OAK CREST INSTITUTE OF SCIENCE

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tackling today's world of environmental and medical challenges

Oak Crest to Move to Monrovia

Dr. Marc Baum, founder and president of the Oak Crest has announced that the organization will be moving to a new facility in Monrovia, CA, within the coming months. The building is located at 128-132 W. Chestnut Ave., 6.9 miles from their current location and just one block away from Old Town Monrovia.

Prior to moving, though, an extensive tenant improvement project is being undertaken to make the building function for Oak Crest's needs. Interior demolition has begun and remodeling is expected to take several months to complete. During their 14 years in Pasadena, Oak Crest has doubled in size twice. And, is now doubling again.

For the past several months Dr. Baum and Dr. John Moss have been meeting with architects and engineers to discuss ways in which to take the existing infrastructure at the Monrovia facility and put it in an optimal layout.

"The entire layout will be much more research-fellow friendly," adds Dr. Baum. "We will have adequate space for our scientists and research fellows to meet and interact, as well as larger space for seminars. In addition, we will have a dedicated classroom for educational programs and multiple conference room facilities."

Dr. Baum points out that the organization had reached critical mass in terms of size at its current location. "Our current workspace is not arranged in an ideal layout," adds Dr. Baum. "Over the years our programs grew as did our need for space. And in some instances we had to make do with whatever space became available. We now have the opportunity to double our capacity while simultaneously designing lab space that will suit our short, medium and long-term needs," he adds.

Community members and friends of Oak Crest can share in the excitement of the upcoming move by reading our new Blog on the Oak Crest website.

News & Events

Scientific Advisory Panel Formed for NIH U19 Grant

Work on the National Institutes of Health (NIH) U19 program is progressing nicely as team members approach the one-year mark of this five-year grant program. Oak Crest was awarded a $20 million grant from the NIH in July 2014 to systematically develop an intravaginal ring capable of delivering powerful antiretroviral drugs to prevent the spread of sexually transmitted HIV in women.

The grant is funded under the NIH U19 Program, a mechanism that funds collaborative projects involving multiple institutions. Oak Crest is the lead institution in this collaboration, which includes teams of researchers from the Centers for Disease Control and Prevention (CDC), the University of Texas Medical Branch, Johns Hopkins Medical Institutions, Scripps Research Institute, University of California, Los Angeles, Vanderbilt University, Miriam Hospital and Auritec Pharmaceuticals.

To ensure the success of this research program, Principal Investigator Dr. Marc Baum, president and senior faculty at Oak Crest, recently announced the formation of a prestigious external Scientific Advisory Panel (SAP) comprised of some of the top researchers in the country.

The Rose Hills Program Enjoying Unprecedented Success at OCIS

The Huntington Library hosted over 75 guests for OCIS Seminar Day on June 23, 2015.

What began in 2011 as a pilot program for students who wanted to gain hands-on research experience, has become an extraordinarily successful stepping stone for young scientists as they pursue careers in chemistry, physics, bioengineering, molecular toxicology and medicine.

The Rose Hills Research Fellowships, offered exclusively to community college students, provide participants with 20-40 weeks of extensive laboratory experience as well as mentoring from Oak Crest scientists. Funded by The Rose Hills Foundation, the environmental science research Fellowships focus on microbial ecology, natural products research and atmospheric chemistry.

The current Rose Hills Research Fellows began their studies at Oak Crest in January and completed their fellowships in late June. The group worked side-by-side for nearly six months on environmental science projects with Drs. Marc Baum and John Moss, senior faculty at Oak Crest, and Manjula Gunawardana, senior scientist at Oak Crest.

In addition to gaining valuable scientific experience, the research fellows had the opportunity to hone their presentation skills on Seminar Day as they presented their research findings to more 75 guests during Seminar Day on June 23, 2015.

