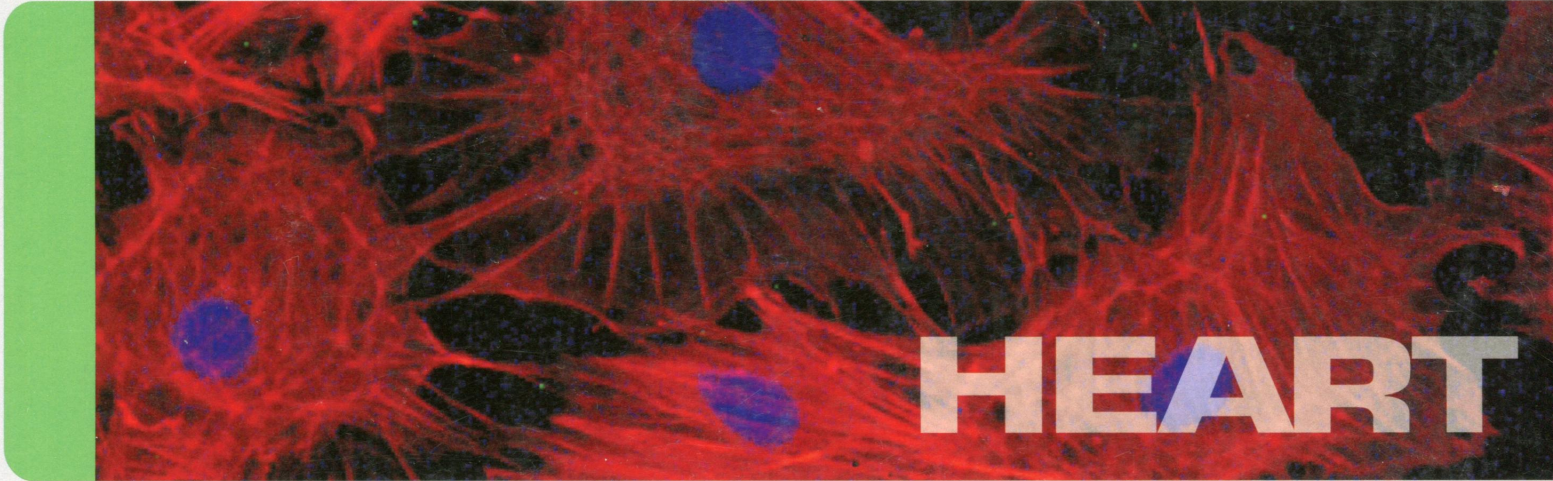


AN <sup>ILL</sup> <sup>A47/jpl</sup> INTERNATIONAL JOURNAL OF  
**PHYSIOLOGY**

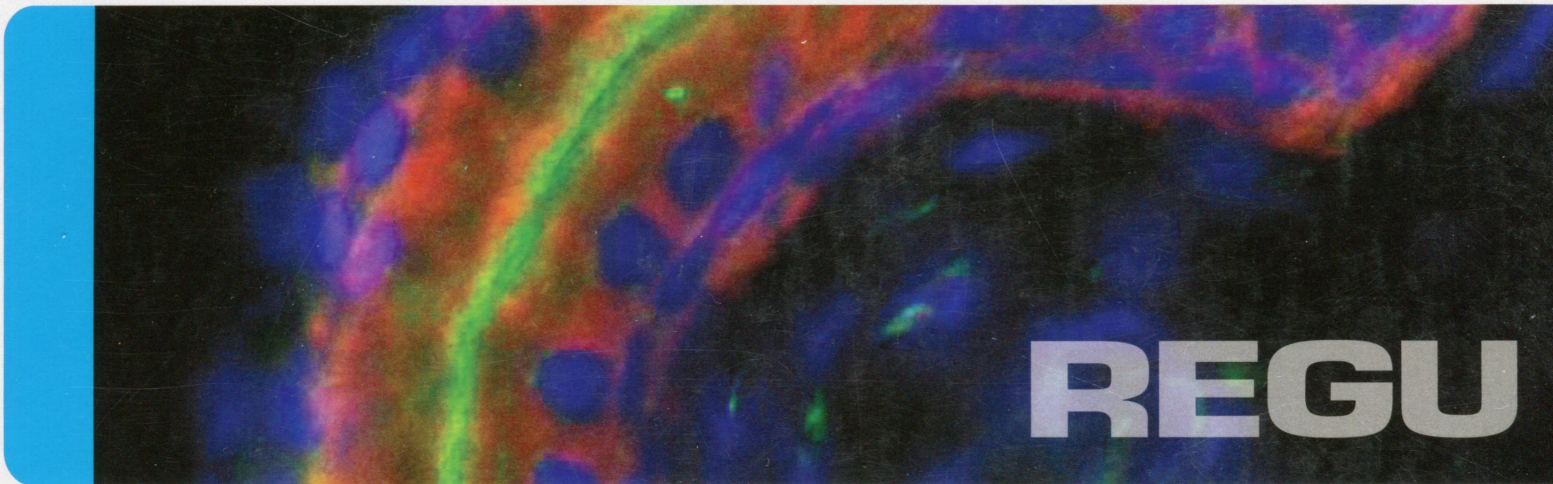
**volume 306**

**no. 2**

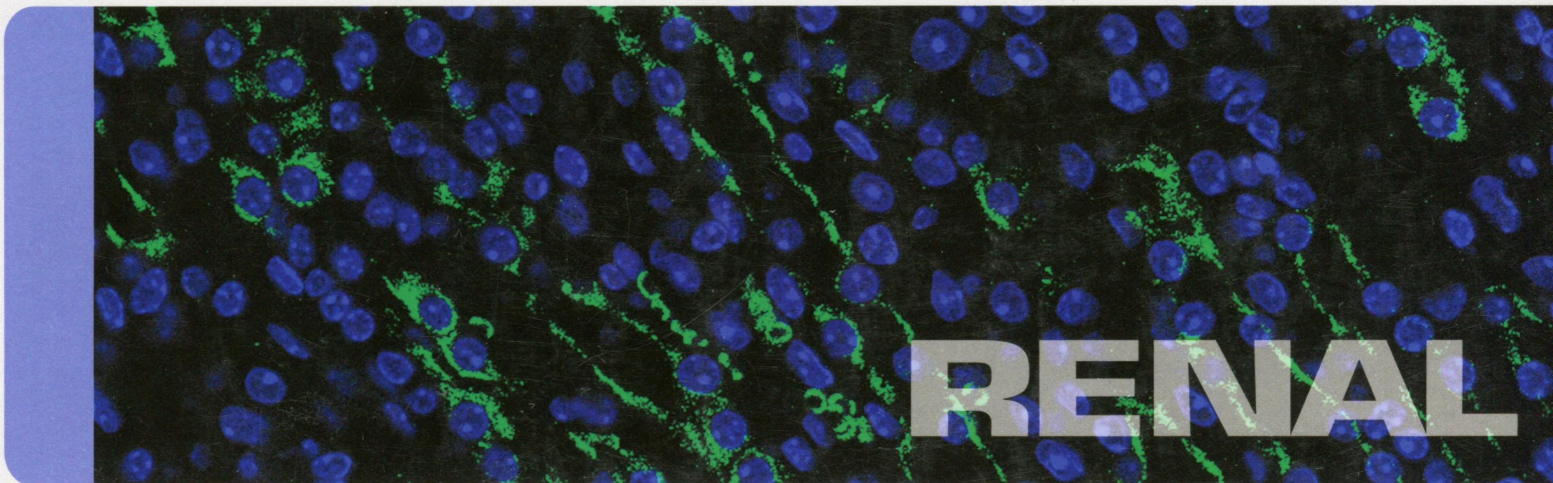
**february 2014**



**HEART**



**REGU**



**RENAL**

**2 of 2**

**PUBLISHED BY THE AMERICAN PHYSIOLOGICAL SOCIETY**

# American Journal of Physiology- Heart and Circulatory Physiology

February 1, 2014

---

## CALL FOR PAPERS

### Cardiovascular and Cerebrovascular Aging—New Mechanisms and Insights

Resveratrol treatment rescues neurovascular coupling in aged mice: role of improved  
cerebromicrovascular endothelial function and downregulation of NADPH oxidase

*P. Toth, S. Tarantini, Z. Tucsek, N. M. Ashpole, D. Sosnowska, T. Gautam, P. Ballabh,  
A. Koller, W. E. Sonntag, A. Csiszar, and Z. Ungvari*

