MUSCULOSKELETAL RESEARCH CENTER

MUSCULOSKELETAL RESEARCH CENTER at Washington University

http://muscoloskeletalcore.wustl.edu

Vol 9 | Issue 5 | Nov 2017

contents

Avioli Musculoskeletal Seminar Series

Fridays @ 9am
BJCIH Bldg. | 5th flr
Allison Conf. Rm.

11/03	**Jeffry Nyman, PhD** *Vanderbilt Center for Bone Biology*
11/10	**Nicola Napoli, MD** *Bone & Mineral Diseases*
11/17	**Gary Hattersley, PhD** *Radius Health*
11/24	*NO SEMINAR*
12/1	**Gerard Ateshian, PhD** *Columbia Univ. NY, NY*
12/8	**Jeremy Mao, DDS, PhD** *Columbia Univ. NY, NY*
12/15	**Deborah Veis Novack, MD, PhD** *Bone & Mineral Diseases*
12/22	**Simon Tang, PhD** *Orthopaedic Surgery*
12/29	*NO SEMINAR*

Don't forget!

P&F grant submissions are due 11/13/17

Click here for more information.

Save the DATE Winter Symposium 2018

February 22, 2018
Eric P. Newman Educational Center
1:00-5:30pm
Abstracts Due: January 5, 2018

Save the date for the MRC annual Winter Symposium. The Symposium will highlight the research of our members. Included will be two poster sessions, presentations from the P&F recipients, oral presentations from selected abstracts, featured talk from Dr. Andre Van Wijnen (*Mayo Clinic*), and reception.

Featured Speaker:

Andre J. Van Wijnen, Ph.D.
Consultant, Department of Orthopedic Surgery
Joint Appointment
Consultant, Department of Biochemistry and Molecular Biology
Professor of Biochemistry and Molecular Biology
Professor of Orthopedics
Mayo Clinic
"**Molecular Strategies for Musculoskeletal Regenerative Medicine**"

P30 Renewal 2018

It's that time again! The MRC P30 is up for renewal in 2019. The P30 has had almost 10 great years of success, and hope to continue in our success after the renewal. However, we are going to need your help! In the coming months, we will be contacting our members for: other support documentation, biosketches, and other information. We appreciate your continued support!

Please remember to include reference to support from the Musculoskeletal Research Center in your abstracts and publications.
Cite Grant # P30AR057235
from the National Institute Of Arthritis And Musculoskeletal And Skin Diseases.

Research Highlight

Timothy Peterson, PhD

Assistant Professor of Medicine
Internal Medicine | Bone & Mineral Diseases

The Peterson lab pursues the molecular mechanisms of drug action. Amongst our interests, we focus on nitrogen-containing bisphosphonates (N-BPs). N-BPs are a widely used treatment for diseases involving bone including osteoporosis and cancer metastasis to bone. While N-BPs are prescribed hundreds of millions of times worldwide each year, there has been a significant drop (~55%) in people taking these medications over fear of rare, yet devastating side effects.

We use genomic and metabolomic approaches to use N-BPs to identify novel bone-relevant drug targets and drugs, respectively. Our studies have led to identification of several potentially impactful genes and metabolites. For example, using CRISPRi, we identified a family of poorly characterized genes we named target of bisphosphonate (TBONE1, TBONE2, etc.; Figure 1 and 2). Using a collection of human metabolites, we identified several phosphate-containing molecules that modulate a reporter of N-BP activity (data not shown). We are pursuing both the basic science and commercial potential of these discoveries currently in the lab.

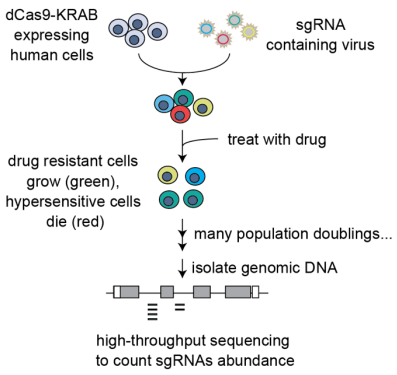

Figure 1: genome-wide CRISPRi screening schematic

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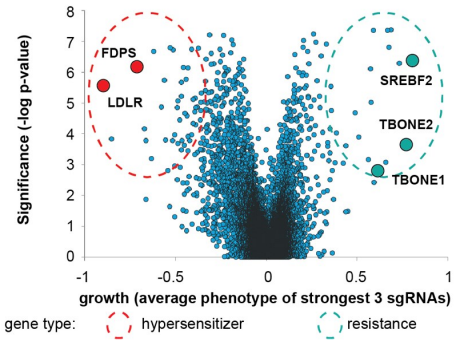
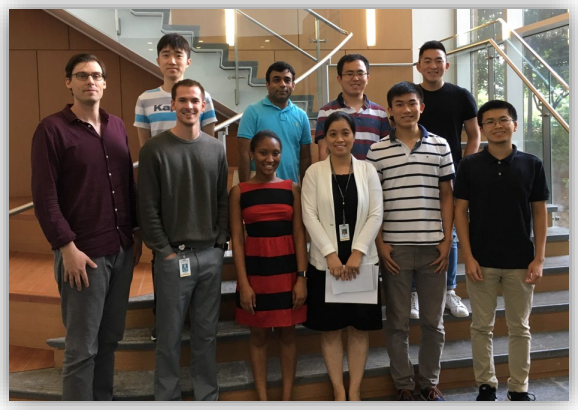


Figure 2: Alendronate CRISPRi screen identifies cholesterol and TBONE pathway components

Tim is fortunate to work with a great mix of scientists at all levels of training. Please stop by BJCIH 11113 anytime!



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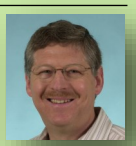

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If you have any questions regarding the MRC, contact:
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