The Huntington Library, Art Collections, and Botanical Gardens hosted the event during which time guests heard the following presentations:

- Collecting and Quantifying Reduce Nitrogen Pollutants from Vehicle Exhaust, *Mackenzie Anderson and Arlette Valencia*
- Antimicrobial Activity in Soil, *Sareen Ourfalian and Caroline Labib*
- Biogenic Green Rust and the Antibiotic Properties of Diallyl Disulfide, *Kayla Stepanian and Efren Gonzalez*
- Solvent Tolerance of Extremophile Bacteria, *Jerrica Sabino and Nayeli Guzman*

“The Rose Hills Research Fellowship program is a very special opportunity for these students and is one that they would not likely encounter in a regular academic setting,” says Oak Crest’s Senior Scientist Manjula Gunawardana.

Many of the graduates from the first Rose Hills Fellowship program remain dedicated to the field of science and are attending four-year universities, such as UC Berkeley, UC Davis, UC Riverside, Chapman University and Concordia University, to complete their degrees.

In addition, four Rose Hills Fellowship alumni have been retained by Oak Crest for continuing fellowships and are currently conducting research on projects including the National Institutes of Health (NIH) U19 grant for the development of intravaginal rings for HIV prevention; the NASA Icy Worlds Astrobiology grant and the NIH R01 grant, “*ex vivo* model for assessing the vaginal disposition of PrEP antiretrovirals”.

Oak Crest In the News

The recent publication of a paper highlighting Oak Crest’s development of a new matchstick-size implant that dispenses antiretroviral drugs to prevent and treat HIV created quite a buzz in local, national and international media outlets. Reporters from Fox News, the Daily Mail

Under terms of the grant, the SAP must consist of five members with the following expertise: nBP development and HIV prevention; HIV virology; clinical trial design and execution; pharmacokinetics and pharmacodynamics; and drug processing and manufacturing.

Members of the Oak Crest NIH U19 Scientific Advisory Panel include:
Thomas Moench – Johns Hopkins University
David Martin – Louisiana State University
Jeanne Marrazzo – University of Washington
Dr. Lawrence Stanberry – Columbia University
Jerome Zack – University of California, LA

According to Dr. Baum the SAP will review progress at end of Years 1-5 and provide external scientific leadership for the overall program as a whole, guiding it through the significant challenges that a project of this magnitude may encounter and ensuring its stability, growth, and success.

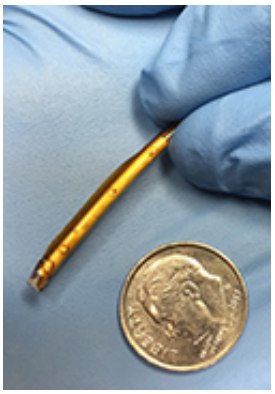
“We are very pleased that these renowned scientists are lending their knowledge and expertise to this project,” says Dr. Baum. “Their contribution to the success of this program will be immeasurable.”

Amgen Biotech Experience Grant Renewed

Dr. Sherry Tsai, educational outreach director at Oak Crest, has been awarded a two-year renewal of the Amgen Biotech Experience grant from the Amgen Foundation. The total grant award of $685,173 will fund activities in the Greater Los Angeles area, including Los Angeles, Orange, Ventura, San Bernardino, Riverside, Tulare, and Kern Counties. As Site Director, Dr. Tsai is responsible for overseeing all program activities in the region.

The Amgen Biotech Experience offers free professional development workshops for science teachers to learn contemporary biotechnology theory and lab techniques in order to conduct advanced labs in their own classrooms. All curriculum and supplies, as well as a three-week loan of research-grade lab equipment, are provided at no charge to participating teachers, allowing them to implement these labs in their schools. An international program, the Amgen Biotech Experience serves more

(U.K), Science Daily, News-Medical.Net and MedGadget were among dozens of publications and websites to cover the story.



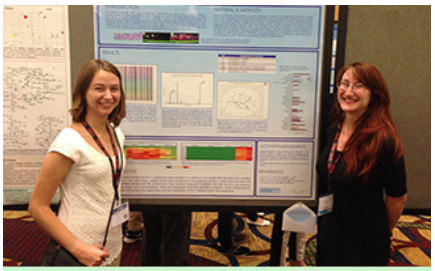
The paper, published in the journal *Antimicrobial Agents and Chemotherapy* outlined how the novel, subdermal implant provides sustained release of potent antiretroviral drugs and is showing extreme promise in preventing sexually transmitted HIV when used as pre-exposure prophylaxis.

