

Video Article

## February 2017: This Month in JoVE

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### Abstract

Here's a look at what's coming up in the February 2017 issue of [JoVE: The Journal of Visualized Experiments](#).

After a long day at the bench, who doesn't love to let their hair down and listen to a little music? In [JoVE Behavior](#) this month [our Authors](#) reveal methods for quantifying the effect of music listening on levels of psychobiological stress. Using assessment of subjective stress levels as well as salivary cortisol and salivary alpha-amylase levels to measure HPA\* and ANS\* function, the authors show how the effect of music on stress can be tested in a daily-life setting, outside the conventional laboratory. So relax...no need to feel guilty about that Backstreet boys album you've been dancing to in the lab...it's for science!

Keeping the momentum going into our second spotlight article this month, in [JoVE Biology](#) [our Authors](#) investigate the link between aerobic exercise and autophagy. Autophagy is the essential pathway that targets unused or damaged cellular components for degradation and nutrient recycling, and is critical to maintaining healthy cells. By encouraging mice to undertake treadmill exercise or wheel running, our authors demonstrate that autophagy can be stimulated *in vivo* and quantified in various tissues including muscle, liver, heart and brain. So running to that faculty meeting was for exercise, not because you were late...right?

Next up, we switch gears from self-recycling to self-assembly as we showcase the amazing nanostructures of helical polycarbodiimides. In [JoVE Chemistry](#) this month, [our Authors](#) constructed protein-like macromolecules that self-assemble into unique architectures such as donuts, ribbons, spheres, or helices. Characterized by atomic force microscopy and scanning electron microscopy, the polycarbodiimides form predictable secondary structures based on their molecular structure, concentration, and solvent...making them ideal candidates for biosensors or drug carriers. I wonder if they come in strawberry or banana flavor, too?

In the month of Valentines and love, our final February highlight turns to...mating drive in *Drosophila*. In [JoVE Neuroscience](#), [our Authors](#) describe a behavioral assay that uses male mating drive to investigate the genetic, cellular and molecular mechanisms of motivation. Using studies of male fruit flies mated over several days, small neuronal populations associated with specific motivational functions can be identified. These clusters can then be manipulated to alter courtship drive via the stimulation of dopaminergic neurons. Or they can just bring you a tiny box of chocolates, your call.

You've just had a sneak peek of the February 2017 issue of [JoVE](#). Visit the website to see the full-length articles, plus many more, in [JoVE: The Journal of Visualized Experiments](#).

### Video Link

The video component of this article can be found at <https://www.jove.com/video/5830/>

### Protocol

#### Self-assembling Morphologies Obtained from Helical Polycarbodiimide Copolymers and Their Triazole Derivatives

Oleg V. Kulikov, Dumindika A. Siriwardane, Gregory T. McCandless, Samsuddin F. Mahmood, Bruce M. Novak

Department of Chemistry and Biochemistry, **University of Texas at Dallas**

Here, we present a protocol to prepare and visualize secondary structures (e.g., fibers, toroidal architectures, and nano-spheres) derived from helical polycarbodiimides. The morphology characterized by both atomic force microscopy (AFM) and scanning electron microscopy (SEM) was shown to depend on molecular structure, concentration, and the solvent of choice.

#### Measuring and Altering Mating Drive in Male *Drosophila melanogaster*.

Christine L. Boutros<sup>\*1</sup>, Lauren E. Miner<sup>\*1</sup>, Ofer Mazon<sup>2,3</sup>, Stephen X. Zhang<sup>3</sup>

<sup>1</sup>F.M. Kirby Neurobiology Center, **Boston Children's Hospital**, <sup>2</sup>Harvard NeuroDiscovery Center, **Harvard Medical School**, <sup>3</sup>Department of Neurobiology, **Harvard Medical School**

This article describes a behavioral assay that uses male mating drive in *Drosophila melanogaster* to study motivation. Using this method, researchers can utilize advanced fly neurogenetic techniques to uncover the genetic, molecular, and cellular mechanisms that underlie this motivation.

## Assessing the Effects of Music Listening on Psychobiological Stress in Daily Life

Alexandra Linnemann, Jana Strahler, Urs M. Nater

Department of Psychology, Division of Clinical Biopsychology, **University of Marburg**

A study protocol is presented on how to assess associations between music listening and psychobiological stress (as measured by subjective stress levels, salivary cortisol, and salivary alpha-amylase) in daily life. Advice on study design, materials, methods, selection of participants, and statistical handling is provided. Representative results are presented and discussed.

## Activating Autophagy by Aerobic Exercise in Mice

Altea Rocchi, Congcong He

Department of Cell and Molecular Biology, **Northwestern University**

Autophagy activation is beneficial in the prevention of a number of diseases. One of the physiological approaches to induce autophagy *in vivo* is physical exercise. Here we show how to activate autophagy by aerobic exercise and measure autophagy levels in mice.

## Disclosures

No conflicts of interest declared.