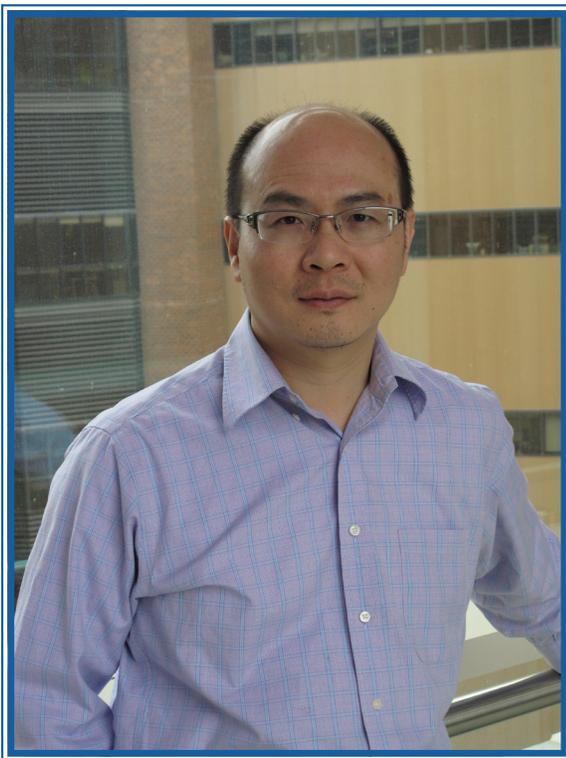




# Stem Cell & Regenerative Medicine Center

UNIVERSITY OF WISCONSIN-MADISON

Welcome to our Fall 2016 newsletter. Meet our new Musculoskeletal Regeneration Focus Group Leader, explore our feature story on translational research, find out how many new cell lines WiCell has added since this spring (it's impressive!), and much more.



*(Photo by Terry Lee)*

## ***New SCRMC Musculoskeletal Regeneration Focus Group Leader***

Our new [Musculoskeletal Regeneration Focus Group](#) Leader is [Wan-Ju Li, Ph.D.](#) He succeeds Ben K. Graf, M.D., who retired from UW Health and the School of Medicine and Public Health Oct. 3.

"I am thrilled to have the opportunity to serve the stem cell community and look forward to the new responsibility," said Li, an associate professor of orthopedics and rehabilitation, and biomedical engineering.

Musculoskeletal injury and dysfunction results in more than 20 percent of all health care encounters. The costs of these clinical problems are enormous, both financially and with regards to quality of life. Developing new treatments and preventative

strategies requires close collaboration between clinicians and basic researchers.

The goal of the Musculoskeletal Regeneration Focus Group is to identify new strategies for the treatment of musculoskeletal disorders and to translate these ideas into techniques or devices that improve patients' lives.

Examples of musculoskeletal problems include those related to degeneration such as osteoarthritis cartilage degeneration, those related to sport injuries such as tendon ligament tear, and those related to development such as growth plate deformity, according to Li.

"Unlike life threatening diseases," he said, "These orthopedic problems do not directly affect one's survival, but significantly affect his or her quality of life. Imagine you are suffering from osteoarthritis: the pain resulting from this disease prevents you from doing simple activities such as walking or doing grocery shopping."

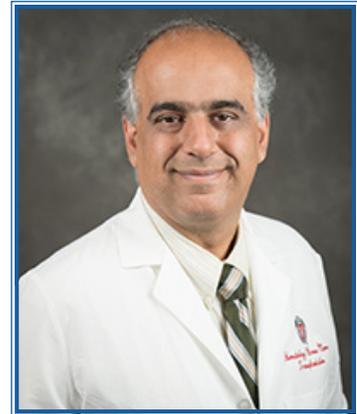
"These are the problems affecting millions that our team of scientists working together are trying to solve," Li said.

## Bridging the Gap

Dr. Peiman Hematti illuminates the challenges of translational research in cellular therapies

By Josh Knackert

UW-Madison's [Stem Cell and Regenerative Medicine Center](#) brings together faculty members involved in all phases of science, from basic science by chemists working on new cell culture platforms to research by doctors running clinical trials to test new types of cellular therapies for cancer patients. Finding new ways to collaborate across disciplines is paramount, as the amount of time that passes between basic research discoveries and the widespread use of resulting therapies in patients can be very long. Those years or even decades spent to move basic discoveries from the bench to clinical applications at the bedside are aptly referred to as translational research.



