

7th UAB-UCSD O'BRIEN CENTER RODENT KIDNEY PHYSIOLOGY/ INJURY WORKSHOP

April 17-21, 2017

**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: \$900.00 USD
(\$1800.00 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 research assistants, graduate students, postdoctoral fellows, residents, scientists and faculty from academia/industry.

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 concepts and procedures through lectures from our experts. Subsequently, the participants are separated into groups of three to promote a more individualized learning experience during the practical sessions.

Day 1 Introduction and Basic Procedures

Instructors: Boykin, Bray, Charbono, Fu, 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: Fu, 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.

Yiling Fu, M.D. Ph.D., Research Scientist: Studies renal physiology/pathophysiology using rat models and gene-targeted mice.

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)

O'Brien Center Workshop Coordinator:

Teresa White (t5white@ucsd.edu)

REGISTRATION

Your registration fee (\$900.00 USD for academic, \$1800.00 USD for industry) 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.

Please submit

Last Name:

Institution:

Department:

Mailing Address:

Phone Number:

Fax Number:

E-mail Address:

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

Teresa White
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and cc to Dr. Vallon (vvallon@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. Teresa White, 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!