H299

---

## CALL FOR PAPERS

### Sex and Gender Differences in Cardiovascular Physiology—Back to the Basics

Sex differences in forearm vasoconstrictor response to voluntary apnea

*H. M. Patel, M. J. Heffernan, A. J. Ross, and M. D. Muller*

H309

---

## CALL FOR PAPERS

### Pathophysiology of Hypertension

New paradigms in inflammatory signaling in vascular endothelial cells (**Review**)

*L. Xiao, Y. Liu, and N. Wang*

H317

---

## CALL FOR PAPERS

### Mitochondria in Cardiovascular Physiology and Disease

Cardiac-specific VLCAD deficiency induces dilated cardiomyopathy and cold intolerance

*D. Xiong, H. He, J. James, C. Tokunaga, C. Powers, Y. Huang, H. Osinska,  
J. A. Towbin, E. Purevjav, J. A. Balschi, S. Javadov, F. X. McGowan, Jr.,  
A. W. Strauss, and Z. Khuchua*

H326

---

## VASCULAR BIOLOGY AND MICROCIRCULATION

Amelioration of salt-induced vascular dysfunction in mesenteric arteries of Dahl salt-sensitive  
rats by missense mutation of extracellular superoxide dismutase

*A. M. Beyer, G. Raffai, B. D. Weinberg, K. Fredrich, M. S. Rodgers, A. M. Geurts,  
H. J. Jacob, M. R. Dwinell, and J. H. Lombard*

H339

Aerobic exercise training increases plasma Klotho levels and reduces arterial stiffness in  
postmenopausal women

*T. Matsubara, A. Miyaki, N. Akazawa, Y. Choi, S.-G. Ra, K. Tanahashi, H. Kumagai,  
S. Oikawa, and S. Maeda*

H348

Inducible nitric oxide synthase inhibits oxygen consumption in collateral-dependent myocardium

*Y. Chen, P. Zhang, J. Li, X. Xu, and R. J. Bache*

H356

---

**REVIEW**

- A translational approach to probe the proarrhythmic potential of cardiac alternans: a reversible overture to arrhythmogenesis?  
*F. M. Merchant, O. Sayadi, D. Puppala, K. Moazzami, V. Heller, and A. A. Armourdas* H465
- 

**CALL FOR PAPERS**  
**Mitochondria in Cardiovascular Physiology and Disease**

- Epoxyeicosatrienoic acids pretreatment improves amyloid  $\beta$ -induced mitochondrial dysfunction in cultured rat hippocampal astrocytes  
*P. Sarkar, I. Zaja, M. Bienengraeber, K. R. Rarick, M. Terashvili, S. Canfield, J. R. Falck, and D. R. Harder* H475
- 

**VASCULAR BIOLOGY AND MICROCIRCULATION**

- The obligatory role of the actin cytoskeleton on inward remodeling induced by dithiothreitol activation of endogenous transglutaminase in isolated arterioles  
*J. A. Castorena-Gonzalez, M. C. Staiculescu, C. A. Foote, L. Polo-Parada, and L. A. Martinez-Lemus* H485
- Perfusion territories subtended by penetrating coronary arteries increase in size and decrease in number toward the subendocardium  
*P. van Horssen, J. P. H. M. van den Wijngaard, M. J. Brandt, I. E. Hoefer, J. A. E. Spaan, and M. Siebes* H496
- Variation of mechanical properties and quantitative proteomics of VSMC along the arterial tree  
*C. L. Dinardo, G. Venturini, E. H. Zhou, I. S. Watanabe, L. C. G. Campos, R. Dariolli, J. M. da Motta-Leal-Filho, V. M. Carvalho, K. H. M. Cardozo, J. E. Krieger, A. M. Alencar, and A. C. Pereira* H505
- Scalability and in vivo validation of a multiscale numerical model of the left coronary circulation  
*J. P. Mynard, D. J. Penny, and J. J. Smolich* H517
- 

**ENERGETICS AND METABOLISM**

- NADH changes during hypoxia, ischemia, and increased work differ between isolated heart preparations  
*A. M. Wengrowski, S. Kuzmiak-Glancy, R. Jaimes, 3rd, and M. W. Kay* H529
- 

**MUSCLE MECHANICS AND VENTRICULAR FUNCTION**

- Effects of activation pattern and active stress development on myocardial shear in a model with adaptive myofiber reorientation  
*M. Pluijmert, P. H. M. Bovendeerd, W. Kroon, F. W. Prinzen, and T. Delhaas* H538
- 

