

AJP-Regulatory, Integrative and Comparative Physiology: into the future

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I am honored to take over the reins of *AJP-Regulatory, Integrative and Comparative Physiology* from my predecessor, Curt Sigmund. During Dr. Sigmund's tenure as Editor-in-Chief, we witnessed a steady increase in the quality of papers published and the citations of those manuscripts. The focus on the Call for Papers initiative has been maintained and expanded, an emphasis on Invited Reviews authored by experts in the discipline has been established, the importance of Comparative Physiology has been emphasized, and the speed of the review process has increased. This success is remarkable when one considers the precipitous drop in the number of manuscripts submitted for peer review (in most journals including *AJP-Regulatory, Integrative and Comparative Physiology*) and the current gloomy funding environment. We must keep the momentum going.

What is the role of the journal and how does it serve the biomedical community in general and the American Physiological Society in particular? First, and foremost, it is my opinion that by nature the journal represents the entire membership of the Society. It is not "organ-centric;" instead it is a vehicle for the publication of new information on how animals (all species, not simply humans) develop, grow, age, and interact with their environments (both internal and external) as well as with each other. Several of our incoming Associate Editors have described what I feel will be the basis of our focus for the coming years. John Corbett, states it wonderfully: "Integrative Physiology is everything from how two enzymes work together to improve the overall function of a cell all the way to how specialized cells interact and respond to various environmental stimuli to maintain the health and vitality of an organism." Heddwen Brooks defines Regulatory, Integrative and Comparative Physiology to be a scientific discipline that uses "... the power of zoology (i.e. comparative models) to understand the physiological regulation of organ function and how it changes in disease." Maureen Keller-Wood sees *AJP-Regulatory, Integrative and Comparative Physiology* to be a "... home for both the 80s definition of regulatory studies that use modeling systems for example, as well as for genomic studies of regulatory genes in physiologic pathways." Wolfgang Langhans sees regulatory and integrative physiology as "... the integration of different levels of scientific analysis, from the molecular through the cellular and organ to the systemic level, as well as the combination of homeostatic and hedonic ... factors" that define physiology, thus indicating the importance of complex behaviors observed in diverse species. He does caution, however, that although findings in diverse animal models are informative, one must "... keep in mind that not everything we observe in mice or rats is fully applicable to man." Here is where *AJP-Regulatory, Integrative*

and Comparative Physiology can, in the future, have an impact. The journal needs to emphasize the translational aspect of observations in animal models and attract reports of novel findings in human physiology and pathophysiology.

We have assembled a new Editorial Team that represents the diversity of integrative physiology, both in terms of backgrounds of the scientists who study the discipline and their individual research interests. Increased emphasis will be placed on attracting manuscripts detailing the physiological basis of sex differences in regulatory processes and, importantly, maternal and fetal physiology including the issue of fetal programming. Jane Reckelhoff (15) from the University of Mississippi focuses her research on sex differences in blood pressure control and renal function. In particular she studies postmenopausal and Polycystic Ovarian Syndrome-associated hypertension and the actions of androgens on blood pressure regulation. Dr. Reckelhoff recently served as Editor of *Gender Medicine*. Maureen Keller-Wood (8) from the University of Florida is interested in the effect of corticosteroids and stress both on maternal adaptations to pregnancy and on fetal growth and organ maturation. Her interests include both physiological and pathophysiological effects of glucocorticoid and mineralocorticoid receptor activation on gene expression and functional changes in the heart, lung, and brain of the late-gestation fetus and the neonate.

Several editors have interests in comparative physiology, for which the journal is a home. From the use of turtles for studying reproductive function to bioinformatics-based study of the evolutionary conservation of hormone and receptor gene sequences to receptor signaling in fish and hormone mechanisms in ovine pregnancy, the editorial team practices comparative techniques at all levels.

Kenneth Olson (11) from the University of Notre Dame has employed fish to study the mechanisms and evolution of blood pressure regulation and fluid homeostasis. More recently, Dr. Olson has employed multiple species (e.g., lamprey, rats, mice, cows) concentrating on the hypothesis that metabolism of H₂S is an O₂-sensing mechanism in the vertebrate cardiovascular system. An effort is already underway to increase the number of Invited Review articles in comparative physiology in an attempt to attract more primary research manuscripts to the journal and broaden the awareness of the importance of comparative models of integrative physiology.

A traditional emphasis of *AJP-Regulatory, Integrative and Comparative Physiology* has been water and electrolyte homeostasis, and we will continue our focus there. Heddwen Brooks (12), at the University of Arizona, combines animal models and gene profiling techniques to elucidate the physiological and pathophysiological role of vasopressin in the control of renal function. Her current studies include the endoplasmic reticulum stress response, proliferation, and mammalian target of rapamycin activation in the distal tubule. The lab also examines how menopause accelerates the onset of the meta-

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bolic syndrome, hypertension, and diabetic kidney disease. From Monash University, Roger Evans (10) joins the team with a longstanding interest in renal circulatory physiology in the context of hypertension and kidney disease. In particular, Dr. Evans is developing new technology for investigating kidney oxygenation *in vivo*, detailed quantification of renal vascular anatomy, and collaborations with mathematicians designing computational models of oxygen transport in the kidney. Dr. Evans brings extensive editorial experience to the team, just having completed his term as Editor-in-Chief of *Clinical and Experimental Pharmacology and Physiology*.