(Photo provided  
by P. Hematti)

More than 100 attendees at the SCRMC's 2016 Fall Conference Sept. 30 in the Discovery Building listened attentively to a talk on the challenging field of translational research by SCRMC member [Peiman Hematti, M.D.](#), professor of hematology and oncology in the UW-Madison [School of Medicine and Public Health \(SMPH\)](#). Through his roles as a basic, translational, and clinical researcher, Hematti experiences firsthand the promise and payoff of biomedical research. [Read full story here.](#)

## New UW Human Stem Cell Gene Editing Service

The [UW Human Stem Cell Gene Editing Service](#) is a new operation in the Waisman Center on the UW-Madison campus. With support from a UW2020 WARF Discovery Initiative grant, this service offers CRISPR/Cas9 gene editing in human embryonic and induced pluripotent stem cells for UW-Madison researchers. Services offered include: generating induced point mutants, to either correct a disease mutation in patient cells or induce a disease mutation in wild type cells; inserting reporter constructs at endogenous or safe harbor loci, and generating lineage-tracing cells lines during differentiation protocols (similar to the Cre-LoxP system in mouse models). Also available are consulting services for researchers interested in performing CRISPR/Cas9 gene editing but who are not familiar with the system. Co-investigators developing this service are SCRMC faculty members [Anita Bhattacharyya, Ph.D.](#), and [Su-Chun Zhang, Ph.D.](#), Please contact [geneediting@waisman.wisc.edu](mailto:geneediting@waisman.wisc.edu) for more information.

## WiCell adds 800 new stem cell lines in 2016

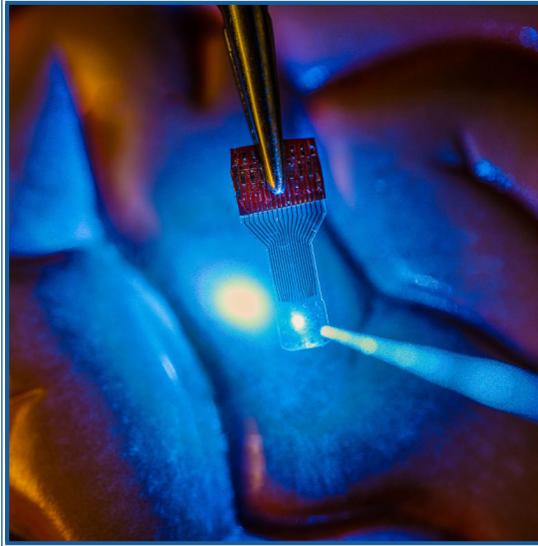


More than 900 disease and healthy control stem cell lines are now available from WiCell, with 800 lines added in the past few months alone.

[WiCell's newly available stem cell lines](#) are part of nine recently acquired disease and disorder collections. They include a variety of iPS cell lines for studying Alzheimer's disease, lipid conditions, cardiac diseases and disorders, pulmonary artery hypertension, Rett syndrome, Fragile X, Down syndrome, muscular dystrophy, X-linked dystonia Parkinsonism and more.

Coming soon are new lines for insulin resistance syndrome, left ventricular hypertrophy, myocardial infarction, and sickle cell anemia. [View and search the WiCell catalog here.](#)

# SCRMC Faculty Members in the News



(Engineered transparent sensor photo provided by J. Williams lab)

- [Smart cancer therapies: Teaching the body's own T-cells to attack tumors](#), Oct. 25.
- [Engineers reveal fabrication process for revolutionary transparent sensors](#), Oct. 13.
- [Researchers Identify Mechanism Controlling Red Blood Cell Development](#), Oct. 7.
- [University Hospital Recognized for "Higher Standard" of Heart Attack Care](#), Oct. 6.
- [Collaboration is key for biomanufacturing, panel says](#), Sept. 29
- [Thomson honored for stem cell research legacy](#), Sept. 29.
- [Stem cell 'heart patch' moves closer to clinic](#), Sept. 21.
- [A rare gift: Family endows professorship in memory of children](#), Sept. 6.
- [Dr. David Gamm's Team Awarded NIH Grant to Reverse Blindness](#), Sept. 1.
- [UW Research Team Identifies Mechanism Driving Leukemia Development](#), Aug. 18.