**SIGNALING AND STRESS RESPONSE**

- Release kinetics of circulating cardiac myosin binding protein-C following cardiac injury (Translational Physiology)  
*D. W. D. Kuster, A. Cardenas-Ospina, L. Miller, C. Liebetrau, C. Troidl, H. M. Nef, H. Möllmann, C. W. Hamm, K. S. Pieper, K. W. Mahaffey, N. S. Kleiman, B. D. Stuyvers, A. J. Marian, and S. Sadayappan* H547
- Circulating micrnas as potential biomarkers of aerobic exercise capacity  
*F. C. Mooren, J. Viereck, K. Krüger, and T. Thum* H557
- 

**CARDIAC EXCITATION AND CONTRACTION**

- Enhanced currents through L-type calcium channels in cardiomyocytes disturb the electrophysiology of the dystrophic heart  
*X. Koenig, L. Rubi, G. J. Obermair, R. Cervenka, X. B. Dang, P. Lukacs, S. Kummer, R. E. Bittner, H. Kubista, H. Todt, and K. Hilber* H564
- Novel role of transient receptor potential vanilloid 2 in the regulation of cardiac performance  
*J. Rubinstein, V. M. Lasko, S. E. Koch, V. P. Singh, V. Carreira, N. Robbins, A. R. Patel, M. Jiang, P. Bidwell, E. G. Kranias, W. K. Jones, and J. N. Lorenz* H574

## INTEGRATIVE CARDIOVASCULAR PHYSIOLOGY AND PATHOPHYSIOLOGY

- Apelin gene therapy increases myocardial vascular density and ameliorates diabetic cardiomyopathy via upregulation of sirtuin 3  
*H. Zeng, X. He, X. Hou, L. Li, and J.-X. Chen* H585
- Overexpression of VEGF-C attenuates chronic high salt intake-induced left ventricular maladaptive remodeling in spontaneously hypertensive rats  
*G.-H. Yang, X. Zhou, W.-J. Ji, S. Zeng, Y. Dong, L. Tian, Y. Bi, Z.-Z. Guo, F. Gao, H. Chen, T.-M. Jiang, and Y.-M. Li* H598
- Augmented dilation to nitric oxide in uterine arteries from rats with type 2 diabetes: implications for vascular adaptations to pregnancy  
*S. Goulopoulou, J. L. Hannan, T. Matsumoto, A. Ergul, and R. C. Webb* H610

## American Journal of Physiology- Regulatory, Integrative and Comparative Physiology

February 1, 2014

---

### RESEARCH

#### NEURAL CONTROL

- Intraduodenal milk protein concentrate augments the glycemic and food intake suppressive effects of DPP-IV inhibition  
*D. R. Olivos, L. E. McGrath, C. A. Turner, O. Montaubin, E. G. Mietlicki-Baase, and M. R. Hayes* R157
- Effect of sex chromosome complement on sodium appetite and Fos-immunoreactivity induced by sodium depletion  
*F. M. Dadam, X. E. Caeiro, C. D. Cisternas, A. F. Macchione, M. J. Cambiasso, and L. Vivas* R175
- Parabrachial-hypothalamic interactions are required for normal conditioned taste aversions  
*S. Dayawansa, S. Ruch, and R. Norgren* R190

#### FLUID AND ELECTROLYTE HOMEOSTASIS

- Effect of sex chromosome complement on sodium appetite and Fos-immunoreactivity induced by sodium depletion  
*F. M. Dadam, X. E. Caeiro, C. D. Cisternas, A. F. Macchione, M. J. Cambiasso, and L. Vivas* R175
- Inhibitor of intramembranous absorption in ovine amniotic fluid  
*R. A. Brace, C. Y. Cheung, and D. F. Anderson* R185

#### OBESITY, DIABETES AND ENERGY HOMEOSTASIS

- Intraduodenal milk protein concentrate augments the glycemic and food intake suppressive effects of DPP-IV inhibition  
*D. R. Olivos, L. E. McGrath, C. A. Turner, O. Montaubin, E. G. Mietlicki-Baase, and M. R. Hayes* R157
- Orexigenic response to tail pinch: role of brain NPY<sub>1</sub> and corticotropin releasing factor receptors  
*M. Goebel-Stengel, A. Stengel, L. Wang, and Y. Taché* R164
- Parabrachial-hypothalamic interactions are required for normal conditioned taste aversions  
*S. Dayawansa, S. Ruch, and R. Norgren* R190

