

Video Article

July 2013: This Month in JoVEWendy Chao¹, Aaron Kolski-Andreaco²¹Department of Ophthalmology, Massachusetts Eye and Ear²JoVE Content ProductionCorrespondence to: Aaron Kolski-Andreaco at aaron.kolski-andreaco@jove.comURL: <https://www.jove.com/video/5100>DOI: [doi:10.3791/5100](https://doi.org/10.3791/5100)

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Here's a look at what's coming up in the [July 2013 issue](#) of [JoVE: The Journal of Visualized Experiments](#).

This month, we take a dip in the zebrafish tank and use this classical laboratory model to study muscle function. [Sloboda, et al.](#) measure force generation during trunk muscle contraction in zebrafish larvae. This is done by attaching the larvae to a force transducer and a length controller; the authors then apply an electrical field to stimulate the muscle fibers, and determine the force-generating capacity of the larval muscles. This gives a useful measure of muscle function and overall health.

[Leuzinger, et al.](#) combine farming with pharma in demonstrating a transgenic plant-based system for expressing biopharmaceuticals on an agricultural scale. The authors agroinfiltrate plant leaves with viral vectors to induce high-level transient expression of recombinant proteins, which can lead to large-scale pharmaceutical production to meet increasing worldwide demands.

Moving on to [JoVE Behavior](#), we highlight an article on aggression, which is a natural response to intruders in virtually all animals. [Koolhaas, et al.](#) demonstrate the resident-intruder paradigm in rats and illustrate various natural behaviors against intruders, including social exploration, lateral threat, chase, and attack.

In [JoVE Clinical and Translational Medicine](#), we focus on psoriasis, a chronic inflammatory skin disease. [Gupta, et al.](#) demonstrate the Goeckerman regimen, a psoriasis treatment that applies ultraviolet B (UVB) phototherapy followed by crude coal tar (CCT). Developed in 1925 by the American dermatologist William H. Goeckerman, this treatment has an excellent safety profile compared to immune-suppressing drugs, and is extremely effective in treating psoriasis.

Finally, in [JoVE Bioengineering](#), we highlight the incredible versatility of nucleic acids. Besides storing information that directs countless biological processes, nucleic acids can be programmed to self-assemble into two-dimensional and three-dimensional structures. [Ben-Ishay, et al.](#) use caDNAno software to design DNA origami nanorobots, which can sense biological cues and exert specific effects. These nanorobots harness the remarkable features of DNA and may advance the field of nanotechnology with a broad range of potential therapeutic and industrial applications.

You've just had a sneak peek of a few highlights from the [July 2013 issue](#). Visit the website to see the full-length articles and 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/5100/>

Protocol**The Resident-intruder Paradigm: A Standardized Test for Aggression, Violence and Social Stress**Jaap M. Koolhaas¹, Caroline M. Coppens¹, Sietse F. de Boer¹, Bauke Buwalda¹, Peter Meerlo¹, Paul J.A. Timmermans²¹Department of Behavioral Physiology, Center for Behavior and Neurosciences, **University Groningen**, ²**Radboud University Nijmegen**

This video shows the resident-intruder paradigm in rats. This test is a standardized method to measure offensive aggression, defensive behavior and violence in a semi natural setting. The use of the paradigm for social stress experiments is explained as well.

Designing a Bio-responsive Robot from DNA Origami

Eldad Ben-Ishay, Almogit Abu-Horowitz, Ido Bachelet

Faculty of Life Sciences and the Institute for Nanotechnology & Advanced Materials, **Bar-Ilan University**

DNA origami is a powerful method for fabricating precise nanoscale objects by programming the self-assembly of DNA molecules. Here we describe how DNA origami can be utilized to design a robotic robot capable of sensing biological cues and responding by shape shifting, subsequently relayed to a desired effect.

The Goeckerman Regimen for the Treatment of Moderate to Severe Psoriasis

Rishu Gupta^{1,2}, Maya Debbaneh^{2,3}, Daniel Butler^{2,4}, Monica Huynh^{2,5}, Ethan Levin², Argentina Leon², John Koo², Wilson Liao²

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Psoriasis is a chronic, immune-mediated inflammatory skin disease. The Goeckerman regimen, formulated for the treatment of psoriasis, consists of exposure to ultraviolet B (UVB) light and application of crude coal tar (CCT). The following protocol is for the administration of Goeckerman therapy for the treatment of moderate-to-severe psoriasis.

Efficient Agroinfiltration of Plants for High-level Transient Expression of Recombinant Proteins

Kahlin Leuzinger*, Matthew Dent*, Jonathan Hurtado, Jake Stahnke, Huafang Lai, Xiaohong Zhou, Qiang Chen

The College of Technology and Innovation, Center for Infectious Disease and Vaccinology, The Biodesign Institute, **Arizona State University**

Plants offer a novel system for the production of pharmaceutical proteins on a commercial scale that is more scalable, cost-efficient and safe than current expression paradigms. In this study, we report a simple and convenient, yet scalable approach to introduce target-gene containing *Agrobacterium tumefaciens* into plants for protein transient expression.

Force Measurement During Contraction to Assess Muscle Function in Zebrafish Larvae

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Force measurements can be used to demonstrate changes in muscle function due to development, injury, disease, treatment or chemical toxicity. In this video, we demonstrate a method to measure force during a maximal contraction of zebrafish larval trunk muscle.

Disclosures

No conflicts of interest declared.