



The Physiologist

INSIDE

APS Council Holds

Fall Meeting

p. 8

APS Promotes

Physiology to

Biology Educators

at National

Convention

p. 11

Surviving

Adversity and

Embracing New

Challenges

p. 13

APS Urges

President Obama

to Continue

Support for

Research in 2010

p. 15

2009 Walter C. Randall Lecture in Bioethics **Autonomy and Consent in Biobanks**

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Preliminaries

I was honored to deliver the Walter C. Randall Lecture in Bioethics in April 2009, and this article is based on that talk.

I dedicated my talk and I dedicate this article to the pulmonary physiologist and bioengineer John Lehr, PhD, (1944-1997) who was a long-time faculty member at the Harvard School of Public Health (HSPH) and member of the American Physiological Society. John was my boss at the HSPH when I was a research assistant after graduating from college in the late 1980s, and it was around this time that I started pursuing my interest in philosophy and ethics. He was always supportive of this, most importantly letting me work “flex-time” when courses took me away from the lab for a few hours in the afternoon once or twice a week. Sometimes he adopted a stance of good-natured befuddlement. When I had to ask him to approve my graduate course in “Topics in Metaphysics” one term, he said with a smile that he would do so only if I could show him where the “metaphysics” are in the lungs (the organ we studied). I couldn’t do it, but he signed the approval anyway.

John was a wonderful man in many ways, and I hope that his example of



Peter H. Schwartz

encouragement of an RA exploring unusual academic interests will encourage others reading this article to take a similar stance, whenever possible, towards their employees or subordinates. I suppose that a plea for virtuous mentorship is not a bad place to start a lecture on biomedical ethics.

Introduction

Advances in crucial areas of biological and medical research may depend on the construction and use of “biobanks,” i.e., collections of human tissue (including cells, blood, DNA, etc.) coupled with personal and medical information about the donors. Many scientists believe that biobanks are essential for determining the functions of human genes, proteins, and other factors by allowing the identification of associations with personal characteristics or medical outcomes. For example, a certain gene may be correlated with increased risk of heart disease or with better or worse outcomes in response to certain treatments. Discovering such associations can be directly useful for clinical care, as when an individual who is known to have a gene carrying increased risk of heart

(continued on page 3)

The Physiologist

Contents

2009 Walter C. Randall Lecture	Science Policy	
<i>in Bioethics</i>	APS Urges President Obama to	
Autonomy and Consent	Continue Support for Research in	
in Biobanks	FY 2011	15
<i>Peter H. Schwartz</i>	1 Congress Passes FY 2010 Budget	15
	Great Ape Bill Threatens Research	15
APS News	New Resources for Animal Research	16
APS Holds Contest to Design		
New Logo	7 Communications	
APS Council Holds Fall Meeting	8 Mass Media Fellow	17
	Press Releases and Podcasts	17
Membership	9 Experimental Biology '10	
New Regular Members	10 Program Schedule	18
New Student Members		
New Affiliate Member	10 Positions Available	23
Recently Deceased Members		
Education	Books Received	24
APS Promotes Physiology to Biology		
Educators at National Convention	11 Senior Physiologists' News	25
APS Presents Awards at the Annual		
Biomedical Research Conference for	People & Places	28
Minority Students (ABRCMS)		
	The Wine Wizard	29
Mentoring Forum	Scientific Meetings	
Surviving Adversity and Embracing	and Congresses	30
New Challenges		
<i>Patricia E. Molina</i>		13

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disease undergoes testing or treatment to reduce that risk. Dreams of “personalized medicine” depend on exactly these sort of possibilities, although there are many ethical and practical challenges to putting such plans into place. Perhaps even more importantly, the associations that biobanks will allow scientists to discover between genes or other biological factors and personal characteristics or outcomes can allow further research to uncover the key mechanisms involved, leading to medical advances.

Although this is a dream about what can be accomplished in the future, there has already been a stampede to construct biobanks. There are already hundreds of millions of biological samples stored in the United States and around the world in ways that are more or less accessible to research, although many of these may not be linked to personal information (17). Countries including Britain, Canada, Norway, Sweden, and Iceland have national biobanks or plan to construct them (19). The National Cancer Institute is currently planning the first national biobank in the United States (19). We must also acknowledge that the rush into biobank research has not been motivated just by commitment to scientific and medical progress, but also by the possibility of financial windfalls generated in various ways, such as by licensing access to the biobank’s data (27).

The promise of biobanks comes along with important ethical and pragmatic challenges (23). Some of these involve trying to keep such massive amounts of information confidential, available to scientists but protected against unintentional use that could harm the donors (8). Other key questions involve how biobanks should be governed, especially how much public control should be exerted and in what way in determining policies and directing research (27, 20). Finally, important questions have been raised about how to distribute any income or other benefits that are generated (1).

Some of the knottiest questions involve how to obtain consent, and in what way, from individuals whose samples and information are placed in the biobank (8, 14, 24). According to currently accepted principles of research ethics, individuals must provide informed consent whenever they participate in research, subject to certain exceptions. This means that individuals must have an adequate understanding of the research project involved, any risks and benefits, and must make a free decision

about whether to be involved.

It’s not exactly clear how to apply this model to biobanks. A biobank is not itself a research project but is rather a platform for future projects. Therefore, even if subjects provide informed consent when they initially donate their samples and information, one might expect that they need to be asked again for informed consent when specific research projects are planned or initiated. This approach has been labeled “**repeated consent**,” and some commentators recommend this approach (2, 3, 5).

Not surprisingly, many supporters of biobank research reject repeated consent. They claim that it is enough for subjects to provide informed consent once, when their sample and information are collected (8, 10). According to this model of “one-time” or “blanket” consent, subjects should be told at the outset how the biobank will use their sample and information, how their anonymity and confidentiality will be protected, and how future research projects will be chosen. But when specific projects are planned, according to this model, subjects are not recontacted to ask for consent. Supporters of one-time consent point out that research can be more efficiently accomplished with this system than with one involving repeated consent (9, 10, 13).

In this paper, I will address the question of whether a system of one-time consent is ethically acceptable for biobanks or whether repeated consent is necessary. In particular, I will discuss some of the strongest arguments that have been offered by critics of one-time consent (2,3). I will highlight problems with these arguments and will conclude that a system of one-time consent is ethical in many cases, but I will also discuss why it is essential to address the issues that critics have raised. Important questions remain about how best to protect the autonomy of subjects in biobank research and how to evaluate and possibly update ethical guidelines for consent in this and other areas.

Attacks on One-Time Consent

Critics of one-time consent point out that it violates current requirements for informed consent before research (2, 3, 4, 5, 11). As mentioned above, biobanks are designed to allow many different sorts of possible projects over upcoming decades or even hundreds of years, utilizing techniques and approaches that may not even have been discovered yet. Therefore, subjects donating samples and information to a biobank cannot be

given specific information about the sort of studies that the biobank will allow. And according to current doctrines of research ethics, an individual can provide informed consent only if she has been given relatively specific information about the study or studies being carried out. The decision to participate, after all, depends on the subject’s judgment that the research is worth the burdens and risks to her.

For example, the *Belmont Report* writes that the information that subjects should be given generally includes “... *the research procedures, their purposes, risks and anticipated benefits, ...*” (22) (italics added) The Common Rule (45 CFR §46), the set of regulations governing much human subjects research carried out in the United States, requires that:

“...[I]n seeking informed consent the following information shall be provided to each subject: (1) A statement that the study involves research, *an explanation of the purposes of the research and the expected duration of the subject’s participation, a description of the procedures to be followed*, and identification of any procedures which are experimental;”(italics added) (45 CFR §46.116) (7)

Similar requirements can be found in classic formulations of research ethics, such as the Helsinki Declaration and the Nuremberg Code. The Nuremberg Code, for example, states:

“[B]efore the acceptance of an affirmative decision by the experimental subject there should be made known to him *the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted*; all inconveniences and hazards reasonable to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.” (18) (italics added).

While it might be possible to describe, with at least some level of specificity, the risks to the individual from having his or her information stored in a biobank, it is impossible to describe all the techniques and purposes of the research that the biobank will allow. Perhaps subjects could be told something general, such as that the biobank will allow research aimed at curing a certain disease or, even more generally, improving human health, but these sort of aspirational statements clearly do not rise to the required level of

specificity. In the rest of this paper, I will refer to the requirement that the individual be given relatively specific information about the purpose, procedures, and duration of the research as the **specificity requirement**.

Largely due to the violation of the specificity requirement, a model of one-time consent has been rejected by some organizations that have formulated guidelines for the construction and use of biobanks. The World Health Organization, for instance, concludes that, "Blanket consent for future research is only permissible in circumstances where anonymity of future data can be guaranteed." (28, p. 14) They write "In some cases it might be desirable to seek broad, open-ended consent to future research, the purposes, limits or consequences of which are currently unknown, ... In such cases, blanket future consent is only permissible where anonymity can be guaranteed, and there is no risk that unexpected results will filter back to the subjects concerned. *If this guarantee is not possible, or if linking of data is necessary for the research, then specific consent to the specific research must be obtained.*" (28, p. 14) (italics added).

This is a strict limit for the use of one-time consent, and satisfying it would impose significant restrictions on a biobank. In particular, it would mean that there must be no possible way to link the data back to the individual, meaning that the data would be truly unidentified or deidentified. Current guidelines deem that studies using just unidentified data are not governed by regulations regarding human subjects research, and so it is not surprising that a biobank made up of only such information would be able to use blanket consent, according to the WHO.

But constructing a biobank entirely out of unidentified information means that there is no way to go back to the individual and collect more information or samples. For any sort of longitudinal research, as in classic projects such as the Framingham study, being able to re-identify individuals is crucial. Further, it is not clear whether one can ever assure a subject of anonymity if he has donated tissue containing DNA, since in the right situation and with the right information, DNA can be used to identify an individual. For all these reasons, it is unlikely that biobanks will be willing or able to make the strong guarantees of

anonymity that the WHO would require for the use of blanket consent.

Individual Rights and the Specificity Requirement

In three recent papers, Timothy Caulfield and coauthors have presented arguments against one-time consent in biobank research based on problems satisfying what I am calling the specificity requirement (2, 3, 5). Caulfield and his coauthors argue that this requirement stems from the need to respect the right of individuals to make an autonomous decision about participating in research and, thus, that the requirement should not be given up lightly. As Caulfield, Brown, and Meslin (2006) point out, "... it seems insufficient to simply state that an emphasis on autonomy is interfering with useful research and, therefore, a modification is required." (3, p. 72). They write:

"In simple terms, the goals of research do not, as a general rule, supersede individual rights. Rather, the prevailing norm in research is quite the opposite. ... [I]t should take an especially strong justification to override a legally protected right such as informed consent. Inconvenience, expense and loss of research opportunity are not ethically acceptable justifications for waiving (or modifying) the existing requirements for informed consent." (3, p. 72).

These authors endorse the WHO's conclusion that one-time consent is unethical in most cases. They quote the WHO's way of framing the situation: "The basic interests that lie in the balance are those between human dignity and human rights as against public health, scientific progress, and commercial interests in a free market." (28, p. 3). Caulfield and his coauthors utilize this perspective to question the relevance of public opinion data that some have offered. Advocates of one-time consent are eager to highlight studies that indicate widespread acceptance by the public. For example, a recent meta-analysis of studies that asked individuals' opinions concerning biobanks found that 79% to 95% of subjects "were willing to provide one-time general consent and rely on ethics committees to determine the studies for which their samples would be used." (26, p. 546). Similarly, a study utilizing a "deliberative public engagement event" where individuals designed a hypothetical biobank showed that most subjects favored a policy of

one-time consent and rejected the idea of instituting repeated consent (24).

Caulfield and his coauthors critique the reliability of such data, pointing out that responses by subjects depend largely on how the questions are asked, and they cite studies where a majority of subjects or at least significant minority favored the requirement that researchers get "fresh consent" (2, 3) A recent survey found that 48% of respondents would prefer to give one-time consent when donating their samples and information, while 42% favor a process of repeated consent regarding each research project (16).

Most importantly, Caulfield and his coauthors point out that even if people do generally accept blanket consent, that does not at all settle the question if rights are being violated by this system. If the specificity requirement is based on "... respect for personal autonomy, a position informed by fundamental rights, ..." then public opinion would seem to be "largely irrelevant" (3, p. 73). As they write, "A right is not altered because public opinion dictates it should be" (3, p. 73).

To see the force of this point, consider a somewhat argumentative analogy. If 80% of people in a given society agreed with restricting the right to free speech for a small minority (say 1% of people who hold unpopular views), that would not make it ethical or moral to do so. Admittedly, the public opinion data about biobanks is different since some of these surveys ask individuals about what sort of consent should be used for *their own* contributions, not just for others. This strains the analogy with asking a majority how to treat a minority. Still, Caulfield and his coauthors' point that opinion does not trump rights is a reasonable one.

