

## Video Article

# JoVE Monthly Highlights: November 2017

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## Abstract

Here's a look at what's coming up in the November 2017 issue of JoVE: The World's Premier Video Journal.

From a cornucopia of articles for November, we begin with cosmetic applications for chicken feathers. In JoVE Biochemistry, our authors describe a method to prepare keratin hydrolysate from chicken feathers via alkaline-enzymatic hydrolysis, and demonstrate how to test its effect on the skin barrier. These keratin hydrolysate formulations improve skin barrier function by reducing transepidermal water loss.

Without "feather" ado, JoVE Environment goes from the farm to the field. Here, our authors present a methodology to create life tables of *Bemisia tabaci*, a global agricultural pest. Life tables allow quantification of the rates and sources of mortality in insect populations, and as these methods can be extrapolated to other pests, this research provides a valuable tool for the management of economically expensive pests in agroecosystems.

In JoVE Biology, we switch focus from the pests to the plants, with an experimental procedure for detecting protein-protein interaction dynamics in the tobacco plant *Nicotiana benthamiana*. A luciferase complementation assay is used to quantify the interaction between two proteins in leaves infiltrated with *Agrobacterium tumefaciens*. This method provides a simple, rapid procedure that may be used to answer key questions in the plant signal transduction field.

Our final article, in JoVE Applied Physics, really turns up the heat. Here, our authors describe a series of wind tunnel experiments designed to study the transition of a fire from the ground to canopy in chaparral shrubs. Such experiments may lead to an increased understanding of chaparral crown fires, and can provide knowledge to aid in wildlife prediction and control. For that, we give thanks.

You've just had a sneak peek of the November 2017 issue of JoVE. Visit the website to see the full-length articles, plus many more, in JoVE: The World's Premier Video Journal.

## Video Link

The video component of this article can be found at <https://www.jove.com/video/5927/>

## Protocol

### Preparation of Keratin Hydrolysate from Chicken Feathers and Its Application in Cosmetics

Pavel Mokrejš<sup>1</sup>, Matouš Huťta<sup>1</sup>, Jana Pavlačková<sup>2</sup>, Pavlína Egner<sup>2</sup>

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The goal of the protocol is to prepare keratin hydrolysate from chicken feathers by alkaline-enzymatic hydrolysis and to test whether adding keratin hydrolysate into a cosmetics ointment base improves skin barrier function (heightening hydration and diminishing transepidermal water loss). Tests are conducted on men and woman volunteers.

### Luciferase Complementation Imaging Assay in *Nicotiana benthamiana* Leaves for Transiently Determining Protein-protein Interaction Dynamics

Kaiwen Sun\*, Yuyu Zheng\*, Ziqiang Zhu

Jiangsu Key Laboratory for Biodiversity and Biotechnology, College of Life Sciences, **Nanjing Normal University**

This manuscript describes an easy and rapid experimental procedure for determining protein-protein interactions based on the measurement of luciferase activity.

## Wind Tunnel Experiments to Study Chaparral Crown Fires

Jeanette Cobian-Iñiguez<sup>1</sup>, AmirHessam Aminfar<sup>1</sup>, Joey Chong<sup>2</sup>, Gloria Burke<sup>2</sup>, Albertina Zuniga<sup>1</sup>, David R. Weise<sup>2</sup>, Marko Princevac<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, **University of California, Riverside**, <sup>2</sup>Pacific Southwest Research Station, **USDA Forest Service**

This protocol describes wind tunnel experiments designed to study the transition of a fire from the ground to the canopy of chaparral shrubs.

## Methodology for Developing Life Tables for Sessile Insects in the Field Using the Whitefly, *Bemisia tabaci*, in Cotton As a Model System

Steven E. Naranjo<sup>1</sup>, Peter C. Ellsworth<sup>2</sup>

<sup>1</sup>**USDA-ARS, Arid-Land Agricultural Research Center**, <sup>2</sup>Department of Entomology, **Maricopa Agricultural Center, University of Arizona**

Life tables allow quantification of the sources and rates of mortality in insect populations and contribute to understanding, predicting and manipulating population dynamics in agroecosystems. Methods for conducting and analyzing cohort-based life tables in the field for an insect with sessile immature life stages are presented.

## Disclosures

No conflicts of interest declared.