Labeling GAPS

The intestinal epithelium is a major interface between the body and the environment; it acts as a barrier to pathogenic infection while allowing the underlying immune system to sample luminal antigens and contribute to immune surveillance. Goblet cells in the epithelium can form goblet cell-associated antigen passages (GAPs). The formation of GAPs is an essential process for the delivery of luminal antigens to immune cells in the lamina propria and for subsequent induction of antigen-specific T cell responses.

In this first Protocol following our new format, Kathryn Knoop and colleagues from Washington University School of Medicine in St. Louis describe a step-by-step procedure to visualize intestinal GAPs in mice by intraluminal injection of fluorescent dextran, tissue sectioning for slide preparation, and imaging with fluorescence microscopy. This procedure might be useful to study the intestinal epithelium and other mucosal surfaces and to further understand how antigens cross the epithelium in the steady state or breach the barrier in times of inflammation.

See page 79

Cephalopods in the city

Cephalopods—squid, octopus, and cuttlefish—are unique organisms that are growing in popularity as lab animals in a number of research areas, including neuroscience, genetics, regeneration, and behavior. But to work with a particular animal, you need to be able to keep it happy and healthy in the lab environment. Cephalopods come with unique challenges as aquatic lab animals, but with the right resources they can be worth the effort.

Columbia University in New York City recently joined the ranks of institutions capable of culturing cephalopods, with a new set up to raise and work with the dwarf cuttlefish, *Sepia bandensis*. Aquatics manager Josh Barber and veterinarian Rebecca Ober share what went in to establishing that facility and what it takes for cuttlefish to make it big in the big city.

See page 61

Published online: 25 February 2020

<https://doi.org/10.1038/s41684-020-0502-8>

Editorial Board

Leanne Alworth, DVM, MS, DACLAM

Assistant Director/Attending Veterinarian,
University of Georgia, Athens, GA

Jeffrey Everitt, DVM

Department of Pathology, Duke University, Durham, NC

Craig Fletcher, DVM, PhD, DACLAM

Director, Division of Laboratory Animal Medicine
Assistant Dean for Animal Research Resources
Associate Professor, Department of Pathology and Laboratory Medicine
University of North Carolina, Chapel Hill, NC

Charmaine Foltz, DVM, DACLAM

Director, Division of Veterinary Resources, NIH, Bethesda, MD

Paul Houghton

CEO, Biologist, Primate Products, Redwood City, CA

Robert F. Hoyt, Jr., DVM, MS, DACLAM

Scientific Director, Priority One Services, Alexandria, VA

Mary Lou James, BA, RLATG

Consultant, Regulatory Compliance, St. Louis, MO

Alicia Z. Karas, DVM, MS, DACVA

Assistant Professor, Anesthesia, Department of Clinical Sciences,
Cummings School of Veterinary Medicine, Tufts University, North Grafton, MA

Bruce W. Kennedy, MS, RLATG, CMAR, CPIA

IACUC Administrator, Office of Research, Chapman University, Orange, CA

Krishnan Kolappaswamy, DVM, PhD, DACLAM

Director and Attending Veterinarian
Research Model and Services, US
Envigo, Indianapolis, IN

C. Max Lang, DVM, DACLAM

Professor and Chairman, Department of Comparative Medicine,
Milton S. Eshelby Medical Center, Pennsylvania State University, Hershey, PA

Richard H. Latt, DVM, DACLAM

President, Mispro Biotech Services Inc., Montreal, Quebec, Canada

Carol Cutler Linder, PhD

Assistant Professor of Biology, New Mexico Highlands University, Las Vegas, NM

John A. Maher, MS, MBA, CMAR, RLATG

Associate Director, Comparative Medicine, Pfizer, Pearl River, NY

Jörg Mayer, Dr.med.vet., MSc, MRCVS, DABVP (ECM)

Associate Professor of Zoological Medicine,
College of Veterinary Medicine, University of Georgia, Athens, GA

Daniel R. Schwartz, MS, DVM, DACLAM

Attending Veterinarian, Wesleyan University, Middleton, CT

Jo Ellen Sherow, BS, LATG

Director, Research Compliance, Ohio University, Athens, OH

Jerald Silverman, DVM, DACLAM

Director Emeritus, Department of Animal Medicine,
Professor Emeritus, Department of Pathology
University of Massachusetts Medical School, Worcester, MA

Michael K. Stoskopf, DVM, PhD, DACZM

Professor and Director of Environmental Medicine Consortium,
College of Veterinary Medicine, North Carolina State University, Raleigh, NC

James Taylor, DVM, MS, DACLAM

Management Consultant, Derwood, MD

Shannon M. Wallace, DVM

Senior Pathologist
Experimental Pathology Laboratories, Research Triangle Park, NC

Robert H. Weichbrod, PhD, MBA, RLATG

Animal Program Administrator, National Eye Institute, NIH, Bethesda, MD

Misty J. Williams-Fritze, DVM, MS, DACLAM

Director, Veterinary Services, CBSET, Inc., Lexington, MA

Axel Wolff, MS, DVM

Director, Division of Compliance Oversight, OLAW, NIH, Bethesda, MD