In summary, if we accept the idea that the specificity requirement is derived from the right of individuals to make autonomous decisions about participating in research, then Caulfield and his coauthors have a strong argument against one-time consent for biobanks. Simply pointing out that it is difficult to obtain repeated consent or that many people feel that blanket consent is sufficient are not convincing reasons for overturning an ethical requirement based on respecting individual rights (17). (Although these papers focus largely on legal and regulatory issues, and here I focus on ethical issues, the two areas are closely related, of course [6]).

Autonomy Examined

But for supporters of one-time consent, such as myself, something seems to have gone horribly wrong here. It is not that we think that public opinion or the importance of research trumps the rights of potential subjects, but instead that a system of one-time consent seems to be adequate to protect those rights. In short, it seems that the specificity requirement may have questionable validity in this situation.

Caulfield and his coauthors claim that the specificity requirement is based on individual autonomy, which they define as “a person’s right to make as many effective decisions about as many aspects of his life as is compatible with the like freedom of others,” (3, p. 70) citing Judith Shklar’s definition (25). Although Caulfield and his coauthors don’t spell out how this principle yields the specificity requirement and the rejection of one-time consent, their reasoning appears to go something like this:

If an individual is *not* asked for repeated consent about specific projects that the biobank is supporting, then she is being deprived of the opportunity to make *as many* decisions as she might about how her sample or information will be used.

The use of a person’s information and sample is an “aspect of her life,” an assertion Caulfield and his coauthors support mostly with legal precedents (3).

Therefore, failing to get repeated consent reduces the number of decisions the individual can make about an aspect of her life, which is a violation of her autonomy.

But multiple steps in this reasoning are questionable, starting with the conception of autonomy involved. One could also question whether the use of an individual’s information or sample really should count as an *aspect of her life*, but I will not focus on that issue here. Respect for autonomy has been understood in many ways, ranging from John Stuart Mill’s principle of harm (15) to Immanuel Kant’s categorical imperative (12), but simply counting up the number of decisions that the individual makes is really not an inspirational or convincing approach. Admittedly, in a system of repeated consent the subject makes a higher *number of decisions* about how his data will be used, but it’s unclear why that should have any significant moral weight. In fact, the survey and focus group data suggests that many individuals would prefer to make the decision just once, rather than being

asked multiple times about whether their data can be used for specific research projects. It is not clear why a person who chooses to make one decision rather than many is in any way undermining his own autonomy.

Of course, a biobank that uses a system of one-time consent does not give potential subjects the choice of whether to give consent once or multiple times. They can only choose whether to participate, and give consent once, or not at all. And, thus, subjects are being deprived, in some sense, of having the chance to make multiple decisions about the use of their data. But, again, although this limits the number of decisions that subjects have the opportunity to make, it is unclear how failing to offer this choice (of one-time vs. repeated consent) violates their autonomy. To use a somewhat silly example, I don’t violate the autonomy of my guests when I serve dinner without offering a choice of entrees. They would be able to make a higher number of decisions if I did offer them a choice, but my failure to do so is not a failure of respect for their autonomy. They can choose to eat or not.

The definition of autonomy that Caulfield and his coauthors rely on is most reminiscent of Mill’s “harm principle,” which requires that people’s freedom to act should not be restricted if their actions do not harm other people. But this principle imposes a negative duty to avoid restricting liberty rather than a positive one to increase the number of choices people may make. Mill’s principle has generally not been taken to imply that social structures should be designed to ensure that people have the opportunity to make as many decisions as possible, but rather that they should not be restricted from making choices for some reason other than protecting others.

One might try to utilize a Kantian approach to autonomy to generate a stronger attack on one-time consent, since a biobank using this system can be seen as asking individuals to sign away their right to make further choices about the use of their samples. To take a somewhat strained analogy, according to Kant’s theory it is immoral to sell yourself into slavery even if you really want the money involved and are not being coerced or deceived, since you are making a decision that robs yourself of the opportunity to make future autonomous decisions. Maybe critics see one-time consent similarly: individuals are being

encouraged to give up their chance to make further autonomous decisions about the uses of their sample and information.

But, of course, the differences between providing one-time consent for a biobank and selling yourself into slavery could not be more striking. Once I have given one-time consent to the use of my information and sample by a biobank, I am free to go and live my life making as many autonomous decisions as I like. In fact, having to respond to numerous requests for consent by a biobank utilizing a system of repeated consent could consume time and energy that I would rather use for making other, more momentous decisions about my life. Public acceptance of one-time consent may be based at least partially on the judgment that the burden of being recontacted will hinder rather than aid the autonomous pursuit of a good life. From this perspective, one-time consent resembles other choices that an individual might make to delegate some decisions to others, such as when I hire a professional money manager to make investments for me.

Revising Previously Accepting Principles

This discussion suggests an alternative to the way that the WHO and Caulfield and his coauthors, as well as others, frame the ethical evaluation of one-time consent. As the WHO writes, “The basic interests that lie in the balance are those between human dignity and human rights as against public health, scientific progress, and commercial interests in a free market” (28, p. 3). In the same vein, Caulfield and his coauthors point out, as quoted above, that research priorities and public opinion do not “... supersede individual rights. Rather, the prevailing norm in research is quite the opposite” (3).

But the discussion in the previous section suggests that the link between the specificity requirement and autonomy may be tenuous. In addition, there may be good reasons why previous accounts of research ethics overestimated the strength of this link. When regulations including the specificity requirement were formulated in the second half of the 20th century, paradigm examples of human subjects research were relatively short-term studies, such as clinical trials. And in such studies, the sort of information required by the specificity requirement is known to the researchers, and so it is relatively easy

to require that they disclose it to subjects. The advent of biobanks provides an example of a type of research where such information is not available and may not be necessary. This should lead to a re-examination of the specificity requirement and to the conclusion, I believe, that it was adopted too hastily.

Here's another way to state the changing fortunes of the specificity requirement. Behind the requirement of informed consent rests a common sense idea that potential subjects should be given a *reasonable* amount of information about the risks, benefits, and purposes of the research. "Reasonable" is, of course, an elastic notion. Researchers cannot be expected to give subjects even all the information that is known, due to time limitations and the complexity of some of it (which might require scientific or medical training to be understood). But for information about the research that is available and relatively simple, there is a low threshold for requiring that it be disclosed to subjects.

In contrast, if the information is not known, or the process of disclosure imposes severe limitations or burdens on the research, the threshold for requiring disclosure may be significantly higher. For clinical trials and similarly well-defined research, the disclosure mandated by the specificity requirement is relatively easy to carry out. But for biobanks, the situation is much different, and this should lead to a re-examination of how much disclosure is reasonable to require.

This process of testing and reconsidering a previously accepted ethical principle fits well with a general picture of moral and political philosophy popularized by John Rawls (21). According to Rawls's idea of "reflective equilibrium," our moral ideas fall into three areas (to put it somewhat roughly):

opinions about specific situations, such as confidence that my friend's lie to his wife was unethical;

commitment to general principles, such as the rule that lying is unethical, and;

acceptance of even more general moral and religious frameworks, ranging from religions to secular theories of morality, that provide justification for our principles and other moral views.

According to Rawls, we seek reflective equilibrium by clarifying and connecting our beliefs in these three areas, and undergoing this process may result in

our modifying or giving up commitments or beliefs in any category. A change in my most basic moral framework or religious view, for instance, can lead me to adopt new principles and opinions about specific situations. And the process may proceed in the opposite direction, as well: experience with a specific situation may cause me, after some reflection, to modify or even reject a principle that I used to accept, or to revise some aspect of my favored moral or religious framework.

I believe that thinking about biobanks should lead to exactly this sort of reconsideration of the specificity requirement. When clinical trials served as a paradigm for human subjects research, the specificity requirement seemed to be an obvious ethical obligation. But biobanks provide an example of how there can be seemingly ethical research where the specificity requirement is not satisfied, as in one-time consent. This then leads us to re-examine the previously assumed requirement and its link back to respect for individual autonomy. As I have argued above, there is no clear basis for the specificity requirement in the leading accounts of autonomy, such as Mill's harm principle or Kant's categorical imperative, so if we adopt one of these accounts we should be comfortable with one-time consent. Mill's "harm principle," for instance, says that we violate an individual's autonomy if we forbid her from doing something that poses no threat to anyone else. Under a system of one-time consent, donors are not so limited—having the freedom to give their sample or not—and, thus, their autonomy is not violated.

It is important to note that some of the people who argue that one-time consent is unethical, including Caulfield, also favor systems that allow open-ended future use of samples based on a one-time "authorization" by the donor (6, 11). These authors argue that such authorization should not be seen as consent, though, since the individual is making this choice without full information. But I believe this way of parsing "consent" is too restrictive. Authorization for future use, based on extensive but not complete information can also count as meaningful consent. Remember that individuals providing one-time consent may be told quite a lot about the process by which the data will be protected and future projects will be chosen, and for many people that may be all the information they want or need. Calling this "authorization" but not "con-

sent," I would argue, imposes a distinction that serves no real purpose.

Conclusion

Some would see this as a cynical process of rationalization: as long as it was easy for researchers to comply with the specificity requirement, it was enshrined as part of ethics, but once it became difficult in at least some situations, ethicists began to argue that it should be dropped. And while one must be vigilant for self-serving arguments, one also must respect the process of reflection and reconsideration that makes up so much of ethical thought. Those who would defend the specificity requirement and reject one-time consent should respond by explaining the presumed link to autonomy or other basic ethical requirements more clearly. If they do so, then defenders of one-time consent must respond in kind. Such a process of give and take represents conversation and reasonable disagreement at its best. And the result, I believe, will be an improved understanding of the ethics of one-time consent in biobanks and informed consent more generally.

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References:

1. Andrews LB. Harnessing the benefits of biobanks. *J Law Med Ethics*. Spring 2005; 33(1):22-30.
2. Caulfield T. Biobanks and blanket consent: the proper place of the public good and public perception rationales *King's Law Journal*. 2007; 18:209-226.
3. Caulfield T, Brown RB, Meslin EM. Challenging a well established consent norm?: One time consent for biobank research. *Journal of International Biotechnology Law*. 2007; 4:69-74.
4. Caulfield, T and Kaye, J. "Broad consent in biobanking: Reflections on seemingly insurmountable dilemmas." *Medical Law International* 2009;10: 85-100.
5. Caulfield T, Ries NM. Consent, privacy, and confidentiality in longitudinal, population helath research: the Canadian legal context. *Health Law Journal*. 2003;11(Supplement 1):1-65.

6. Caulfield T, Upshur RE, Daar A. DNA databanks and consent: a suggested policy option involving an authorization model. *BMC Med Ethics*. Jan 3 2003; 4:E1.

7. Department of Health and Human Services. Title 45: Public Welfare. Part 46: Protection of Human Subjects. Available at: <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>. Accessed November 10, 2009.

8. Elger BS, Caplan AL. Consent and anonymization in research involving biobanks: differing terms and norms present serious barriers to an international framework. *EMBO Rep*. Jul 2006; 7(7):661-666.

9. Gostin LO. Health information: reconciling personal privacy with the public good of human health. *Health Care Anal*. 2001;9(3):321-335.

10. Hansson MG, Dillner J, Bartram CR, Carlson JA, Helgesson G. Should donors be allowed to give broad consent to future biobank research? *Lancet Oncol*. Mar 2006;7(3):266-269.

11. Hofmann, B. "Broadening consent--and diluting ethics?" *J Med Ethics* 35(2): 125-9, 2009.

12. Kant I. *Groundwork of the Metaphysics of Morals*. Cambridge, UK: Cambridge University Press; 1998.

13. Knoppers BM, Kent A. "Policy barriers in coherent population-based research." *Nature Reviews Genetics*. 2006;7:8.

14. Mascalzoni D, Hicks A, Pramstaller P, Wjst M. Informed consent in the genomics era. *PLoS Med*. Sep 16 2008; 5(9):e192.

15. Mill JS. *On Liberty*; 1869.

16. Murphy, J, Scott J, et al. "Public perspectives on informed consent for biobanking." *Am J Public Health* 99 (12): 2128-34, 2009.

17. NBAC. Research Involving Human Biological Materials: Ethical Issues and Policy Guidance, Vol II: Commissioned papers. Bethesda, MD: US Government Printing Office; 2000.

18. Nuremberg Code. Available at: <http://ohsr.od.nih.gov/guidelines/nuremberg.html>.

19. Park A. Biobanks. *What's Next: 10 Ideas Changing the World Right Now*. Available at: [<http://www.time.com/time/specials/packages/0,28757,1884779,00.html>]. Accessed November 10, 2009.

20. Petersen A. Biobanks' "engagements": engendering trust or engineering consent? *Genomics, Society and Policy*. 2007;3(No. 1):31-43.

21. Rawls J. *A Theory of Justice: Original Edition* Cambridge, MA: Harvard University Press; 2005.

22. Research NCI-PoHSoBaB. The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research. Available at: <http://ohsr.od.nih.gov/guidelines/belmont.html>. Accessed November 10, 2009.

23. Rothstein MA. Expanding the ethical analysis of biobanks. *J Law Med Ethics*. Spring 2005;33(1):89-101.

24. Secko DM, Preto N, Niemeyer S, Burgess MM. Informed consent in biobank research: a deliberative approach to the debate. *Soc Sci Med*. Feb 2009; 68(4):781-789.

