

Video Article

February 2015: This Month in JoVE - Tracking Down Foodborne Illness, Imaging Baby Brains, and Paying Scientific Attention to Attention

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Abstract

Here's a look at what's coming up in the [February 2015 issue](#) of [JoVE: The Journal of Visualized Experiments](#).

In [JoVE Environment](#) we have a method for tracing outbreaks of food poisoning to insects. Everyone knows that insects can deposit disease-causing organisms on our food. Not surprisingly, insects are important vectors of foodborne illnesses caused by pathogens like *Salmonella*, *E. coli*, and *Listeria*. However, it's hard to link an outbreak of food poisoning to a specific type of insect. This is because individual insects are not usually collected aseptically in environmental sampling programs. Therefore, [Pava-Ripoli et al.](#) from the U.S. Food and Drug Administration take microbial samples from individual flies under aseptic conditions and use PCR to detect specific pathogens. PCR-positive samples are then confirmed by plating on selective or differential media and through commercial biochemical assays. Using this method, public health officials can better determine how insects contribute to foodborne outbreaks.

[JoVE's Clinical & Translational Medicine](#) section features cranial ultrasound—an indispensable technique for safely imaging the neonatal brain. [Ecury-Goossen et al.](#) demonstrate optimal settings that provide better imaging quality, and color Doppler techniques for visualizing intracerebral vessels. They also demonstrate how alternate acoustic windows can improve detection of brain injuries. These advances in cranial ultrasound have improved its diagnostic value—allowing timely therapeutic intervention.

In [JoVE Behavior](#) we have two articles that deal with attention. One involves attentional set shifting, or the ability to direct attention to informative cues and away from irrelevant ones. [Heisler et al.](#) perform this test in mice that have been trained to dig in pots for a food reward. The test cues are different digging materials and different scents. The mice learn to pay attention to a single relevant cue to find their food. The neural circuits behind attentional set shifting are highly conserved between rodents and humans; therefore, this model can be used to preclinically evaluate cognitive deficits and potential therapies.

In another article in [JoVE Behavior](#), [Yung et al.](#) perform two well-known attention tests in an online platform. The multiple object tracking (MOT) task studies the motion-based tracking of multiple objects by the visual system, and the Useful Field of View (UFOV) Task assesses attention and processing speed of visual stimuli from a brief glance. Our authors collected data from over 1,700 participants in a Massive Online Open Course. The results were highly consistent with controlled laboratory-based measures of the same tests, showing the usefulness of behavior studies done entirely online.

You've just had a sneak peek of the [February 2015 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 <http://www.jove.com/video/5675/>

Protocol

The Attentional Set Shifting Task: A Measure of Cognitive Flexibility in Mice

Jillian M. Heisler¹, Juan Morales¹, Jennifer J. Donegan¹, Julianne D. Jett¹, Laney Redus¹, Jason C. O'Connor^{1,2}¹Department of Pharmacology, **University of Texas Health Science Center at San Antonio**, ²Audie L. Murphy VA Hospital, **South Texas Veteran's Health Care System**

The goal of this protocol is to perform a behavioral assay such as the attentional set shifting task (AST) to assess prefrontal cortex-mediated cognitive flexibility in mice.

Detection of Foodborne Bacterial Pathogens from Individual Filth Flies

Monica Pava-Ripoll, Rachel E.G. Pearson, Amy K. Miller, George C. Ziobro

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A PCR-based protocol was adapted to detect *Cronobacter* spp., *Salmonella enterica*, and *Listeria monocytogenes* from body surfaces and alimentary canals of individual wild-caught flies. The goal of this protocol is to detect and isolate bacterial pathogens from individual insects collected as part of an environmental sampling program during foodborne outbreak investigations.

Methods to Test Visual Attention Online

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To replicate laboratory settings, online data collection methods for visual tasks require tight control over stimulus presentation. We outline methods for the use of a web application to collect performance data on two tests of visual attention.

State of the Art Cranial Ultrasound Imaging in Neonates

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Cranial ultrasound (CUS) is a valuable tool for brain imaging in critically ill neonates. This video shows a comprehensive approach for neonatal (Doppler) CUS for both clinical and research purposes, including a bedside demonstration of the technique.

Disclosures

No conflicts of interest declared.