---

February 15, 2014

---

### REVIEW

- Role of the lateral parabrachial nucleus in the control of sodium appetite  
*J. V. Menani, L. A. De Luca, Jr., and A. K. Johnson* R201

---

### RESEARCH

#### NEURAL CONTROL

- Stimulation of feeding by three different glucose-sensing mechanisms requires hindbrain catecholamine neurons  
*A.-J. Li, Q. Wang, T. T. Dinh, B. R. Powers, and S. Ritter* R257

$\delta$ -Opioid receptor activation stimulates normal diet intake but conversely suppresses high-fat diet intake in mice  
*K. Kaneko, T. Mizushige, Y. Miyazaki, M. Lazarus, Y. Urade, M. Yoshikawa, R. Kanamoto, and K. Ohinata* R265

## FLUID AND ELECTROLYTE HOMEOSTASIS

Involvement of the calcium-sensing receptor in calcium homeostasis in larval zebrafish exposed to low environmental calcium  
*R. W. M. Kwong, D. Auprix, and S. F. Perry* R211

## OBESITY, DIABETES AND ENERGY HOMEOSTASIS

Stimulation of feeding by three different glucose-sensing mechanisms requires hindbrain catecholamine neurons  
*A.-J. Li, Q. Wang, T. T. Dinh, B. R. Powers, and S. Ritter* R257

$\delta$ -Opioid receptor activation stimulates normal diet intake but conversely suppresses high-fat diet intake in mice  
*K. Kaneko, T. Mizushige, Y. Miyazaki, M. Lazarus, Y. Urade, M. Yoshikawa, R. Kanamoto, and K. Ohinata* R265

## CARDIOVASCULAR AND RENAL INTEGRATION

Phosphorylation of myosin regulatory light chain has minimal effect on kinetics and distribution of orientations of cross bridges of rabbit skeletal muscle  
*D. Duggal, J. Nagwekar, R. Rich, K. Midde, R. Fudala, I. Gryczynski, and J. Borejdo* R222

A mathematical model of long-term renal sympathetic nerve activity inhibition during an increase in sodium intake  
*F. Karaaslan, Y. Denizhan, and R. Hester* R234

Postmenopausal hypertension: role of the sympathetic nervous system in an animal model  
*R. O. Maranon, R. Lima, M. Mathbout, J. M. do Carmo, J. E. Hall, R. J. Roman, and J. F. Reckelhoff* R248

## HORMONES, REPRODUCTION AND DEVELOPMENT

Postmenopausal hypertension: role of the sympathetic nervous system in an animal model  
*R. O. Maranon, R. Lima, M. Mathbout, J. M. do Carmo, J. E. Hall, R. J. Roman, and J. F. Reckelhoff* R248

Enhanced ventricular pump function and decreased reservoir backflow sustain rise in pulmonary blood flow after reduction of lung liquid volume in fetal lambs  
*J. J. Smolich* R273

# American Journal of Physiology- Renal Physiology

February 1, 2014

---

## REVIEW

Tuberous sclerosis complex, mTOR, and the kidney: report of an NIDDK-sponsored workshop  
*E. P. Henske, R. Rasooly, B. Siroky, and J. Bissler* F279

---

## EDITORIAL FOCUS

Advancement in integrated models of renal function: closing the gap between simulation and real life  
*B. Braam* F284

---

Purinergic and muscarinic modulation of ATP release from the urothelium and its paracrine actions  
*G. Sui, C. H. Fry, B. Montgomery, M. Roberts, R. Wu, and C. Wu* F286

Inflammasomes are important mediators of cyclophosphamide-induced bladder inflammation  
*F. M. Hughes, Jr., N. P. Vivar, J. G. Kennis, J. D. Pratt-Thomas, D. W. Lowe, B. E. Shaner, P. J. Nietert, L. S. Spruill, and J. T. Purves* F299

ENaC activity is increased in isolated, split-open cortical collecting ducts from protein kinase C $\alpha$  knockout mice  
*H.-F. Bao, T. L. Thai, Q. Yue, H.-P. Ma, A. F. Eaton, H. Cai, J. D. Klein, J. M. Sands, and D. C. Eaton* F309