## Save the Dates!

**Jan. 8-12, 2017**

Keystone Symposium:

[Neurogenesis during Development and in the Adult Brain](#)

Olympic Valley, California

Sponsored by [CIRM](#), with SCRMC faculty member **Xinyu Zhao, Ph.D.**, as a co-organizer.

**March 1-4, 2017**

Regenerative Medicine Workshop at Hilton Head

[Synergizing Science, Engineering, and Clinical Translation](#)

Co-sponsored by the SCRMC and including SCRMC member **David Gamm, M.D., Ph.D.**, who is delivering a keynote talk on "Production and Utilization of Human Pluripotent Stem Cell-derived Photoreceptors for the Treatment of Retinal Degenerative Diseases."

*Discounted registration through Feb. 1, 2017.*

**April 19, 2017**

12th Annual Wisconsin Stem Cell Symposium

[Engineering Cells and Tissues for Discovery and Therapy,](#)

[BioPharmaceutical Technology Center Institute](#)

**Sean Palecek, Ph.D.**, and **Kris Saha, Ph.D.**, are the SCRMC's co-organizers along with BTCL.

*More information forthcoming.*

## Fast Fact

Wisconsin is home to more than 50 companies engaging in stem cell and regenerative medicine activities and employing more than 3,500 people.

## Fall Conference Recap



“Regenerative Medicine Manufacturing” was the theme of this year’s SCRMC Fall Conference. We were pleased to welcome Dr. David Schaffer as our external keynote speaker and **Dr. Peiman Hematti** as our internal keynote speaker. The Sept. 30 conference also featured an update from the 2016 Advanced Course on Regenerative Medicine Manufacturing and a panel discussion on the commercialization of cell-based products and therapies. The day concluded with a rousing game of Stem Cell Jeopardy. This year’s organizing committee was, from the left, Kaitlyn Dunn, Matt Stebbins, Nicole Piscopo, Angie Xie and Scotty Cadet. *(S. Gilbert image)*

[Check out all the great SCRMC Fall Conference photos here!](#)

## WiSCR Fall Kickoff meeting and social



The Wisconsin Stem Cell Roundtable (WiSCR), our campus stem cell graduate student and postdoc association, held its Fall kickoff meeting Oct. 26 at Biochemical Sciences, followed by a bowling social at Union South. [Contact WiSCR to learn more.](#) *(Image by Ann De La Forest, STEMCELL Technologies, event sponsor.)*

## Welcome new SCRMC members

The SCRMC welcomes its newest faculty members: [Jacques Galipeau, M.D. FRCP\(C\)](#) — Medicine; [Melissa Skala, Ph.D.](#) — Biomedical Engineering, Morgridge Institute; [Darcie Moore, Ph.D.](#) — Neuroscience; and [Subhojit Roy, Ph.D.](#) — Pathology, Neuroscience. The SCRMC has more than [90 faculty members](#) in over 30 departments or colleges at UW-Madison.

## JOIN THE SCRMC

Are you a UW-Madison faculty or staff member, or a student interested in stem cell and regenerative medicine research?

If so, the SCRMC is your central point of contact for information and education, faculty interaction, and facilitation for research and clinical development.

Operating under the [School of Medicine and Public Health](#) and the [Office of the Vice Chancellor for Research and Graduate Education](#), our center's goals are to:

- Maintain UW-Madison as leader in stem cell and regenerative medicine research and application.
- Foster increased communication about the field within campus and beyond.
- Support basic and translational research, clinical application, and sound bioethics and public policy decisions.
- Develop education, training and outreach programs.
- Enhance philanthropic support.

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Please contact [Jordana Lenon](#) if you have trouble reading this newsletter and need a more accessible format. If you supervise staff who do not have easy access to email, please print and post for all to read.

## MAKE A GIFT TO THE SCRMC

The University of Wisconsin-Madison is a leader in stem cell and regenerative medicine research, with many landmark discoveries, including the first successful isolation and culture of human pluripotent stem cells in 1998 by James Thomson and colleagues.

As you can read in our [SCRMC 2016 Update](#), we are working hard to uncover fundamental processes of diseases and advance better treatments.

Won't you join us in our important mission? Thank you for reading and for your support!

Sincerely,  
[Dr. Tim Kamp, Co-Director](#)

[Dr. Bill Murphy, Co-Director](#)

[Sue Gilbert, Program Administrator, Website](#)

[Jordana Lenon, Outreach, Newsletter Editor](#)

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*Keep up with more news and updates on our [Facebook Page!](#)*