25. Shklar JN. The liberalism of fear. In: Rosenblum NL, ed. *Liberalism and the Moral Life*. Cambridge, MA: Harvard University Press; 1989:21-38.

26. Wendler D. One-time general consent for research on biological samples: is it compatible with the health insurance portability and accountability act? *Arch Intern Med*. Jul 24 2006; 166(14):1449-1452.

27. Winickoff DE, Winickoff RN. The charitable trust as a model for genomic biobanks. *N Engl J Med*. Sep 18 2003; 349(12):1180-1184.

28. World Health Organization. Genetic databases: Assessing the benefits and the impact on human and patient rights. Available at: <http://www.codex.vr.se/texts/whofinalreport.rtf>. Accessed January 5, 2010. ❖

APS News

APS Holds Contest to Design New Logo

In 2012, the American Physiological Society will celebrate its 125th anniversary. To help celebrate this milestone, the APS Council recently held a contest for members, and non-members alike, to design a new logo for the Society. Council wanted a new logo that would reflect the Society's mission statement of "integrating the life sciences from molecule to organism." Other requirements were that the design should generally represent the broad nature of APS and its members, and not focus on one specific area, and be versatile enough to be used on lapel pins, the APS website, and printed materials (such as letterhead, *The Physiologist*, etc.).

The contest brought in 22 submissions that the APS Council reviewed at their recent fall meeting. The winning design was



Lucchesi in the Center for Cardiovascular and Pulmonary Research at the Research Institute at Nationwide Children's Hospital in Columbus, OH. Trask is currently studying coronary artery remodeling in Type 2 diabetes and the metabolic syndrome.

Mark S. Trask is the founder and president of Trask Signs Etcetera, Inc, located in New Madison, OH. He is an expert in graphic design, vinyl graphics for both signage and vehicles, and the manufacture and installation of custom signage. His work includes the installation of signage for several high-profile companies. ❖



Mark S. Trask

submitted by APS member Aaron Trask and his father Mark Trask, who received a \$500 cash prize. APS hopes to begin using the new logo within the next year.

Aaron J. Trask received his PhD in the laboratory of APS member Carlos Ferrario in the Department of Physiology and Pharmacology at Wake Forest University. He then joined the laboratory of APS member Pamela



Aaron J. Trask

APS Council Holds Fall Meeting

The APS Council held their fall meeting at the Bethesda Suites Marriott in Bethesda, MD, November 5-6, 2009. Council received reports from the Publications, Finance, Membership, Education, and other Committees. APS staff members Marsha Matyas, Robert Price, and Alice Ra'anán, joined the meeting to assist with the committee report presentations. The Council also began preparations for its strategic plan meeting by starting a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis.

The Publications Committee reported more authors are making use of the Neuroscience Peer Review Consortium (NPRC) option. Nearly all *Journal of Neurophysiology* NPRC manuscripts come from *Journal of Neuroscience*; there appears to be a clear hierarchy that starts with *Nature Neuroscience*, followed by *Journal Neuroscience*, then *Journal of Neurophysiology*.

The Publications Committee reported that Charles Lang, Pennsylvania State Univ. College of Medicine, has been appointed as the next Editor of *AJP-Endocrinology & Metabolism*. His term will begin in July 2010. In March of

2010, the Publications Committee will interview for the editorship of *AJP Heart and Circulatory Physiology*.

The Publications Department reported that the 2008 Journal Impact Factors for *PRV* was 35.0, which was ranked highest among all physiology journals (and one of the highest ranked among all biomedical journals, at fifth place).

The Finance Committee presented Council with the projected final 2009 budget and the proposed 2010 budget, both of which were accepted and approved by Council.

The Education Department reported that in January 2010 there will be two Professional Skills Training Courses. One course is on writing and reviewing manuscripts and the other course is on presentation skills.

Ra'anán reported that the newest edition of the Animal Research brochure is now available for purchase from the APS office. The brochure is also available as a free downloadable pdf file on the APS website.

The Women in Physiology Committee reported that Harold Laughlin, Chair and Professor, Dept. of Biomedical Science, University of Missouri, has

been selected as the 2010 Bodil Schmidt-Nielsen Distinguished Mentor Awardee. Laughlin will receive his award at the EB10 meeting in Anaheim, CA.

Based on a recommendation from the Dagg's Award Committee, Council approved the selection of APS member William Dantzler, Univ. of Arizona, as the 2010 Dagg's Awardee. He will receive his award at the 2010 APS Business Meeting on Tuesday, April 27 at EB10.

In 2012, the American Physiological Society will celebrate its 125th anniversary. As part of its preparations for this anniversary, APS conducted a logo design contest. Council wanted a new logo that would reflect the Society's mission statement "integrating the life sciences from molecule to organism." Council reviewed a total of 22 entries and selected one winner. The winner received a \$500 cash prize. The date for implementing the new logo has not yet been set.

Additional details of the Council's 2009 fall meeting will be presented to the membership at the 2010 APS Business Meeting. The Business Meeting will be held at EB10 on Tuesday, April 27, at 5:45 pm in the Anaheim Convention Center. All APS members are encouraged to attend.

Council Action Items

Council approved the recommendations of the Finance Committee accepting the 2009 estimated budget and approved the 2010 proposed budget.

Council unanimously approved a motion to transfer five regular members to emeritus membership status.

Council unanimously approved the requests of 35 regular members and three student members for reinstatement.

Council unanimously approved the selection of William Dantzler as the 2010 Dagg's Awardee.

Council unanimously approved the bylaws for the new chapter—the Puerto Rico Physiological Society. ❖



APS Council: Front: Pam Carmines, Kim Barrett, Gary Sieck, Irving Zucker, Jeff Sands; Row 2: John Chatham, Curt Sigmund, Joey Granger, David Brooks, Linda Samuelson; Row 3: Ron Lynch, Thomas Pressley, Frank Powell, Barbara Goodman; Row 4: Usha Raj, Peter Wagner, J.R. Haywood, David Pollock, Michael Portman, and Gordon Mitchell.

New Regular Members

*Transferred from Student Membership

Ahmed Kaid Allow

Sana's Univ. Coll. of Med., Yemen

Arman Arghami

Mayo Clinic Foundation, Rochester, MN

Anser Chaudhry Azim

Chicago State Univ., IL

Tyler Barker*

Orthopedic Specialty Hosp., Murray, UT

Jill Nicole Barnes*

Mayo Clinic, Rochester, MN

Luf Baumgartner

Univ. of Medicine, Mannheim, Germany

Hagai Bergman

Hebrew Univ., Jerusalem, Israel

Krishna M. Boini

Virginia Commonwealth Univ.

Dalibor Breznar*

Health Canada, Ottawa, ON, Canada

Jane Elizabeth Butler

Prince of Wales Med. Res. Inst., Australia

Chun Cai

Univ. of Tennessee, Memphis

Ying Cao

Brigham and Women's Hosp., Boston, MA

Theresa Marie Casey

Michigan State Univ.

Pei-Ying Sarah Chan*

Univ. of Florida

Olivier L. Charansonney

Centre Hosp. Sud Francilien, France

Gary A. Cohen

Medical College of Wisconsin

Eva Csongradi

Univ. of Mississippi Med. Ctr.

Kusal Kanti Das

Al Ameen Medical Coll., India

John Lynn Dobson

Univ. of Florida

Caigan Du

Univ. of British Columbia, Vancouver

Giovanni A. Fontana

Univ. of Florence, Italy

Robert Frithiof*

Karolinska Inst., Stockholm, Sweden

Qi Fu

Univ. of Texas SW Med. Ctr., Dallas

Paul Leonard Greenhaff

Univ. of Nottingham Med. Sch. UK

Paul Richard Grimm*

Univ. of Nebraska Med. Ctr., Omaha

Burak Guclu

Bogazici Univ., Istanbul, Turkey

Roe Gutman*

Hebrew Univ. of Jerusalem, Israel

Claudia Susanne Haarmann

Nanon Technologies, Germany

M. Louis Handoko

Virginia Univ. Med. Ctr., Netherlands

Peijian He

Emory Univ., Atlanta, GA

Krista R. Howarth*

McMaster Univ., Dundas, ON, Canada

Danielle Alves Ianzer

Instituto Butantan, Sao Paulo, Brazil

Imose Itua

Hope Univ., Liverpool, UK

Sara S. Jarvis*

Inst. for Exercise and Env. Med., TX

Selvi Chrysolte Jeyaraj

Nationwide Children's Hosp., OH

Douglas S. Kalman*

Miami Res. Assoc. Clinical Res., FL

Kyu-tae Kang*

Children's Hosp., Boston, MA

Lori Kang*

West Virginia Univ., Morgantown

Zerrin Kuras

Univ. of Cincinnati, OH

Lucienne Da Silva Lara

Tulane Univ. Sch. of Med., LA

Johanne M. Lewis*

Univ. of Ottawa, ON, Canada

Yi Lin

Univ. of Oklahoma HSC, OK

Liping Liu

Univ. of Nebraska Med. Ctr., Omaha

Qin Liu

Johns Hopkins Univ., Baltimore, MD

Sheng Liu

Washington Univ., St. Louis, MO

Jin Ma

Fourth Military Med. Univ., China

Keisa Williams Mathis*

Univ. of Mississippi Med. Ctr., Jackson

Steven James Mennerick

Washington Univ., St. Louis, MO

Douglas N. Miniati

Univ. of California, San Francisco

Naser Mirazi

Bu-Ali Sina Univ., Hamadan, Iran

Yuko Miyabara

Mayo Clinic Coll. of Med., MN

Karl J. New*

Univ. of Glamorgan, Pontypridd, UK

Karmin O

St. Boniface Res. Ctr., Winnipeg, Canada

Koichi Okita

Hokusho Univ., Hokkaido, Japan

Patrick Osei-Owusu

Washington Univ., St. Louis, MO

Hyeong Cheon Park

Yonsei Univ., Seoul, S. Korea

Stefan M. Pasiakos*

USARIEM, Natick, MA

Josep V. Planas

Univ. of Barcelona, Spain

De-Lai Qiu*

Yanbian Univ., Peoples Rep. of China

Madhavi J. Rane

Univ. of Louisville, KY

John Franklin Rawls

Univ. of North Carolina, Chapel Hill

Stephen Rees

Aalborg Univ., Aalborg East, Denmark

Vaibhav Saini*

National Cancer Inst., Frederick, MD

Donna Seto-Young

Beth Israel Med. Ctr., NY

Jennifer Hughes Shaw

Oklahoma State Univ., Stillwater

Nikolay A. Shcheynikov

Univ. of Texas, Dallas, TX

Michael Richard Sheller

Capstone Therapeutics, Tempe, AZ

Weiwei Shi*

Emory Univ. Hosp., Atlanta, GA

Yang Shi

Medical Coll. of Wisconsin

Nini Skovgaard

Aarhus Univ., Denmark

Grzegorz Sowa

Univ. of Missouri, Columbia

Francis B. Stephens

Univ. of Nottingham, UK

Theodora Szasz*

Michigan State Univ.

Laura Szymanski*

Univ. of Liege, Belgium

Elisabeth A. Tallant

Wake Forest Univ. Sch. of Med., NC

Francisco Valero-Cuevas

Univ. of Southern CA, Los Angeles

Andrea Vovk*

Univ. of Florida

Melissa A. Whidden*

Univ. of Florida

Ping Xu

Louisiana St. Univ., New Orleans

Jing Yang

Genentech, Inc., San Francisco, CA

Zengyou Ye

Univ. of Texas, Houston

Andrea Zsombok

Tulane Univ., New Orleans, LA

New Student Members

Zubia Alam
Tulane Univ., LA

Ali Amin
Tulane Univ., LA

Funmiley O. Awobajo
Univ. of Lagos, Nigeria

Martin Bahls
Purdue Univ., IN

Jinae Nicole Bartlett
California St. Univ., Long Beach

Andrew E. Beaudin
Univ. of Calgary, Canada

Melissa P. Blackman
Brandeis Univ., MA

Rachel Marie Bradford
Michigan Technological Univ.

Stephanie Buccini
Univ. of Cincinnati, OH

Jie Chao
Univ. of Kansas Med. Ctr.

Daian Chen
Univ. of Melbourne, Australia

Huaping Chen
Univ. of Alabama, Birmingham

Meng Chen
Indiana Univ.

Ryo Chinzei
Kobe Univ., Grad Sch. of Med., Japan

Leroy Leon Cooper
Brown Univ., RI

Danielle D. Dukes
Wright State Univ., OH

Andrew G. Edwards
Univ. of Colorado, Boulder

Ashish K. Gadicherla
Medical Coll. of Wisconsin

Lauren Lynn Haar
Univ. of Cincinnati Coll. of Med., OH

Daria Hatovskaya
Inst. of Cytology RAS, Russia

Catherine G. Howard
Tulane Univ., LA

Katherine L. Howell
Univ. of Colorado, Boulder

Julia M. Hum
Indiana Univ., Sch. of Med.

