



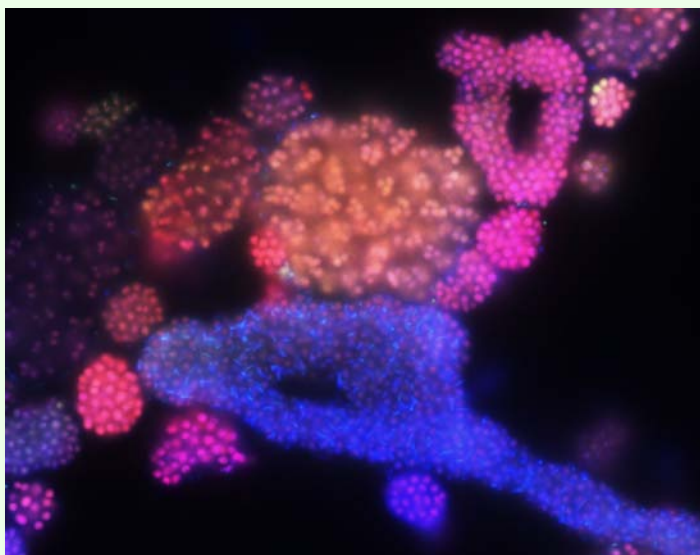
BIOSPHERE

The Weekly Bulletin of Biology

Biology Colloquium: Friday, 24 January 2014, 2:00 pm in CR 5125

“*In situ* visualization of newly synthesized proteins in environmental microbes using amino acid tagging and click chemistry”

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Abstract—Two major overarching goals in microbial ecology are to understand the ecophysiology of microorganisms and how they react to environmental stimuli over a range of spatial and temporal scales. To achieve this, methodologies and experiments that track microbial activity in environmental context are essential. One of the most powerful and direct approaches for deciphering structure–function relationships of microbial communities is whole-cell fluorescence microscopy. Unfortunately, current fluorescence-based methods are limited to the world of nucleic acids and the immunological detection of specific proteins of interest. A general, undifferentiating protein-targeted approach to studying activity, however, is currently lacking. In my talk, I will describe a novel approach to studying the *in situ* activity of microbes, which

is based on bioorthogonal amino acid tagging in combination with click chemistry. Together, these methods can be used to visualize protein synthesis in uncultured microbes and to selectively make new proteins amenable to downstream applications, such as targeted (meta)proteomic sequencing. This novel approach opens a new level of inquiry to researchers interested in studying the physiology and *in situ* activity of environmental microbes.

New Publication

Beth Lenz and alumna **Annaliese Hettinger** are proud authors of “Ocean acidification increases the vulnerability of native oysters to predation by invasive snails,” published in *Proceedings of the Royal Society B*.

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