

**Express Yourself! Advances in Genetic and Epigenetic Control of Gene Expression  
Explored through the Isolation and Characterization of New Natural Products**

**Free Workshop for High School and Community College STEM Educators**

**Monday and Tuesday, July 10-11, 2017  
at Oregon State University - Cascade in Bend, OR**

**Michael Freitag**, Professor, Department of Biochemistry and Biophysics  
**Sandra Loesgen**, Assistant Professor, Department of Chemistry  
**Kristina Smith**, Instructor, OSU-Cascades

Join us July 10-11<sup>th</sup> at the OSU Cascades campus in Bend to explore how OSU researchers are isolating and characterizing novel antibiotics from Oregon soil microbes or engineering fungal strains to express new compounds. Through discussions and molecular biology lab experiments, we will introduce you to research going on at both the OSU Corvallis and Cascades campuses and topics such as epigenetics, genome editing, and natural product development.

There will be opportunities for roundtable discussions with scientists to ask questions and brainstorm ideas for collaborative projects to engage students in research projects.

**Cost:** Free

**Lodging/Meals/Parking:** Grant funds are available to cover the costs of lodging for nights of 7/9 and 7/10 in OSU Cascades dormitory for participants only, meals in OSU-Cascades dining hall, + parking.

**Registration:** Email Kari van Zee at [vanzeek@science.oregonstate.edu](mailto:vanzeek@science.oregonstate.edu) to reserve a spot. Provide your name, school, and contact information. Limited to 12 participants.

**Deadline to register:** June 28, 2017

**Monday, July 10th Oregon State University, Cascades campus in Bend**

**Location:** Tykeson Hall Room ---TBD

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|-------------|---|
| 8:30        | Welcome and Introduction to our Scientists, Teachers, and Schedule  |
| 8:45-9:45   | Revolution in sequencing and quantitative molecular biology<br><i>Visualizing all steps of gene expression – M. Freitag</i><br><i>Gene silencing and gene expression – M. Freitag</i> |
| 9:45-10:00  | break   |
| 10:00-10:45 | <i>Where do we find interesting new organisms? – S. Loesgen</i><br><i>Identification and characterization of novel natural products – S. Loesgen</i>                                  |
| 10:45-12:15 | <i>Secondary metabolite gene clusters in fungi – K. Smith</i>   |
| 12:15-2:15  | Lunch and free time   |
| 2:15-3:30   | Lab time: Tykeson Hall Room 308<br>Polymerase Chain Reaction (PCR) on previous soil isolates  |
| 3:30-4:30   | <i>Advances in Genome Editing-The CRISPR revolution – M. Freitag</i>  |

**Tuesday, July 11th Oregon State University, Cascades campus**

**Location: Tykeson Hall (Lab 308)**

9:00-12:00 Agarose gel electrophoresis and visualization extraction of DNA bands for sequencing  
Sequence analysis of previous isolates

12:00-1:00 Lunch and departure

**More information about the workshop organizers and speakers are found on these webpages:**

Michael Freitag: <http://biochem.science.oregonstate.edu/content/michael-freitag>

Sandra Loesgen: <http://chemistry.oregonstate.edu/loesgen>

**Recent stories in TERRA and iMPACT magazines:**

On expressing genes for fungal metabolism: <http://oregonstate.edu/terra/2014/05/raising-spores/>

On the Loesgen lab: <http://impact.oregonstate.edu/2016/04/from-dirt-to-drugs/>