Yun Hee Kim-Choi
Ajou Univ., South Korea

Marina Komolova
Queen's Univ., Canada

Liu Liu
Tulane Univ., Med. School, LA

Raleigh E. Malik
Indiana Univ. Sch. of Medicine

Tso-Yen Mao
National Taiwan Sport Univ.

Kurt Daniel Marshall
Univ. of Colorado, Boulder

Victoria J. McIntosh
Wayne State Univ., MI

Carlo Joseph Milani
Tulane Univ., LA

Irrum F. Nizai
Georgia Inst. of Tech.

Evgeniy Panzhinskiy
Univ. of Wyoming

Elina Pathak
Univ. of Arkansas

Brent A. Penque
Indiana Univ. Sch. of Med.

Paulo Wagner Pires
Michigan State Univ.

Angela S. Plummer
Indiana Univ.

Sushmita Purkayastha
Univ. of North Texas HSC

Philippe Reymond
EPFL Swiss Fed. Inst. Tech., Switzerland

Ayesha Saleem
York Univ., Canada

Ashwini Saxena
Univ. of North Texas HSC

Michael A. Schumacher
Univ. of Cincinnati, OH

Ivana Semova
Univ. of North Carolina

Demitre Serletis
Toronto Western Research Inst., ON, Canada

Ian Michael Thornell
Univ. of Alabama, Birmingham

Jose Abraham Viscarra
Univ. of California, Merced

Katherine Ann Walsh
Medical College of Wisconsin

Daniel W. White
Univ. of North Texas HSC

Jie Xie
Indiana Univ.

Aaron W. Young
McMaster Univ., Canada

Hanying Zhang
Univ. of Wyoming

Affiliate Member (1)

Frank A. Giammartino
Private Practice

Recently Deceased Members

Jere Mead
Southwest Harbor, ME

Motilal B. Pamnani
Bethesda, MD

FREE Necessary Color for Member Authors



Regular or Student Members of the American Physiological Society (APS) who are first or last authors of articles in any of the APS research journals get **FREE scientifically necessary COLOR**.

These APS journals are listed below. If you are not yet an APS Member and are planning to submit a manuscript that requires color to any of these journals as a first or last author, then you need to apply for membership today in APS. We provide several convenient ways to apply for Membership. Just go to our web site and select your choice at: www.the-aps.org/membership/application.htm



Contact us today
The American Physiological Society
Tel: 301-634-7171
Fax: 301-634-7264
E-mail: members@the-aps.org
Web: www.the-aps.org

The APS Research Journals

- American Journal of Physiology (AJP consolidated)
- AJP-Cell Physiology
- AJP-Endocrinology and Metabolism
- AJP-Gastrointestinal and Liver Physiology
- AJP-Heart and Circulatory Physiology
- AJP-Lung Cellular and Molecular Physiology
- AJP-Regulatory, Integrative and Comparative Physiology
- AJP-Renal Physiology
- Advances in Physiology Education
- Journal of Applied Physiology
- Journal of Neurophysiology
- Physiological Genomics

APS Promotes Physiology to Biology Educators at National Convention

The APS highlighted physiology to biology teachers with a featured speaker, two workshops, an exhibit booth, and a poster presentation at the National Association of Biology Teachers (NABT) 2009 Professional Development Conference in Denver, CO in November. APS member Shane Kanatous, Assistant Professor, Department of Biology (Colorado State University, Fort Collins) was a sponsored speaker who presented his expeditions and research to science teachers on the diving physiology of marine mammals, such as Weddell seals, in extreme, cold-water environments. Kanatous described the impacts of his work on human health and medicine, and then demonstrated aspects of his research in a hands-on workshop led by a team of APS Research Teachers, including Margaret Shain (New Albany, IN), Paula Donham (Olathe, KS), Robert Manriquez (Shreveport, LA), Audra Brown Ward (Atlanta, GA), and Mel Limson, APS Education Office K-12 Programs Coordinator. Melinda Lowy, APS Higher Education Programs Coordinator, also presented a workshop on the APS Archive of Teaching Resources digital library (www.apsarchive.org) to enhance lectures on specific biology topics. Lowy used an example of a lesson on the



APS member Shane Kanatous (Colorado State University, Fort Collins) was a featured speaker at the 2009 national convention of biology teachers. Kanatous presented his research on the physiology of diving in marine mammals in extreme environments.



Science teachers (left to right) Margaret Shain, Robert Manriquez, Audra Brown Ward, and Kathleen Caslow represented the APS as Research Teachers and presented K-12 opportunities to connect locally with an APS member physiologist during the K-12 Outreach Symposium poster session.

effects of exercise on obesity and cardiovascular health.

The annual national conference attracts more than 1,000 middle and high school teachers, as well as community college and four-year college instructors or faculty from across the nation. Additional APS Research Teachers, Kathleen Caslow (Alexandria, VA) and Randy Dix (Olathe, KS), also volunteered to showcase APS education programs and teacher fellowships at the exhibit booth throughout the three-day conference in November.

During the K-12 Outreach Symposium of education programs across the nation, Limson and the APS Research Teachers promoted APS K-12 Education Programs with a poster, "Connect with a Physiologist in Your Classroom." Limson also assisted in coordinating an information session with program officers from the National Institutes of Health and the National Science Foundation. ❖



Teacher participants in the APS workshop modeled the circulation of blood and oxygen in the room by acting as a heart, lungs, muscles, or blood, and using marbles to quantify the amount of oxygen used or supplied.

APS Presents Awards at the Annual Biomedical Research Conference for Minority Students (ABRCMS)

The APS presented awards to minority undergraduate researchers and was a major conference sponsor at the Annual Biomedical Research Conference for Minority Students (ABRCMS) at the Phoenix Convention Center in Phoenix, AZ from November 4-7, 2009. ABRCMS is a national conference designed to facilitate increased minority involvement in biomedical and behavioral science careers. This four-day conference encompassed scientific presentations, professional development workshops, poster and oral presentations, and numerous networking opportunities with faculty and administrators from graduate schools, government agencies, scientific societies and foundations.

ABRCMS has grown to one of the largest professional conferences for biomedical and behavioral students since its inception in 2001. More than 2,700 participants attended the 2009 ABRCMS including nearly 1,500 undergraduate students, 300 graduate students, 400+ exhibitors, and 400+ Program Directors/Faculty.

The APS, represented by the 2009-2010 APS K-12 Minority Outreach Fellow, **Shea Gilliam-Davis** and by

[past Porter Committee member] **Rayna Gonzales** of University of Arizona College of Medicine, was pleased to present \$2,500 in total awards to eight undergraduate students for the best oral and poster presentations in the physiological sciences. Students also receive a complimentary one-year print subscription to the APS journal, *Physiology*, and an APS denim shirt. Awardees were added to the APS Minority Physiologists Listserv. Twenty-nine judges, including APS members, Vernon Bond, Jr., Howard Univ.; Jerry Collins, Alabama A&M Univ.; Cary Cooper, Univ. of Texas Medical Branch; George Dubyak, Case Western Reserve Univ.; Shea Gilliam-Davis, Wake Forest Univ. School of Medicine; Patricia Gwirtz, Univ. of North Texas Health Science Center; Latanya Hammonds-Odie, Georgia Gwinnett College; Edward Inscho, Medical College of Georgia; Jacqueline Powell, Morehouse School of Medicine; Roy Sutliff, Emory Univ.; and Johana Vallejo-Elias, Midwestern Univ., selected the winners:

Oral

Andrew Hillman (Undergraduate Senior), Queens College;

Poster

C i n d y B a r b o s a (Undergraduate Senior), Univ. of Puerto Rico, Rio Piedras; Junior G o n z a l e s (Undergraduate Senior) Hunter C o l l e g e ; Michael Holder (Undergraduate Senior) Univ. of D e l a w a r e ; Justin Nash (Undergraduate Junior) Alcorn State Univ.; K e n d r a Robinson-Taylor (Undergraduate Junior) Alcorn State Univ.; Myrline Sterling (Undergraduate Sophomore) Barry Univ.; and

Delawrence Sykes (Undergraduate Junior) Morehouse College.

The APS congratulates the students on a job well done and wishes them the best in their academic pursuits.

Finally, the APS Education Office staffed an exhibit booth, highlighting the following awards, programs and resources for minority groups underrepresented in science:

APS/NIDDK Minority Travel Fellowship which provides funds to attend Experimental Biology and the fall APS conferences;

Undergraduate Summer Research Fellowship supports full-time undergraduate students to work in the laboratory of an APS member;

Porter Physiology Fellowship Program which supports minority students pursuing full-time studies toward a PhD in the physiological sciences, and

APS Minority Listserv which provides information on APS events, awards, grants, fellowships, science news, positions available and more.

For more information on these programs, go to www.the-aps.org/education/minority_prog/. The APS career brochure, career web site, Archive of Teaching Resources, Timeline of Physiology, membership for students, and Experimental Biology 2010 also were highlighted at the exhibit.

Formerly known as the MARC/MBRS Symposium, this conference is sponsored by the National Institute of General Medical Sciences (NIGMS), Division of Minority Opportunities in Research Program (MORE) and managed by the American Society for Microbiology (ASM). For more information see www.abrcms.org. For more information regarding the awards, programs and fellowships administered by the APS Education Office, please visit <http://www.the-aps.org/education/index.htm> or contact the office at education@the-aps.org or 301-634-7132. ♦

Brooke Bruthers
APS Minority Programs Coordinator



Shea Gilliam-Davis and Rayna Gonzales presented awards at the Annual Biomedical Research Conference for Minority Students. Standing left to right: Shea Gilliam-Davis, Cindy Barbosa, Andrew Hillman and Rayna Gonzales. Seated left to right: Justin Nash, Kendra Robinson-Taylor, Junior Gonzales and Michael Holder. Not pictured: Myrline Sterling and Delawrence Sykes.

Surviving Adversity and Embracing New Challenges

Patricia E. Molina

Richard Ashman Professor and Head
Department of Physiology, LSUHSC, New Orleans

Life is a compilation of predictable and unpredictable events that along the way make us recognize our strengths and weaknesses. Every now and then, it also provides us with an opportunity to reflect upon our journey and, for us scientific and perpetual inquisitors, a chance to analyze our actions and their consequences and to derive lessons that will help us move along our course or that we can share with those around us to help them in their adventure. The never-ending merry-go-round upon which we jump each daybreak, and from which we often forget to get off at the end of the day or during the weekend, sometimes makes it hard to focus on particular events or circumstances and derive knowledge and wisdom from them. However, every once in a while that merry-go-round can be brought to a screeching halt and impact our thoughts enough to provide a time for introspection and reflection upon the lessons we have acquired along the way. For me, one of those moments was August 29, 2005, the day Hurricane Katrina made landfall, a crisis for which no one had planned or prepared and that no one could have prevented.

This narrative is not intended to be a sad and depressing story. It is more a discourse of the lessons I learned along my career, as well as those I learned from those around me during that time of crisis, and how they became survival skills that led to embracing new challenges. My hope is that, without going through the same crisis, others can reflect upon skills I learned and approaches I took that may enhance their chance for success or simply help them get on the right track for a productive professional life or career.

The early response to a crisis is often one of disbelief and denial, followed by relief and acceptance, and after some time, a period of uncertainty and speculation on what the future holds. The swift and effective response of the LSUHSC community, moving the operations for the school of medicine to Baton Rouge at the Pennington Biomedical Research Center in less than a month's time, securing a Cineplex where nursing lectures were delivered before the 10:00 am matinee, relocation of research laboratories and investigators to labs and



Patricia Molina

homes of generous scientists across the country, and the housing of displaced students and faculty on a cruise ship so that our teaching and research mission could continue, was only one side of the story. Reentry to our city and campus brought about the sad confirmation of the degree of devastation that our institution had suffered and the bare bones operations that we were left with to operate. Some faced the grueling task of rescuing their possessions, relocating their families, and rebuilding their homes. Many left never to return, decimating the faculty and leaving a huge gap in our teaching, administration, and research activities.

It was not easy to come back to our laboratories and face the reality of the loss of tissue samples, reagents, and cell lines. The loss of valuable productive time made a huge dent in our ability to maintain our level of productivity. Logistical issues, such as geographical distances between our lab members, added to the burden. Thus, the first six months of 2006 were filled with much anguish and depression. Coming together brought to light the difficulties and incalculable losses that many of our friends and colleagues had experienced as well. That made it selfish to complain about our own lost tissues and reagents. So we were each left with our losses, deserted hallways, unfinished projects, and studies that would never be completed due to the disruption we had suffered.

So how did we survive? How did we get back on track? In looking back, I reflected on the circumstances that took such a dramatic turn, on where the

opportunities were presented, and how I was able not only to survive but thrive following the crisis. Clearly, the development of survival skills throughout my professional life helped me face the challenges that the hurricane presented. So allow me to give you just a brief history of my professional life that will reflect the crossroads at which I have had to make choices that have led me down this path. I think, in a lot of ways, it was those lessons that helped me face the adversity and led me to embrace new challenges.

