

## 3<sup>th</sup> UAB-UCSD O'BRIEN CENTER RODENT KIDNEY PHYSIOLOGY/ INJURY WORKSHOP

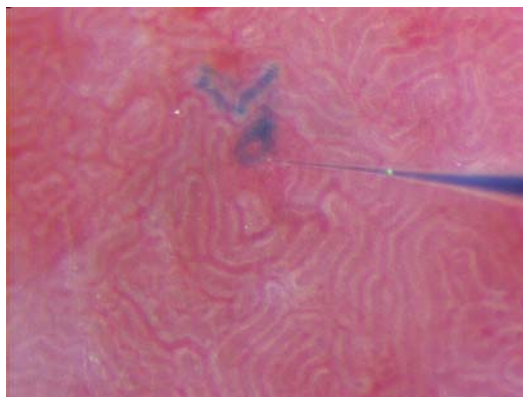
May 6-10, 2013

### A Four and ½ Day Training Course for Physiologists, Pharmacologists, and Nephrologists

Sponsored by the  
Division of Nephrology at the  
University of California, San Diego, the  
Veterans Affairs San Diego Healthcare System,  
and the

Division of Nephrology at the  
University of Alabama at Birmingham

Registration Fee: \$850.00 USD  
(\$1700.00 USD for industry)



Supported by the UAB-UCSD O'Brien Core Center  
for Acute Kidney Injury Research (DK079337)



This workshop is a hands-on course designed to familiarize the participant to the practices of animal handling and phenotyping techniques that are commonly used when working with the rat and mouse. Our experts will teach the basics of animal handling, injections, urine and blood sampling, assessment of blood pressure (Day 1), renal hemodynamics and transport on the whole kidney level (Day 2) as well as on the single nephron level (Day 3) and in models of kidney injury (Days 4). The format includes lectures, demonstrations and hands-on practical training and is open to graduate students, postdoctoral fellows, residents, research assistants, junior faculty and other laboratory personnel, as well.

**The aim of the workshop is to familiarize participants with practical procedures used to characterize renal function in rodents (rats and mice).**

### PROGRAM AT A GLANCE

Each day begins with an introduction to the procedures and concepts through lectures from our experts. Subsequently, the participants are separated into groups of three that will promote a more individualized learning experience during the practical sessions.

#### **Day 1 Introduction and Basic Procedures**

Instructors: Boykin, Bray, Charbono, Rieg, Vallon

##### **Introductory Lectures**

8:00 AM - 9:45 AM: Handling of rats and mice, laws and regulations

##### **Practical Sessions**

10:00 AM - 5:15 PM: a) Basic handling of rats and mice, isoflurane anesthesia, injections (IP, SC, tail vein and retro-orbital), drawing blood, oral

gavage, and tail and ear biopsies; b) Metabolic cage studies in mice; c) Blood pressure by tail cuff in mice.

#### **Day 2 Whole Kidney Function**

Instructors: Rieg, Singh, Thomson, Vallon

##### **Introductory Lectures**

8:00 AM - 8:25 AM: Assessment of glomerular filtration rate (GFR) (incl. clearance studies)

8:25 AM - 8:50 AM: Assessment of GFR by FITC inulin kinetics

9:00 AM - 9:25 AM: Assessment of renal plasma flow (RPF). Includes renal clearance and flow probe.

9:25 AM - 9:50 AM: Assessment of renal transport

##### **Practical Sessions**

10:00 AM - 5:15 PM: a) GFR by FITC inulin kinetics in mice; b) Arterial blood pressure, renal clearance experiment and flow probe in rats; c) Urine and plasma analysis.

#### **Day 3 Single Nephron Function**

Instructors: Blantz, Thomson, Rieg, Singh, Vallon

##### **Data analysis session**

8:00 AM - 8:55 AM: Analysis of data from a) FITC-inulin study and b) Metabolic cage

9:00 AM - 9:55 AM: Analysis of renal clearance studies and blood flow measurements

##### **Introductory Lectures**

10:00 AM - 10:40 AM: Determinants of single nephron GFR and their measurement

10:45 AM - 11:20 AM: Tubuloglomerular feedback

11:25 AM - 12:00 PM: Assessment of renal transport by micropuncture

##### **Practical Sessions**

1:00 PM - 5:15 PM: a) Rat preparation for micropuncture and pipette making; b) Rat renal micropuncture and microanalysis.

## Day 4 Models of Kidney Injury

Instructors: Agarwal, Dominguez-Rieg, Sanders, Singh, Thomson

### **Introductory Lectures**

8:00 AM - 8:40 AM: Models of acute kidney injury (AKI)

8:45 AM - 9:05 AM: Cecal ligation and puncture model of AKI

9:10 AM - 9:50 AM: Models of chronic kidney disease (CKD)

### **Practical Sessions**

10:00 AM - 5:15 PM: a) Ischemia-reperfusion injury in the rat; b) Unilateral nephrectomy and subtotal nephrectomy in the rat; c) Cecal ligation and puncture in the mouse.