The central control of autonomic function has long been a staple of the journal, and we have recruited three experts in the field to lead the review of those manuscripts. Ann Schreihofner (6), from the University of North Texas Health Science Center, is broadly interested in brain stem mechanisms controlling sympathetic nerve activity and central respiratory mechanisms involved in blood pressure regulation. In addition she will contribute to our efforts to attract manuscripts examining the convergence of obesity and hypertension in the metabolic syndrome. Alastair Ferguson (9), at Queen's University, has a longstanding interest in central autonomic control including the common circuitry integrating cardiovascular, metabolic, neuroendocrine, respiratory, and gastrointestinal functions. Using a combination of electrophysiological and genetic approaches, Dr. Ferguson examines how circulating factors enter into brain or signal to the central nervous system through blood-brain barrier-free zones in the circumventricular organs to influence critical autonomic nuclei of the hypothalamus and medulla. Autonomic regulation is also a focus for Craig Crandall (3), from the University of Texas Southwestern Medical Center, who studies the cardiovascular responses to heat/cold stress in healthy and diseased/injured individuals. In addition, Dr. Crandall studies a variety of physiological and pathophysiological states in humans including aging, postmenopausal hot flashes, congestive heart failure, multiple sclerosis, and hemorrhage. His translational focus will be a major addition to our editorial team, as will be Dr. Crandall's experience having just completed two terms as an Associate Editor for *Medicine and Science in Sports and Exercise*. Fluid and electrolyte homeostasis and the central control of autonomic function have long been a focus of the Samson lab (16) and as Editor-in-Chief, I will continue to be involved in the review of those manuscripts.

Metabolism, although a primary focus for another AJP journal, will continue to be a highlight of *AJP-Regulatory, Integrative and Comparative Physiology*, particularly with regard to the control of glucose homeostasis and appetite. John Corbett (1), from the Medical College of Wisconsin, focuses on the interaction of endocrine hormones and innate immunity and how these interactions participate in the regulation of energy balance, immunity, and cell fate. His group studies the mechanisms controlling cell fate decisions in response to inflammatory stimuli such as cytokines, toxins, free fatty acids, and infectious agents with an emphasis on pancreatic beta cells. Wolfgang Langhans (2), from the Swiss Federal Institute of Technology (ETH) Zürich, researches the physiological mechanisms that control eating and energy balance and their disturbances, using a combination of molecular, immunohistochemical, electrophysiological, and behavioral approaches. His primary interests are the control of eating by peripheral me-

tabolism, in particular fatty acid oxidation, and the role of gut peptides in the control of eating.

Important, but frequently overlooked, members of any editorial team are the Consulting Editors and the Editorial Assistant. They provide the stability of vision needed to maintain the focus of the journal, while at the same time "proofing" its progress. In addition, their unique perspectives contribute to new initiatives and they will play important roles in the internationalization of the journal. Curt Sigmund (14), the outgoing Editor-in-Chief, has agreed to join the group to maintain "institutional" memory and provide a sympathetic ear. Benedito Machado (4), from the University of Sao Paulo-Ribeirao Preto, contributes a broad awareness of the excellent integrative physiology being conducted in South America and the benefit of an established career in central autonomic control. Randy Sprague (5), from Saint Louis University, brings his clinical experience and insight, as well as his expertise in respiratory physiology, hypertension, and diabetes. We look to two outstanding scientists from Japan for assistance in attracting solid research publications from Asia and the Pacific Rim. Naoto Minamino (13), from the National Cardiovascular Research Center Institute in Osaka, has made numerous contributions to the study of cardiovascular physiology and metabolism and is the Director of the Peptidome Project, which is a comprehensive database for biologically active peptides. Yoichi Ueta (7), from the University of Environmental and Health Sciences in Kitakyushu, employs transgenic approaches to the study of water and electrolyte homeostasis and neuroendocrine function. Dr. Ueta's collaborations around the world and his active involvement in the scientific societies of many nations will provide broad advocacy for *AJP-Regulatory, Integrative and Comparative Physiology*. Finally, we hope to continue the outstanding model of efficient service provided by the outgoing Editorial Assistant, Vickie Akers, who facilitated the work of the Associate Editors with great cheer and professionalism. Our editorial team is completed by the appointment of a young integrative physiologist as the new Editorial Assistant. Gina L. C. Yosten (17), a faculty member in Pharmacological and Physiological Sciences at Saint Louis University, will take over the job and with her expertise in central autonomic control, hormonal and behavioral regulation of fluid and electrolyte homeostasis, and G protein-coupled receptors also will contribute to the initial review of the data sets in each submitted manuscript to check for authenticity and clarity of presentation.

Finally, we thank the outgoing team of Editors for their outstanding service to the journal and the Society. They will continue as members of the Editorial Board and be called upon for senior advisory leadership when new initiatives are considered. Thank you Kim Johnson (University of Iowa), Martin Klingenspor (Universität München), Ulla Kopp (University of Iowa), Barry Levin (University of Medicine and Dentistry of New Jersey), Anne McArdle (University of Liverpool), Darrell Neuffer (East Carolina University), Hiroko Nishimura (University of Tennessee Health Sciences Center), Quentin Pittman (University of Calgary), David Pollock (Georgia Regents University), Scott Powers (University of Florida), and Celia Sladek (University of Colorado Denver) for your dedication to the journal.

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