Few students I have met have expressed a clear and determined goal for their professional development like I expressed ever since I was in grade school: to become a physician and specialize in pediatrics. My conviction was strong enough to get me half way, but not enough to prevent me from taking a 360 degree turn at the completion of medical school. For female scientists and professionals, in general, it is often taboo to speak about our desire for a family life and discuss the adaptations that we go through along the way to fit into our lives those things we so much desire to fulfill ourselves. Marrying a classmate during medical school, followed by the birth of our first son led me to search for an alternative approach to a residency in Pediatrics to fulfill my professional aspirations. That alternative pathway led to a career in research that was achieved through a careful and artful balance for a dual-career couple with individual goals and aspirations and a strong commitment to each other's advancement. Thus, sequential moves through academic institutions and frequent redirection of research focus was necessary to fit into both basic science and clinical departments along the way.

Why do I share this with you and why do I think this has value? Because in my view, those changes, whether voluntary or not, had forced me to retool each time. They taught me to rebuild networks and maintain old ones. They showed me the need to reinvent and redirect my focus in order to remain competitive. They had taught me the value of team work! All along, I was in training for what lay ahead. Since then and more importantly following Hurricane Katrina, what were the events or circumstances that I can

identify as significant? Bruce McKeown in an article (<http://www.management-issues.com/2008/11/12/opinion/a-crisis-is-a-terrible-thing-to-waste.asp>) entitled, "A crisis is a terrible thing to waste," states that "A crisis is not the same as a disaster (although a disaster may prompt a crisis). It is a 'crucial or decisive point or situation' or a 'turning point.' Such turning points force a choice between inertia and innovation."

In my case, it was the refusal to allow myself to be dragged by the inertia that took over which I can identify as the principal factor in my successful outcome following hurricane Katrina. So what are some of the attitudes that I endorsed during that time that made a difference?

Stayed Involved.

It was important for me to feel part of a greater whole and have an identity that allowed me to remain an active part of the community. The value of a scientific society has never been clearer to me than three days after the hurricane struck and when all our cell phones, computers, servers and networks were down, the American Physiological Society set up a communication system for scientists in the community to reconnect and regroup. This allowed me to communicate with my colleagues, continue journal review activities, fulfill my NIH review commitments, and participate in the APS strategic planning meeting barely two months following the hurricane. An important lesson to be learned: networking is a critical skill for survival and success. Those networks that I had developed throughout the previous years were invaluable in reinstating my identity as a member of the scientific community.

Research your options and recognize your strengths.

I was fortunate to receive multiple offers for lab space, for employment, and for housing. Some of those were tempting, as they would have brought an easy way out of the hole we were in. But I had students, post-docs and technicians who depended on me. I had colleagues who were counting on me to do my share of teaching. The sense of value to my department and institution was unequivocal. I could fill a need by staying and fighting throughout the recovery period. With time, the message became clear. I could make a difference!

Discipline and focus.

Perhaps one of the hardest things to do was to come in to work when the hallways were empty, our animal care facilities were not yet opened, the elevators were not working, and our libraries were closed. Displaced faculty and students and gloom and depression among staff and faculty all led to a somber work environment. Many times stretching the work day to 4:00 pm was a painful challenge. But day after day, I forced myself to get dressed and go up the dark staircase to the 7th floor to face another day of pretending things would be OK. My focus on making the best of the situation kept me from the distractions of the environment.

Creativity and flexibility.

More importantly, devising creative ways to move ahead kept me busy. Hard decisions had to be made on what projects we needed to cut our losses and never complete, and which ones were worth starting over from scratch. The NIH provided much needed support and rescued many of our laboratories. In many cases, the projects had to change

focus dramatically due to the losses incurred, and it was decisions made at that stage that dictated a project's survival.

Sense of community and team membership.

The pain and suffering resulting from the personal and professional losses suffered as a result of the hurricane brought our department a sense of community and unifying strength in which commitments were made to work as a team, stronger than before! We had made history in overcoming such adversities and plugging along the way. It was that dedication of our faculty and the pressing need to move ahead that led me to the commitment to serve as Chair of the Department of Physiology, the same department that was instrumental in my development from a physician to a scientist. I am proud of the people I work for. They exemplify the ultimate commitment to science and teaching. They are devoted and loyal. They stuck together during the tough times and I can only hope that my energy will ensure that we can continue to grow in the years ahead and serve as a model of survival and how to thrive following a crisis.

Positive attitude.

Finally, it would be a disservice if I failed to state the importance of maintaining a positive attitude during adversity. Sometimes maintaining that attitude when I would go to a scientific meeting and see how much progress other labs were making in their work, or how great a scientific presentation would be, or just how clean a city would look was almost enough to bring me to tears of despair. But each time someone would ask how we were doing, I would say: "We are doing great! We are slowly recovering and we are getting back on our feet!" Our city and our campus attest to the tenacity of our people and the commitment to the mission of education and scientific discovery.

So what can I pass on from what I have learned?

Plan ahead. Not always possible but imagine different scenarios and how you would respond to them.

Develop strong networks. They will be the safety net that reminds you of your place in the scientific community.

Be flexible and creative. In situations like this, you may be called upon to completely change the focus of your research or your scientific activities. Be

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ready to retool and learn new things.

Develop confidence in your abilities to deal with adversity. Organize your thoughts, focus your actions, and do not waver.

Share your experiences and your lessons. Something that may seem trivial to your life experience may have a significant impact on others at different stages of their careers.

Prepare yourself to be ready to take the challenge and lead!

In reflecting on the course of action taken following the storm, I came across a quote (<http://quotationsbook.com/quote/9227/>) by President Richard M. Nixon: “*The easiest period in a crisis situation is actually the battle itself. The most difficult is the period of indecision — whether to fight or run away. And the*

most dangerous period is the aftermath. It is then, with all his resources spent and his guard down, that an individual must watch out for dulled reactions and faulty judgment.” Clearly, we have all experienced that period of indecision. It is what we made of our situation that made a difference in recovery and is leading our path to success today. ❖

Science Policy

APS Urges President Obama to Continue Support for Research in FY 2011

During the fall of 2009, the Obama Administration worked to put its stamp on the FY 2011 budget proposal, the first budget completely under the control of the new administration. Allocations for federal agencies, including the National Institutes of Health (NIH) and National Science Foundation (NSF), are particularly important in FY 2011 because that is when the money included in the American Recovery and Reinvestment Act of 2009 (ARRA) will have run out. Without a significant increase in the budgets of these agencies, the research and jobs funded with the ARRA economic stimulus program will not be sustained. On December 3, 2009, the APS wrote to President Obama to urge him to provide the NIH with predictable, sustainable funding increases. The following are excerpts from the APS letter to President Obama.

“The infusion of funds from the American Recovery and Reinvestment Act of 2009 has stimulated new ideas, enhanced ongoing research, and created training opportunities and jobs within the biomedical research community, as well as in support industries and infrastructure. The scientific community responded to the new opportunities offered through ARRA with over 20,000 grant applications, each representing potentially transformative research. This tremendous response illustrates the substantial number of innovative and creative research projects that have gone unexplored during the past five years of flat funding for NIH. To leverage the extraordinary investment in science enabled by the ARRA, it is critical that this is followed by predictable, sustainable funding increas-

es, which are essential for fostering a productive and sustainable research enterprise. In the long term periods of rapid budget growth followed by flat funding are disruptive to the progress of research and to the training of future generations of scientists, who are critical to the nation’s economic success.

“It should be emphasized that in addition to funding innovative research, individual investigator initiated grants also support the training of the majority of the next generation of biomedical researchers. The funding shortfalls of the last several years have limited the ability of established scientists to recruit and train new researchers. When investigators are unsure of the continuity of their funding source, they hesitate to take on the responsibility of training a graduate student who requires five or more years of consistent and predictable financial support. Furthermore, funding shortfalls serve as a substantial deterrent to trainees considering a career path in biomedical research, thereby jeopardizing our nation’s ability to create and maintain a robust research and academic workforce. The ability to maintain a highly skilled, creative and innovative scientific workforce is critical to maintaining US competitiveness in a global marketplace.”

To see the full text of the letter, go to: <http://www.the-aps.org/pa/resources/archives/comments/09Obamaltr.pdf>.

Congress Passes FY 2010 Budget

On December 16, 2009 President Barack Obama signed the omnibus appropriations legislation that will fund various federal agencies in fiscal year (FY) 2010. Included in the \$446.8 billion omnibus are the bills that provide funding for research programs at the NIH, NSF, VA and NASA.

National Institutes of Health (NIH)

Congress set the budget for the NIH at \$31.0 billion for FY 2010. This sum is \$692 million over FY 2009 and represents a 2.2% increase for the agency, a total that falls below the projected inflation rate for the biomedical sciences (3.3%). However, in addition to the regular budget, in FY 2010 NIH will spend the remainder of the \$10.4 billion in stimulus money it received as part of the American Recovery and Reinvestment Act of 2009 (ARRA).

National Science Foundation (NSF)

In FY 2010, NSF will receive \$6.9 billion, \$436 million over its FY 2009 appropriation. This represents a 6.7% increase and is consistent with the President’s stated goal of doubling the agency’s budget over the next several years. NSF will also continue to spend ARRA funds in FY 2010.

Department of Veterans Affairs (VA)

Medical and prosthetic research at the VA was increased to \$581 million in FY 2010, a jump of 13.9% or \$71 million over the FY 2009 level. The legislation includes \$48 million for research to address the needs of veterans returning from the wars in Iraq and Afghanistan.

NASA

The NASA budget increased to \$18.7 billion, which is \$942 million (5.3%) over FY 2009. The Human Research Program will receive \$151.5 million, the same funding level as FY 2009.

Great Ape Bill Threatens Research

In November, the American Physiological Society joined with 15 other scientific societies and research institutions to oppose the Great Ape

Protection Act (GAPA, H.R. 1326) in a letter to Congress. The letter expresses the signatories' concern that the bill would have a detrimental effect on medical discovery. H.R. 1326 would ban all invasive research involving great apes, which it defines as including chimpanzees, bonobos, gorillas, orangutans, and gibbons. The legislation defines "invasive" research broadly, encompassing restraining, tranquilizing, or anesthetizing an animal, or the removal of any tissue except for a veterinary exam. It would also prohibit studies with experimental designs "that may be detrimental to the health or psychological well-being of a great ape."

The coalition letter was initiated by the Federation of American Societies for Experimental Biology. The letter stressed that chimpanzees are vital to many kinds of research, including translational research. It noted that, in addition to being the only animal model for hepatitis C, chimpanzees play an important role in research into "HIV/AIDS, cancer, and malaria, as well as a number

of other deadly and debilitating diseases." Areas of research directly benefiting apes themselves would also be hampered, such as the "development of an Ebola vaccine to protect chimpanzees in the wild, or cardiovascular research aimed at helping gorillas in captivity."

The animal rights groups the Humane Society of the United States (HSUS) and the Physicians Committee for Responsible Medicine (PCRM) are advocating for GAPA. HSUS has issued an action alert calling on its members to contact their legislators and ask for support. PCRM organized a photo exhibit inside a Congressional office building to draw attention to the issue. The exhibit, which featured images of chimpanzees in sanctuaries, was promoted by musician Grace Slick, former lead singer of Jefferson Airplane. As of this writing, GAPA had 122 cosponsors in the House, but there was no equivalent bill in the Senate.

Chimpanzees in research are currently treated with particular consideration. As the coalition letter reminded Congress, "scientists take research

using non-human primates extremely seriously, and multiple protections exist in law and through accreditation to ensure these animals are well-treated and used with respect."

New Resources for Animal Research Outreach

The APS Science Policy Department has launched a new website, www.animalresearchcures.org, to accompany its new brochure *Animal Research: Finding Cures, Saving Lives*. Designed to help outreach efforts, these products address common questions about animal research with easy to read answers, while providing sources for deeper exploration. At www.animalresearchcures.org, you can peruse the html version, download the PDF, or order print copies of *Animal Research: Finding Cures, Saving Lives*. You can also make a donation to help put *Finding Cures* in the hands of those working in public outreach. ❖

Give an award at your local school science fair!

The APS sponsors awards at local and regional science fairs on a first come, first served basis. Any APS member who participates as a judge in a local or regional science fair at an elementary, middle, or high school is eligible to apply and receive APS support. Award package includes an APS pin, t-shirt, and Certificate of Achievement for the student with the best physiology project, and a *Women Life Scientists* book for the student's teacher.



To request an award package, visit the website below. If you have questions, contact Scarletta Whitsett (swhitsett@the-aps.org) in the APS Education Department.

www.the-aps.org/education/sciencefair

Mass Media Fellow

Our 2009 AAAS Mass Media Fellow, Vanessa McMains, completed a successful 10 weeks at the *Chicago Tribune*. (See article below.) The program gives graduate and post-graduate level science, engineering and mathematics students a chance to learn how to communicate science to the lay public. Some fellows use this skill to communicate science throughout their scientific careers, while others use it as an opportunity to become a science journalist.

Vanessa McMains: AAAS Mass Media Fellow at the *Chicago Tribune*

By far, my experience as a AAAS Mass Media fellow at the *Chicago Tribune* was one of the most amazing in my life, and was a big change from the research setting that I have found myself in for the past eight years or so.