- Spatial organization of the vascular bundle and the interbundle region: three-dimensional reconstruction at the inner stripe of the outer medulla in the mouse kidney  
*H. Ren, L. Gu, A. Andreasen, J. S. Thomsen, L. Cao, E. I. Christensen, and X.-Y. Zhai* F321
- Control of renin secretion from kidneys with renin cell hyperplasia  
*B. Kurt, C. Karger, C. Wagner, and A. Kurtz* F327
- Impaired renal function and development in Belgrade rats  
*T. Veuthey, D. Hoffmann, V. S. Vaidya, and M. Wessling-Resnick* F333
- Enhanced expression and activity of Nox2 and Nox4 in the macula densa in ANG II-induced hypertensive mice  
*J. Zhang, K. Chandrashekar, Y. Lu, Y. Duan, P. Qu, J. Wei, L. A. Juncos, and R. Liu* F344
- Regulation of renal phosphate transport by FGF23 is mediated by FGFR1 and FGFR4  
*J. Gattineni, P. Alphonse, Q. Zhang, N. Mathews, C. M. Bates, and M. Baum* F351

---

## INNOVATIVE METHODOLOGY

- Tolvaptan as a tool in renal physiology  
*C. A. Miranda, J. W. Lee, C.-L. Chou, and M. A. Knepper* F359

---

**February 15, 2014**

---

## REVIEW

- Mitochondrial dysfunction in the pathophysiology of renal diseases  
*R. Che, Y. Yuan, S. Huang, and A. Zhang* F367

---

## CALL FOR PAPERS Novel Therapeutics in Renal Diseases

- CDK4/6 inhibition induces epithelial cell cycle arrest and ameliorates acute kidney injury  
*D. P. DiRocco, J. Bisi, P. Roberts, J. Strum, K.-K. Wong, N. Sharpless, and B. D. Humphreys* F379

---

## CALL FOR PAPERS Renal Acid-Base Physiology

- Effect of collecting duct-specific deletion of both Rh B Glycoprotein (Rhbg) and Rh C Glycoprotein (Rhcg) on renal response to metabolic acidosis  
*H.-W. Lee, J. W. Verlander, M. E. Handlogten, K.-H. Han, and I. D. Weiner* F389

---

## CALL FOR PAPERS Novel Mechanisms and Role of Glomerular Podocytes

- Susceptibility of podocytes to palmitic acid is regulated by fatty acid oxidation and inversely depends on acetyl-CoA carboxylases 1 and 2  
*K. Kampe, J. Sieber, J. M. Orellana, P. Mundel, and A. W. Jehle* F401

- 
- Global analysis of the effects of the V2 receptor antagonist satavaptan on protein phosphorylation in collecting duct  
*J. D. Hoffert, T. Pisitkun, F. Saeed, J. L. Wilson, and M. A. Knepper* F410
- Vitamin E protection of obesity-enhanced vascular calcification in uremic rats  
*A. Peralta-Ramírez, A. Montes de Oca, A. I. Raya, C. Pineda, I. López, F. Guerrero, E. Diez, J. R. Muñoz-Castañeda, J. Martínez, Y. Almaden, M. Rodríguez, and E. Aguilera-Tejero* F422
- Basic fibroblast growth factor reduces functional and structural damage in chronic kidney disease  
*S. Villanueva, F. Contreras, A. Tapia, J. E. Carreño, C. Vergara, E. Ewertz, C. Cespedes, C. Irarrazabal, M. Sandoval, V. Velarde, and C. P. Vio* F430
- Extracellular fetal hemoglobin induces increases in glomerular permeability: inhibition with  $\alpha_1$ -microglobulin and tempol  
*K. Sverrisson, J. Axelsson, A. Rippe, M. Gram, B. Åkerström, S. R. Hansson, and B. Rippe* F442
- L-Arginine improves endothelial function, independently of arginine uptake, in aortas from chronic renal failure female rats  
*N. Neshet, I. Frolkis, D. Schwartz, T. Chernichovski, S. Levi, Y. Pri-Paz, G. Chermis, A. Shtabsky, Y. Ben-Gal, Y. Paz, and I. F. Schwartz* F449
- Acute inhibition of NCC does not activate distal electrogenic  $\text{Na}^+$  reabsorption or kaliuresis  
*R. W. Hunter, E. Craigie, N. Z. M. Homer, J. J. Mullins, and M. A. Bailey* F457