometry and RNAseq / ATACseq.

[CLICK HERE](#) for full job description

For additional information about the Ionescu lab, please visit: <https://ionesculab.sites.northeastern.edu/>

2 Open Positions: **Postdoctoral Research Fellow** and **Research Technician** **Dr. Jialiang Wang Lab at University of Texas Southwestern Medical Center**

Lab Description: Wang laboratory will take an interdisciplinary approach that spans genetics, multi-omics, in vivo and in vitro models, to characterize how aberrant factors can lead to skeletal disease and bone cancer. Previous

and ongoing work 1) investigates the molecular program that regulates osteocytogenesis and bridges the gap between osteocyte development and human skeletal disease, and 2) reveals the regulatory role of transcription factors in bone cancer and develops novel transcription factor-targeted therapies. There are many exciting projects to work on and these projects will provide the opportunity to receive close mentorship and learn cutting-edge technologies, such as CRISPR-Cas9 gene editing, single-cell RNA-seq, spatial transcriptome and multi-omics analysis. We are very open to new ideas and support the scientific and career development of lab members.

[CLICK HERE](#) for full job descriptions

To apply for a position at the Wang lab, please email: jiali.wang@utsouthwestern.edu

Recently Published by the CSR Community

Yadav PS, Kobelski MM, Martins JS, Tao T, Liu ES, Demay MB. Impaired Growth Plate Maturation in XLH Is due to Both Excess FGF23 and Decreased 1,25-Dihydroxyvitamin D Signaling. *Endocrinology*. 2023;165(1):bqad186. DOI: [10.1210/endocr/bqad186](https://doi.org/10.1210/endocr/bqad186)

Phosphate-induced activation of VEGFR2 leads to caspase-9-mediated apoptosis of hypertrophic chondrocytes.
Yadav PS, Papaioannou G, Kobelski MM, Demay MB. Phosphate-induced activation of VEGFR2 leads to caspase-9-mediated apoptosis of hypertrophic chondrocytes. *iScience*. 2023;26(9):107548. Published 2023 Aug 7. doi:[10.1016/j.isci.2023.107548](https://doi.org/10.1016/j.isci.2023.107548)

Hussein AI, Carroll D, Bui M, Wolff A, Matheny H, Hogue B, Lybrand K, Cooke M, Bragdon B, Morgan E, Demissie S, Gerstenfeld L. Oxidative metabolism is impaired by phosphate deficiency during fracture healing and is mechanistically related to BMP induced chondrocyte differentiation. *Bone Rep*. 2023 Jan 23;18:101657. doi: [10.1016/j.bonr.2023.101657](https://doi.org/10.1016/j.bonr.2023.101657). PMID: 37425193; PMCID: PMC10323218.

Portales-Castillo I, Dean T, Cheloha RW, Creemer BA, Vilardaga JP, Savransky S, Khatri A, Jüppner H, Gardella TJ. Altered Signaling and Desensitization Responses in PTH1R Mutants Associated with Eiken Syndrome. *Commun Biol*. 2023 Jun 2;6(1):599. doi: [10.1038/s42003-023-04966-0](https://doi.org/10.1038/s42003-023-04966-0). PMID: 37268817; PMCID: PMC10238420.

Young C, Kobayashi T. Limited roles of Piezo mechanosensing channels in articular cartilage development and osteoarthritis progression. *Osteoarthritis Cartilage*. 2023 Jun;31(6):775-779. doi: [10.1016/j.joca.2023.01.576](https://doi.org/10.1016/j.joca.2023.01.576). Epub 2023 Feb 17. PMID: 36805475.

Mitchell DM, Singhal V, Animashaun A, Bose A, Carmine B, Stanford FC, Inge TH, Kelsey MM, Lee H, Bouxsein ML, Yu EW, Bredella MA, Misra M. Skeletal Effects of Sleeve Gastrectomy in Adolescents and Young Adults: A 2-Year Longitudinal Study. *J Clin Endocrinol Metab*. 2023 Mar 10;108(4):847-857. doi: [10.1210/clinem/dgac634](https://doi.org/10.1210/clinem/dgac634). PMID: 36314507; PMCID: PMC10211497.

Sato T, Andrade CDC, Yoon SH, Zhao Y, Greenlee WJ, Weber PC, Viswanathan U, Kulp J, Brooks DJ, Demay MB, Bouxsein ML, Mitlak B, Lanske B, Wein MN. Structure-based design of selective, orally available salt-inducible kinase inhibitors that stimulate bone formation in mice. *Proc Natl Acad Sci U S A*. 2022 Dec 13;119(50):e2214396119. doi: [10.1073/pnas.2214396119](https://doi.org/10.1073/pnas.2214396119). Epub 2022 Dec 6. PMID: 36472957.

Send your recently published papers to CSRmail@partners.org to be featured here!