My PhD research is very basic biology studying the development of amoebas. While interesting in itself, my work doesn't have a great impact on anyone outside the amoeba field. During my fellowship, I had the chance to delve into science outside my specialties of cell and developmental biology, reporting on issues that directly affect people's lives. Individually, I felt I had a much greater impact on society through my writing during my experience at the paper than I do in my everyday tinkering at the lab bench. Some of the topics that I wrote about were pain management, a tongue driven wheelchair designed for quadriplegics, and pollutants in Lake Michigan fish linked to increased incidence of diabetes, West Nile virus and invasive plant species.

I came to the *Tribune* during a transitional period. Due to decreases in print readership and financial crisis, larger newspapers cut staff. Unfortunately, they also eliminated their science sections, since they believed that this section would be the least missed by readers, even though scientific discovery is at an all time high. Finding a place for the token "science intern" required some finagling.

I spent half my time in the Sunday Features section covering home, garden, health and food, sometimes contributing a newsworthy science story to the National News department. To help out an absent colleague, I even got to interview Lisa LaPorta, a famous designer



Vanessa McMains

from Home and Garden Television. The last half of the fellowship was spent in the Watchdog department, where they report on consumer and health issues.

Some of the stories that I reported on normally would not have been stories covered by the paper because they were too "science-y." Interestingly, these were the stories that were picked up by other syndicate newspapers and the articles that produced the most feedback from readers. To me, this suggests that the general public still has an interest in science.

I received many emails from people that seemed to benefit from the information in my articles. For example, I wrote a news piece about a mouse that was created as an autism model. I had to plead my case with the editors to let me write this piece, since they didn't think articles on mice would make much of an impact with the audience. This mouse model had a specific duplication of chromosome 15 that is the same defect diagnosed in five percent of autism patients, and happens to be one of the only similarities found among multiple patients with autism. Parents of children with the specific chromosome duplication were pleased that the disorder was brought to the public's attention. One mother wanted to get copies of the article to put in the front of a cookbook she was making to raise money for autism research. Another parent was sending copies to her family as an explanation of

her son's disorder that she could never convey accurately before. Several other parents said that their autistic children were never tested for chromosomal anomalies and that they were going to follow up with their family doctors.

Another article I wrote on a new cancer treatment prompted a medical doctor to contact me because he wanted to put the article on his web site as information for his patients.

My fellowship experience this past summer was extremely gratifying and pretty much sealed the deal that I will pursue a career in science writing after I defend in December.

Press Releases and Podcasts

APS issued five press releases between October 23 and December 23.

From the *Journal of Applied Physiology*: Five Exercises Can Reduce Neck, Shoulder Pain Of Women Office Workers (<http://www.the-aps.org/press/releases/09/46.htm>)

From: *American Journal of Physiology – Gastrointestinal and Liver Physiology*: Probiotic Found to Be Effective Treatment for Colitis In Mice (<http://www.the-aps.org/press/releases/09/43.htm>)

From: *Life Lines* podcast: Link Between Cardiac Deaths And the Holidays is Focus of December Broadcast of Life Lines (<http://www.the-aps.org/press/releases/09/47.htm>)

Miscellaneous

Estrogen and Stroke Risk (<http://www.the-aps.org/press/releases/09/45.htm>).

American Physiological Society (APS) Endorses Report on Random Source Dogs and Cats (<http://www.the-aps.org/press/releases/09/44.htm>)

Podcast Releases:

Episode 27: When the Sense of Smell Fails (http://lifelines.libsyn.com/index.php?post_id=548602)

Episode 28: Tis the Season That's Hard on Your Heart (http://lifelines.libsyn.com/index.php?post_id=557789)

Among the media outlets that picked up coverage of the press releases and podcasts were: MSN Health & Fitness, *New Scientist*, *US News & World Report*, WebMD, WTOP radio (Washington, DC), Science Daily and Daily India. ❖

Saturday, April 24, 2010

ConvCtr Ballrm A	7:00-9:00 PM APS Opening Reception 5:45-6:45 PM
ConvCtr Ballrm B	Physiology in Perspective: The Walter B. Cannon Memorial Award Lecture Fredberg
ConvCtr Rm 303A	1:00-3:00 PM; <i>Workshop</i> Computational Modeling and Simulation as a Tool for Studying Physiological Processes Solomon/Wilson
	3:15-5:15 PM; <i>Workshop</i> Nanotechnology and Nano/Microfluidics Lei/Levi
ConvCtr Rm 303B	1:00-3:00 PM <i>Communications Symp:</i> Science Beyond the Laboratory: From Grad School Through Retirement Schatteman
	3:15-5:15 PM <i>Animal Care Symp:</i> Trends in Animal Rights Activism and Extremism Yates
ConvCtr Room 303C	7:00 PM-11:00 PM Band Break Room for Opening Reception
Conv Ctr Rm 303D	4:15-5:15 PM WEH Predoctoral Trainee and Postdoctoral Fellow Symposium Moreno-Quinn/McDonough
Marriott Platinum 3/4	9:00-11:30 AM <i>MCS Symp:</i> Microcirculatory Society President's Symposium: Ion Channels and Microvascular Function Jackson/Jaggar
	2:00-4:30 PM <i>MCS Workshop:</i> Hot Topics in Renal Microvascular Control Inscho/Jackson
Marriott Platinum 1/2	8:00 AM-12:00 NOON <i>Education Committee</i> Refresher Course in Cardiovascular Physiology Hester/Pressley
	2:00-5:15 PM <i>AFMR Workshop:</i> Productive Translational Research: Tools for Connecting Research Cultures and Managing Conflict Zucker
Hilton Pacific Ballroom A	10:30 AM-12:30 PM The Role of Magnesium and Novel Cation Channels in Inflammatory Aspects of Cardiovascular/ Renal/Metabolic Disease: From Molecule to Patient Rosanoff

Bowditch Award Lecture

The Bowditch Lectureship is awarded to a regular member, 42 years of age or younger (at the time of the 2011 lecture), for original and outstanding accomplishments in the field of physiology. Selected by the APS President, the recipient presents a lecture at the Experimental Biology meeting, which is considered for publication in the Society journal of their choosing. The recipient receives an honorarium of \$2,500, reimbursement of expenses incurred while participating in the Experimental Biology meeting, and a plaque. The membership is invited to submit nominations for the Bowditch Lecturer. A nomination shall be accompanied by a candidate's curriculum vitae and one letter detailing the individual's status, contributions, and potential.

More information on the award and nomination procedures are available at <http://www.the-aps.org>. Nominations should be submitted online at <http://www.the-aps.org/awardapps>.

Physiology in Perspective Walter B. Cannon Memorial Lecture

The Cannon Memorial Lecture, sponsored by the Grass Foundation, honors Walter B. Cannon, President of the Society from 1913-1916, and is presented annually at the spring meeting to an outstanding physiological scientist, domestic or foreign, as selected by the President-Elect with the consent of Council. The recipient presents a lecture on "Physiology in Perspective," addressing Cannon's concepts of "The Wisdom of the Body." The lecture is considered for publication in the Society journal of their choosing. The recipient receives an honorarium of \$4,000, a plaque, and reimbursement of expenses incurred in association with delivery of the lecture. The membership is invited to submit nominations for this lecture. A nomination shall be accompanied by a candidate's curriculum vitae and one letter detailing the individual's status and contributions.

More information on the award and nomination procedures are available at <http://www.the-aps.org>. Nominations should be submitted online at <http://www.the-aps.org/awardapps>.

Sunday, April 25, 2010

	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
ConvCtr Ballrm A	<i>LWIC Symp:</i> Novel Opportunities for the Treatment of Heart Failure Alonso-Galacia/Plato	<i>Renal Symp:</i> Update on Prorenin and its Receptor Peti-Peterdi/Nguyen	2:00-3:00 PM CEP Section Krogh Lecture Karasov <i>History Symp:</i> In the Footsteps of August Krogh: Contributions from Comparative Physiology Goldstein
ConvCtr Ballrm B	8:00-9:00 AM NCAR Section Ludwig Lecture Morrison 9:00-10:00 AM Gerard L. Gebber: A Pioneer in Autonomic Neuroscience Morrison	<i>Cross Sectional Symp:</i> Endoplasmic Reticulum Stress at the Crossroad Between Fatty Liver, Leptin Resistance, Obesity and Diabetes Torre-Villalvazo	<i>SEBM Symp:</i> Evolving from Reductionism to Holism: The Future is Systems Medicine Mulrone/Federoff 5:45-6:45 PM The Henry Pickering Bowditch Memorial Award Lecture Janssen
ConvCtr Ballrm C	<i>CV FT:</i> Reactive Oxygen Species in Vascular Tone and Remodeling Miller	<i>Physiol InFocus:</i> Airway Smooth Muscle: Where Does it Come From, How Does it Work, What Does it Do? Fredberg/Tawhai	EPP Section Adolph Lecture: Johnson
ConvCtr Rm 303A	<i>WEH FT:</i> Inflammatory Mediators, Autoregulation, and Cardio-renal Function Drummond/Wilcox	<i>EEP FT:</i> Cerebral Challenges and Consequences of Exercise Cheuvront	<i>PG FT:</i> Molecular Mechanisms and Genetics of Hypertension Moreno-Quinn/Dominczak
ConvCtr Rm 303B	<i>Careers Symp:</i> Government Careers in Physiology Revealed Ryan/Rahmouni	<i>Resp FT:</i> Age, Sex and Control of Breathing Schlenker	<i>Resp Symp:</i> Interaction Between Respiratory and Limb Muscle Blood Flow During Exercise Wagner/Dempsey
ConvCtr Room 303C	<i>CAMPS FT:</i> Ion Channels Liedtke/Svenningsen	<i>CAMPS Symp:</i> Ion Transport in Cancer Fuller/Gagnon	<i>BMES Symp:</i> Shear Stress and Vascular Biology Passerini/Frangos
Conv Ctr Rm 303D	<i>Teach FT:</i> Helping Students Put the Pieces Together: Fostering Integrative Learning of Physiology Cliff	Teaching Section Bernard Lecture Bjork	<i>Renal FT:</i> Ion Transport Sansom/Grimm
Marriott Platinum 3/4	<i>ETG FT:</i> Regulation of Epithelial Ion and Water Channels Snyder/Worrell	<i>EM Symp:</i> So You Want to Phenotype Your Mouse? Challenges to Evaluating the Cardiovascular and Metabolic Systems McGuinness/Ellacott	<i>MCS</i> Microcirculatory Society Landis Award Lecture Von Andrian
Marriott Platinum 1/2	<i>CV FT:</i> Matrix Metalloproteinases in Mitochondrial, Cytoskeletal and Nuclear Remodeling Tyagi/Lindsey	<i>CNS FT:</i> Angiogenesis, Neurogenesis and Brain Recovery from Injury Barone/Chopp	<i>AFMR Symp:</i> Molecular Physiology of Iron Homeostasis and Its Disorders Ganz/Nemeth
Marriott Platinum 7/8	<i>EM Symp:</i> Development of Endocrine Tissues Schwartz/Thomas	<i>NCAR Symp:</i> Autonomic Adjustments to Stress Ray/Carter	<i>Resp Symp:</i> Orexin and the Control of Breathing Nattie/Kuwaki
Marriott Marquis Northeast		<i>CV FT:</i> Extracellular Matrix and Pathology of Cardiovascular Disease Gardner/Lucchesi	