## Day 5 Review and Discussion

Instructors: All faculty

8:00 AM -10:30 AM: Questions and answers.

### **WORKSHOP INSTRUCTORS**

#### University of California San Diego and VA Medical Center Lecturers and Instructors

##### **Roland C. Blantz, M.D., Professor of Medicine:**

Research interests include glomerular hemodynamics, tubuloglomerular feedback, in vivo and in vitro assessment of whole kidney and tubular/glomerular oxygen consumption.

##### **Mari Bray D.V.M., DACLAM, Veterinary Medical Officer:**

Dr. Bray is a laboratory animal veterinarian with interests in all aspects of laboratory animal care and use, including design of research models using humane methods.

##### **Timo Rieg M.D., Assistant Professor of**

**Medicine:** Research interests include regulation of renal function and blood pressure. Experienced in assessment of kidney function and blood pressure in awake and anesthetized mice.

##### **Prabhleen Singh M.D., Assistant Professor of**

**Medicine:** Dr Singh is interested in the pathophysiology of early chronic kidney disease and the early hemodynamic and metabolic alterations in models of kidney disease on the single nephron and whole kidney level.

##### **Scott Thomson M.D., Professor of Medicine:**

Dr. Thomson conducts research into the autoregulation of renal function with particular emphasis on tubuloglomerular feedback.

##### **Volker Vallon M.D., Professor of Medicine and**

**Pharmacology:** Research interests include molecular determinants of renal transport mechanisms, blood pressure regulation, and the pathophysiology of the early diabetic kidney.

#### Guest Lecturers and Instructors

##### **Christina Boykin, BS, RLATG, In-Vivo PK**

**Supervisor, Genomics Institute of Novartis Research Foundation (GNF):** Christina Boykin is highly experienced working with mice and rats, and she is an experienced instructor.

##### **Wilfred (Buddy) Charbono, Compliance and Training Manager, Sanford-Burnham Medical**

**Research Institute:** Buddy Charbono has over 20 years experience working with mice and rats, and he runs several wet labs for employees each year.

##### **Jessica Dominguez Rieg, Ph.D. Assistant**

**Professor of Physiology, Bastyr University:** Dr Dominguez' research is focused on evaluating the mechanisms behind epidermal growth factor- and probiotic-mediated intestinal protection in murine models of both pediatric and adult sepsis.

#### University of Alabama at Birmingham Lecturers and Instructors

##### **Anupam Agarwal, M.D., Director, Division of**

**Nephrology and UAB-UCSD O'Brien Core Center**

**Director:** Research interests focus on pathophysiology of acute kidney injury in animal models using in vivo and in vitro techniques. Animal models include renal I/R, sepsis, nephrotoxins and renal transplantation in mice.

##### **Paul Sanders, M.D., Professor of Medicine, Core**

**Director, Resource for Pre-clinical Studies of the**

**O'Brien Center:** Research interests include acute renal tubular injury from light chains, multiple myeloma, salt sensitive hypertension and cell signaling.

### **WORKSHOP LOCATION**

The location for this workshop will be the VA San Diego Healthcare Hospital.

##### O'Brien Center Workshop Director:

Dr. Volker Vallon ([vvallon@ucsd.edu](mailto:vvallon@ucsd.edu))

##### O'Brien Center Workshop Coordinator:

John Reeves ([jreeves@ucsd.edu](mailto:jreeves@ucsd.edu))

## REGISTRATION

### Registration Deadline is January 31, 2013

Your registration fee includes all course material in a binder, continental breakfasts, lunches, and one evening meal commemorating the workshop. All participants will leave with a CD containing the entire workshop lectures, worksheets, contact information on instructors. Lab coats will be provided for your use.

First \_\_\_\_\_

Last Name: \_\_\_\_\_

Institution: \_\_\_\_\_

Department: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Submit completed registration form, your biosketch, and a brief paragraph on your career goals by e-mail to:

John Reeves  
O'Brien Center Workshop Coordinator  
3350 La Jolla Village Drive, M.C: 9111-H  
San Diego, CA 92161-0002  
Phone: 858-552-7528  
Fax: 858-552-7549  
[jreeves@ucsd.edu](mailto:jreeves@ucsd.edu)

Once your application and accompanying materials are received, you will be furnished details for submitting your registration fee.

Please Note: Your participation in this workshop is not guaranteed until registration fees are received by us.

### Accommodations and Travel

Participants are responsible for their own travel and housing arrangements. John Reeves, O'Brien Center Workshop Coordinator, will provide assistance (See above for contact information).

**There are *only* nine slots available for this workshop, please register early!**



We are looking forward to seeing you in San Diego!