"To our knowledge this is the first implant to be used for this purpose," says Dr. Baum, president and founder of Oak Crest. "This novel device will revolutionize how we treat and prevent HIV/AIDS as it delivers powerful HIV-stopping drugs and eliminates one of the key obstacles in HIV/AIDS prevention – adherence to proper dosing regimens," he adds.

In addition to print and online coverage, local TV news organization Crown City News, serving the city of Pasadena and surrounding San Gabriel Valley, aired a special video report on the development of the subdermal implant featuring Dr. Marc Baum.

Please visit the Oak Crest website for more information on the subdermal implant.

OCIS Research Associates Join Elite Group of Presenters



Anaïs Pesta, a French student from ESCOM (left) and Amalia Castonguay, Researcher at OCIS (right)

Two Oak Crest research associates were among a small group of high caliber presenters at the 11th International Conference of the Metabolomics Society annual meeting held June 29 – July 2, 2015, in San Francisco, CA. The University of California, Davis, hosted the event. This intimate workshop regularly attracts some of the top researchers from around the world who present the latest innovations and breakthroughs in metabolomics.

Oak Crest's Anaïs Pesta, a French student from ESCOM (École Supérieure de Chimie Organique et Minérale) and Amalia Castonguay, former Rose Hills research Fellow and current researcher at Oak Crest, presented findings from their paper entitled "The Microbiome and Metabolome of the Vaginal Mucosa Is Associated with Susceptibility to HIV-1 Infection". Co-authors included Manjula Gunawardana, research scientist at Oak Crest, Scott Churchman, an Auritec research fellow, and Dave VanderVelde. a Visiting Associate at Oak Crest.

Our mailing address is:
Oak Crest Institute of Science
2275 E. Foothill Blvd. Pasadena, CA 91107

than 24,000 students annually from its Los Angeles site alone.

Seminars Hosted by OCIS

As part of their ongoing commitment to science education, the Oak Crest Institute of Science hosts monthly seminars for their research fellows and volunteers on a variety of environmental and biomedical topics. Organized by Dr. Paul Webster, senior faculty at Oak Crest, recent seminars have included:

- The biophysical and structural basis of extracellular electron transport in microbial redox chains – Presented by Moh El-Naggar, Ph.D. USC
- How to be a better climber: the development and evolution of chameleon hands and feet – Presented by Raul Diaz, Ph.D. La Sierra University, Riverside, CA
- Landing and Navigating on Mars – Presented by Luke Dubord, Ph.D., JPL
- Bacteria, biofilms and resistance – Presented by Paul Webster, Ph.D., OCIS
- Mechanisms of Transposable element repression by the piRNA pathway in Drosophila – Presented by Alexandre Webster, Ph.D., Caltech
- Antibody Bipolar Bridging in vitro model to characterize an Herpes virus immune system evasion mechanism – Presented by Blaise Ndjamen, Ph.D., Caltech

ANNOUNCEMENTS

RESEARCH, PUBLICATIONS AND SPECIAL EVENTS

Congratulations to the following Oak Crest faculty and collaborators for the recent publication of their scientific papers.

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Have a question? Contact our newsletter editor at news@oak-crest.org

Webster, P., D. Bentley, J. Kearney. 2015. *The ATUMtome for automated serial sectioning and 3-D imaging.* Microscopy and Analysis 136:19-23.

Pyles, R., Baum, M. M., Gunawardana, M., Mullen, M., Yoo, J. *Vaginal Microbiomes Alter the Expression of Antiretroviral Drug Transporters Impacting Drug Efficacy*, April 2015, 1st International Workshop on Microbiome in HIV Pathogenesis, Prevention and Treatment, Bethesda, MD.

Baum, M. M., Gunawardana, M., Pyles, R.B., Vincent, K.L., Castonguay, A., Rivera, S., . . . Webster, P. *Vaginal Microbial Biofilms and Topical HIV-1 Prophylaxis,* April 2015, 1st International Workshop on Microbiome in HIV Pathogenesis, Prevention and Treatment, Bethesda, MD.