Monday, April 26, 2010

ConvCtr Ballrm A	8:00-10:00 AM <i>AFMR Symp:</i> Non-Erythropoietic Properties of the Erythropoietin; Impact for Tissue Protection and Cancer Salahudeen/Watowich	10:30 AM-12:30 PM <i>GI&L Symp:</i> Current Understanding of the Mechanisms and Regulation of Intestinal Vitamin, Trace Elements, and Metal Transport Said/Cousins	3:15-5:15 PM <i>JPhys Symp:</i> Regulation of Neuronal Cell Volume: From Activation to Inhibition to Degeneration Toney/Stocker
ConvCtr Ballrm B	8:00-9:00 AM CV Section Berne Lecture Faraci	10:30-11:30 AM CNS Section Erlanger Lecture Basbaum	<i>MBG Symp:</i> Redox Control of Skeletal Muscle Adaptation to Exercise and Disuse Powers/Reid
ConvCtr Ballrm C	<i>NCAR Symp:</i> Cannon's Voodoo Death 2010: Autonomic Triggers and Adverse Cardiac Events Talman/Johnson	11:30 AM-12:30 PM Tribute to Basbaum <i>Physiol InFocus:</i> Preparing Students of Physiological Complexity: Emphasizing Quantitative Skills Silverthorn	2:00-3:00 PM WEH Section Starling Lecture Conrad
ConvCtr Rm 303A	<i>GI&L FT:</i> Gastrointestinal Development and Disease Dominguez/Uno	<i>Publications Symp:</i> Publishing 101: Dos and Don'ts of Publishing in APS Journals Barrett/Scherman	3:15-5:15 PM <i>Cross Sectional Symp:</i> Humoral Factors in Renal Injury and Hypertension Granger/Warner
ConvCtr Rm 303B	<i>Teach Symp:</i> Focus on the Big Picture: Integration of Undergraduate and Medical Curricula Golden	<i>MBG FT:</i> Hyperkalemic and Hypokalemic Periodic Paralysis in Skeletal Muscle: New Insight from New Mouse Models Renaud	<i>TAC Symp:</i> Publish, Not Perish: How to Survive the Peer Review Process Dominguez/Lkhagvadorj
ConvCtr Room 303C	<i>Renal FT:</i> Renal Section Young Investigator Awardee Featured Topic Ortiz	<i>CAMPS FT:</i> Caveolar Microdomains, Signaling and Disease Insel	<i>EEP FT:</i> Endocrine Adaptations to Exercise: How Important is Energy Balance? Farrell
Conv Ctr Rm 303D	<i>WEH FT:</i> Blood Pressure and Fluid Volume Homeostasis Cunningham/Chade	<i>NCAR FT:</i> Neural Mechanisms of Sympathetic Activation in Cardiovascular Diseases Pan	<i>CAMPS Symp:</i> Systems Biology Approach to Monitor Intercellular Networks Breton/Molitoris
Marriott Platinum 3/4	<i>CV FT:</i> Translational Research in Metabolic Syndrome and Cardiovascular Disease: Swine vs. Mouse Models Sturek	<i>Resp FT:</i> Pulmonary Hypertension: Mechanisms and Mediators Shimoda/Resta	<i>GI&L FT:</i> Novel Gastrointestinal Nutrient Sensors Crozier/Raybould
Marriott Platinum 1/2	<i>CNS FT:</i> CNS Regulation of Body Temperature Morrison	<i>PG Symp:</i> RNAi Interference in Cardiovascular Disease Sun	3:15-4:15 PM Respiration Section Comroe Lecture Nattie
Marriott Platinum 7/8	<i>Resp FT:</i> Hyperoxia- and Reactive Oxygen Species-Induced Stress in the Lung Parthasarathi/Waters	<i>MCS Symp:</i> Microcirculatory Society Young Investigator Symposium: New Perspectives in Microvascular Inflammation Lombard/Harrison	<i>CV Symp:</i> Neuromodulatory Cytokines in Cardiovascular Functions Raizada/Paton
Marriott Marquis Northeast	<i>Resp FT</i> Respiratory Motoneurons and Muscles in Health and Disease Mantilla/Fregosi	<i>CV Symp:</i> Stem Cells: Nature's Own Nanotechnology Chillian/Hintze	<i>CV Symp:</i> Interactions Between Myosin Light Chain Kinase and Phosphatase in Arterial Myogenic Tone Hill/Cole
ASPET Room Conv Ctr Rm 209 A/B		12:45-2:00 PM The Scientific Foundations for Future Physicians Report and Its Implications for Medical and Pre-Medical Education Silverthorn	
Marriott Salon K			5:30-8:00 PM GI & Liver Section Trainee Poster Symposium Collins

Tuesday, April 27, 2010

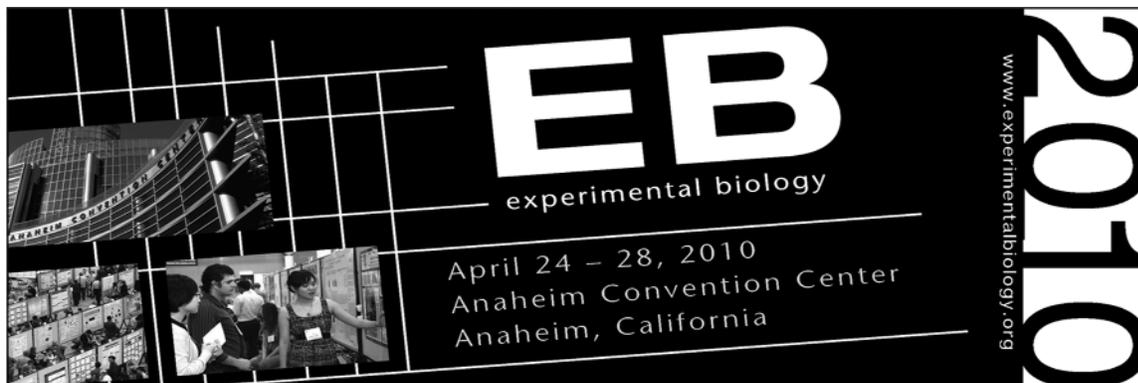
	8:00-10:00 AM	10:30 AM-12:30 PM	3:15-5:15 PM
ConvCtr Ballrm A	<i>PG FT:</i> Trainee Highlights in Physiological Genomics Liu	10:30-11:30 AM GI & Liver Section Davenport Lecture Gershon	5:45-7:45 PM APS Business Meeting
ConvCtr Ballrm B	8:00-9:00 AM Renal Section Gottschalk Lecture Bell	<i>Physiol InFocus:</i> One Hundred Years of Starling: His Contributions to Physiology Reckelhoff/Rubio	<i>CV FT:</i> Wiggers Award Featured Topic: Hypertension, Inflammation and Adaptive Immunity Harris/Lombard
ConvCtr Ballrm C	<i>Resp Symp:</i> Airway Protective Behaviors: Cough and Swallow Bolser/Davenport	<i>CNS Symp:</i> Intrinsic and Extrinsic Regulation of Activity in the Hypothalamus: Mechanisms and Consequences Brown/Ludwig	3:15-4:15 PM CAMP Section Davson Lecture Grinstein
ConvCtr Rm 303A	<i>WIPC Symp:</i> A Primer for the New PI: How to Herd Cats AND Keep Your Boss Happy Andrade/Grippe	<i>TPS Symp:</i> STIM Proteins: Calcium-sensors with Multiple Functions Parekh	2:00-3:00 PM E&M Section Berson Lecture Robinson 3:15-5:15 PM <i>ETG Symp:</i> The Control and Consequences of Renal Electrolyte Transport Mount/Geibel
ConvCtr Rm 303B	<i>CEPS FT:</i> Physiological Biomechanics McHenry	<i>MBG FT:</i> PGC-1alpha in Health, Exercises and Disease Hood 1:00-2:30 PM NSF Symposium Biology for the 21st Century: A Research and Education Agenda Woodin	<i>NCAR FT:</i> Donald Reis Memorial Featured Topic Wehrwein/Chapleau
ConvCtr Room 303C	<i>CAMPS FT:</i> Epithelial Barrier Function in Inflammatory Bowel Diseases Fromm	<i>NCAR FT:</i> Mitochondrial Oxidants and Antioxidants in Autonomic Regulation of Cardiovascular Function Zimmerman	<i>Renal Symp:</i> Mouse Models of Diabetic Renal Disease Harrison-Bernard/Maric
Conv Ctr Rm 303D	<i>WEH FT:</i> Sex-dependent Mechanisms in Cardiovascular and Renal Pathophysiology Alexander/Korzick	<i>EM FT:</i> Membrane Estrogen Receptors Samson	2:00-3:00 PM The Walter C. Randall Lecture on Biomedical Ethics Schwinn 3:15-5:15 PM <i>CEPS FT:</i> Comparative Metabolic Physiology Sweazea
Marriott Platinum 3/4	<i>ETG FT:</i> Regulation of Epithelial Transporters Pastor-Soler/Blaine	<i>Resp Symp:</i> Point-Counterpoint: An Update in Endothelial Barrier Function Alvarez/Birukov	<i>EEP Symp:</i> Habitual Exercise and Arterial Aging Seals/Tanaka
Marriott Platinum 1/2	<i>CV Symp:</i> Novel Molecular Targets for Modulating Cardiac Cell Death and Survival Roth	<i>Hypoxia Symp:</i> Inflammatory Responses and Hypoxia-Inducible Pathways Colgan/Eltzchig	<i>BMES Symp:</i> Vascular Tissue Engineering Brauer
Marriott Platinum 7/8	<i>EEP FT:</i> Cardiovascular Adjustments at High Altitude Sander	<i>CV FT:</i> Cardiovascular Consequences of the Metabolic Syndrome Stepp/Frisbee	<i>AFMR Symp:</i> Regenerative Medicine in the 21 st Century Opara/Atala
Marriott Marquis Northeast	<i>CV FT:</i> Coordinate Regulation of Vascular Smooth Muscle Gene Expression, Cell Phenotype, and Vessel Function Pearce/Wamhoff		

Wednesday, April 28, 2010

8:00-10:00 AM

10:30 AM-12:30 PM

ConvCtr Ballrm A	<i>CEPS Symp:</i> New Insights into the Pulmonary Circulation West/Powell	
ConvCtr Ballrm B	<i>WEH Symp:</i> A. Clifford Barger Memorial Symposium: New Insights Into the Relationship Between Sodium Metabolism and Blood Pressure Regulation Humphreys/Bie	
ConvCtr Ballrm C	<i>Translational Symp:</i> Integrins: New Insights and Therapeutic Targets Basavappa/MacGregor	<i>Physiol InFocus:</i> Physiology at the Crossroads of Biomedical Engineering and Medicine Prakash
ConvCtr Rm 303A	<i>AFMR Symp:</i> Vitamin D Deficiency and Its Impact on Health Kamen/Tangpricha	<i>CV Symp:</i> The Role of the Ubiquitin Proteasome System in Cardiac Disease, Diabetes, and Aging Willis/Wang
ConvCtr Rm 303B	<i>Resp FT:</i> Mechanisms of Peripheral Chemoreception Mulkey	<i>Hypoxia FT:</i> Hypoxia Effects on Cardio- Respiratory Function and Integration Morris
ConvCtr Room 303C	EM FT: Sarcopenia: Signal Transduction and Metabolism in Senescent Skeletal Muscle Reynolds	<i>CV FT:</i> Physiological Role of Vascular Endothelial Growth Factors as Homeostatic Regulators Bates
Conv Ctr Rm 303D	<i>NCAR FT:</i> The Brain, Behavior and Autonomic Function in Health and Disease Grippo/Moffitt	<i>CV Symp:</i> Protein O-GlcNAcylation: A New Signaling Paradigm for the Cardiovascular System Wells/Zachara
Marriott Platinum 3/4	<i>BMES Symp:</i> Mechanobiology and Oxidative Stress Blackman/Jo	<i>EPP Symp:</i> To Exercise or Not to Exercise: Can We Replace Physical Activity with a Pill? Chin/Spangenburg
Marriott Platinum 1/2	<i>CAMPS Symp:</i> Cytoskeleton-Associated Motors and Tethers in Epithelial Polarity and Trafficking Stanton/Brown	<i>Cross Sectional Symp:</i> Novel Redox Signaling in Ion Channel Regulations and Pathophysiology Helms/Eaton
Marriott Platinum 7/8	<i>CV FT:</i> Regulation of Vascular Caliber and Contractility van Bavel/Hill	<i>Renal FT:</i> Renal Hemodynamics and Oxidative Stress Wilcox/Palm



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2010

Postdoctoral Positions

Postdoctoral Research; Graduate Research; University of Kansas, Center for Physical Activity and Weight Management:

The Center for Physical Activity, and Weight Management, has locations in Lawrence and Kansas City, and supports research, training, and outreach programs for weight loss and weight maintenance for both children and adults. The Center is currently following over 500 participants enrolled in the Weight Control Research Project that is designed to provide weight loss and weight maintenance for adults. We also have nine funded projects from the National Institutes of Health to investigate exercise, nutrition, prevention of obesity and weight loss in both adults and children and several industry sponsored programs that investigate nutritional manipulations on energy balance and body composition. The Center currently has the following positions open: postdoctoral researchers (00062363), and graduate research assistants (MS, PhD). Applications are accepted on an ongoing basis. To apply for the Postdoctoral Research position, please apply on-line with the University at jobs.ku.edu (position number 00062363). To apply for the Graduate Research Assistant, please email Kim@ku.edu your cover letter, resume/vita and a list of three professional references. Posting Details of Duties, Required and Preferred Qualifications and application procedures can be found online at www.ebl.ku.edu. Questions? Email Kim@ku.edu. [EO/AA]

Postdoctoral Fellowship, Institute for Exercise and Environmental Medicine:

(Muscle Metabolism/Exercise Physiology, Laboratories, Position Available, 6-1-10). A postdoctoral position in muscle metabolism and physiology is currently available in the laboratory of Dr. Ronald G. Haller at the Institute for Exercise and Environmental Medicine in Dallas, Texas, www.ieemphd.org, in affiliation with the University of Texas Southwestern Medical Center of Dallas Southwestern. This position is currently funded from departmental sources.

The applicant must have a PhD, MD, or comparable doctoral degree. Experience with MRS utilization and data analysis essential and specifically with T-7 unit preferred. The ideal candidate will have a strong publication record and excellent communication and laboratory skills. Salary is commensurate with experience according to NIH stipend levels. The fellow will be an employee of Texas Health Presbyterian Hospital, Dallas and, thus, will receive comprehensive fringe benefits including medical, dental, and life insurance. Please send a statement of research interests, curriculum vitae, sample publications, and the names of three references to Ronald G. Haller, Director, Neuromuscular Center, Institute for Exercise and Environmental Medicine, Presbyterian Hospital of Dallas, 7232 Greenville Ave, Dallas, TX 75231. Email: Ronald.Haller@UTSouthwestern.edu and fax to Sherry Burnside at 214-345-4618. [EOE]

Research Positions

Research Scholar: East Carolina University seeks a scholar (open rank) with a research focus on obesity, diabetes, metabolic syndrome, and/or cardiovascular disease. This recruitment is a joint effort between the Division of Health Sciences, the College of Health and Human Performance, the Human Performance Laboratory, and the recently founded ECU Metabolic Institute in an effort to promote translational research and doctoral student training. The successful candidate will contribute to multi-disciplinary research examining the effects of these disease states in either adults or children with an emphasis on molecular approaches and applied science interventions such as weight loss or physical activity. Preference will be given to applicants with evidence of external funding and experience in grant preparation and/or a record of scholarship. To apply, candidates must complete a candidate profile under job posting at www.ecu.edu (advertising department is Exercise and Sport Science). Candidates are required to attach a cover letter, curriculum vitae, three samples of scholarly work, and contact information for three (3) letters

of recommendation. East Carolina University is an Equal Opportunity/Affirmative Action Employer, complies with the Americans with Disabilities Act, and is committed to fostering cultural and ethnic diversity. Send correspondence and inquiries to Dr. Joseph Houmar, PhD, Search Committee Chair, 371 Ward Sports Medicine Building, East Carolina University, Greenville, NC 27858. Phone: 252-737-4617. Email: houmarj@ecu.edu.

Faculty Positions

Assistant Professor, Applied Physiology/Biomechanics:

Southern Methodist University, Annette Caldwell Simmons School of Education & Human Development, Applied Physiology/Biomechanics Assistant Professor, Department of Applied Physiology and Wellness. Southern Methodist University offers an exciting unique opportunity for an emerging scholar to join in the implementation of a new major in Applied Physiology and Sport Management while developing his/her program of research. Candidates must have a PhD in Exercise Physiology or Biomechanics or a related area, a record of scholarly research, evidence of success in or strong potential for obtaining external funding; an interest and expertise in designing, equipping, and managing new exercise physiology and biomechanics laboratories, a desire to provide high quality undergraduate instruction, and a willingness to play an integral role in the growth, development of the new major program launched in the fall semester of 2009. Preference will be given to applicants with successful postdoctoral experience, a clear research agenda, a strategy for seeking external funding, secondary expertise in Exercise Physiology, Biomechanics, Motor Control or a related area and an ability to work with faculty colleagues. A scholarly interest in human performance at the whole-body level is desirable, but not required. Responsibilities: the successful candidate will be expected to develop a visible research program, teach undergraduate courses, e.g., anatomy and exercise physiology, contribute to the development of the new graduate program, and work collabora-

tively to help implement the new undergraduate major. The candidate will also be responsible for helping establish, equip and set-up the physiology of exercise and biomechanics laboratories planned for the new education building opening late in 2010 or early 2011. The candidate should have outstanding interpersonal and communication skills that will promote strong collaborations in research within the department and in the Dallas/Fort Worth Metroplex. Salary competitive and commensurate with qualifications. This assistant professor tenure-track position, #00053106, begins fall semester 2010. To ensure full consideration for the position, applicants should submit their application by February 5, 2010, but the committee will continue to accept applications until the position is filled. The committee will notify applicants of its employment decision after the position is filled. Applicants can initiate consideration by submitting a letter of application, a curriculum vitae, and contact information for three references to: Chair of Search Committee, Simmons School of Education and Human Development, Southern Methodist University, PO Box 750353, Dallas, TX 75275-0353. We encourage

digital applications: Emailed files should be saved to smallest size and sent to LPL@smu.edu. To retain font and formatting integrity, save documents in .pdf format. Letters of recommendation may be scanned and sent as .jpg files. Candidates may submit websites, CDs, DVDs that showcase samples of their work. All digital material/files/media must be fully functioning on both PC and Mac platforms. SMU is an inclusive and intellectually vibrant community of teachers and scholars that values diverse research and creative agendas. SMU offers excellent benefits including full same-sex domestic partner benefits. Explore SMU at <http://www.smu.edu>. Our beautifully shaded campus of Georgian-Revival-inspired architecture is situated in the heart of Dallas. The Dallas/Fort Worth Metroplex, a culturally rich arts and global business center, is home to many universities, arts organizations and Fortune 500 and over 100 corporations. Visit <http://www.dallaschamber.org>. SMU does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, or veteran status. SMU is committed to nondiscrimination on the basis of sexual orientation. Hiring is

contingent upon the satisfactory completion of a background check.

Associate / Full Professor: University of California, Merced, invites applicants for a faculty position in Physiology. The appointment will be made at either the tenure track Assistant Professor or tenured Associate or Full Professor rank. We seek an outstanding individual with research interests and expertise in any area of Physiology that complement those of the existing UC Merced faculty. We welcome applicants using experimental approaches working at the cellular and/or organism level. Senior physiologists are particularly encouraged to apply. We seek distinguished scholars who will help establish a program of international repute in physiology research at UC Merced, and who will participate actively in the development of innovative, interdisciplinary curricula and in the teaching and mentoring of a diverse student population. For more information and to apply, visit: <http://jobs.ucmerced.edu/n/academic/listings.jsf?jsessionid=22798339594B6A6CF5D30D815F5FD5A8?seriesId=1> The application deadline is March 1, 2010. [AA/EOE]. ❖

Books Received

Adventure Sport Physiology
Nick Draper and Chris Hodgson
New Jersey, USA: Wiley Publishers,
2008, 440 pp. illus., index, \$70.00
ISBN: 047001511X.

Neuro Dynamix II: Concepts of Neurophysiology
W. Otto Friesen and Jonathan A. Friesen
New York, USA: Oxford Press, 2010,
240 pp., illus, index, \$49.95
ISBN: 978-0-19-537183-3.

Pharmacology for the Health Care Professions
Christine M. Thorp
New Jersey, USA: Wiley Publishers,
2008, 364 pp. illus., index, \$50.00
ISBN: 047051017X.

Physiology and Pathology of Chloride Transporters and Channels in the Nervous System: From Molecules to Diseases
Edited by Francisco Javier Alvarez-Leefmans and Eric Delpire
New York, USA: Academic Press, 2009,
500 pp., illus., index, \$150.00
ISBN: 978-0-12-374373-2.

Repair and Redesign of Physiological Systems
Edited by: MA Atherton, MW Collins and MJ Bayer
Massachusetts, USA: WIT Press, 2008,
304 pp., illus., index, \$190.00
ISBN: 9781845640965.

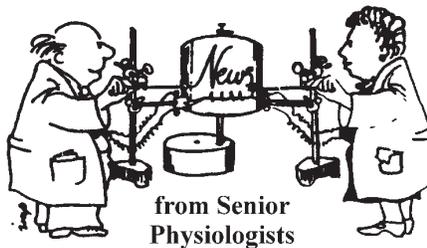
The Integrated Nervous System: A Systematic Diagnostic Approach
Walter J. Hendelman, Peter Humphreys, and Christopher Skinner
Florida, USA: CRC Press, 2010, 352 pp.,
illus, index, \$79.95
ISBN: 978-1-4200-4597-0.

Herb Spector writes: "In my ninety-first year, I am looking more forward than backward. If our species survives another 30 years, we will look back in horror at the barbaric practices of today in clinical medicine, just as we look back in horror today at the methods used by well-intentioned physicians in colonial times when the standard treatment for most diseases was phlebotomy. Using the best tools of the day, they bled George Washington to death and probably killed thousands of others. Today, too many clinicians use whole body radiation or chemotherapy to treat cancer, thus destroying the body's natural defenses and repressing natural immunity so that it becomes a race to see whether the cancer or the patient dies first. Too often the patient loses the race.

"Because the body's natural immune responses include natural killer cell production and other immune responses to destroy cancer and virally infected cells, it is therefore more logical to enhance our natural immune responses than to destroy them.

"I demonstrated [1, 2, 3] with the help of my colleagues and students in Birmingham, AL and Ancona, Italy that we can reverse both aging and cancer in mice by classical (Pavlovian) conditioning methods. There is already some evidence that we can do similar conditioning in humans, thus bridging the gaps between our incomplete knowledge of the molecular and genetic mechanisms of immunity, and leaping from one peak to the next. There is evidence that this type of conditioning can work in humans, but it remains to be definitively demonstrated. I have had protocols approved both at the NIH and in Italy for experiments that would conclusively prove that we can do the same thing with humans. Unfortunately, the funding for these experiments never materialized. At various times in the past, I have been promised \$5 million dollars, and then \$100 million, to support these experiments, but as we know, too many of the super-rich are notoriously fickle, and have more interest in becoming still richer, than in promoting the health and wealth of future human generations.

"Although I have many colleagues in their laboratories ready and willing to perform the definitive human experiments, both in the United States and abroad, we are still waiting for adequate funding. As I said 10 years ago in my 80th birthday report, I think like a pessimist, but live like an optimist. Thus, I



am still trying to find the means to conduct these crucial experiments.

"At this point, I wish to thank my colleagues in physiology who are still interested in what I am doing, and thank as well the indomitable Executive Director of the American Physiological Society, Marty Frank, for their interest and support.

"I suppose that I should say a little bit about the past. I will try to make it short and considerably abbreviated.

"In my youth during the Great Depression, I went to 11 grade schools in five states before entering high school. Luckily, I was able to matriculate at the City College of New York, which was entirely free at the time, or I would not have ever gone to college. Among my colleagues and friends at the public high school and this free college were at least 11 future Nobel Laureates. Upon graduation, I had the option of working as a technician in the laboratory of a world-famous geneticist, or continuing my occupation as a machinist. As with many of my fellow students at the City College, I worked part- or full-time all through my college years and served a brief apprenticeship as a machinist.

"There were no scholarships or fellowships at graduate schools or medical schools in those days. The world was in a state of utter chaos, and my conscience would bother me if I sequestered myself in a nice comfortable lab, while all that misery and suffering was going on in the rest of the world. Thus, I opted for a different careeras a civil rights worker and volunteer union organizer. On a local scale I was very successful in reforming two of the largest unions in the United States while conducting a continuous battle against the gangsters, the bureaucrats, the FBI, the company goons, and the Stalinists [who would destroy a union if they could not control it].

"At one point, after refusing an offer from one of the largest instrument companies to switch to the other side and accept a job as an executive with the company, at 10 times my salary as a tool and die maker, I was declared a 'security risk'!...and fired from my job, despite the

fact that I was not working on any secure or secret material.

"Although the Supreme Court reversed the 'security risk' appellation, and ordered the FBI to remove all adverse information from my file, the FBI ignored the order, and continued to harass me through all of my professional (totally non-political) life. It had taken six years and the dedicated work of two young lawyers from the American Civil Liberties Union, working pro bono, to win my case before the US Supreme Court. It took yet another high court victory to win my back wages for those six years. Most of the money was used to reimburse my two lawyers for all the many court expenses.

"After 22 years in the relentless struggle for the rights of workers, minorities and women, I decided that I was not clever enough to reform the world, so I opted for a relatively easier job of figuring out how the brain works. In my mid-40s, with the help of a fellowship from the NIH, I matriculated at the University of Pennsylvania to earn a PhD degree in physiology, returning to my first love of biology. Ever since then, I have pursued careers in physiology, immunology, gerontology, and neuroscience, among other occupations

"Together with Walter Pierpaoli of Switzerland and the late Branislav Jankovi of Yugoslavia, I founded the International Society for Neuroimmunomodulation [ISNIM] which soon had members in 40 countries. At a meeting of the European Immunologists Societies in Zageb, 400 attendees unanimously elected me as first president of the ISNIM. Years later, in Phoenix, AZ, with the late Dr. Harold Udelman, we founded the non-profit American Institute for Neuroimmunomodulation Research. This Institute, and its ideals, was enthusiastically endorsed, by seven Nobel Laureates, including the late great Linus Pauling.

"Although my salary was retired 15 years ago, I continue full-time in my career as a physiologist, trying to re-establish this great science as an integrated whole. Too many medical schools and universities are currently divided into monastic departments of anatomy, microbiology, neurology, urology, etc, etc., but the living organism is not so divided! All 'departments' are constantly interacting and are interdependent. 'The tailbone is connected to the headbone.' When, more than 35 years ago, I pro-

posed that no immune response is independent of the nervous system, 'neuroimmunomodulation,' many immunologists called me a witch doctor. Today, the winds are blowing in another direction, and after tens of thousands of carefully conducted experiments, the interactions among the nervous, immune and endocrine systems are well recognized by mainstream science.

"Among my favorite hobbies, in addition to my profession, are the enjoyment of my children and grandchildren, fencing, photography, and various other pursuits such as the education of children, epistemology, and occasionally, chess. I was recognized for one of my hobbies, fencing, by being inducted many years ago into the City University Hall of Fame, and five years ago, into the United States Fencing Hall of Fame.

"There are two disadvantages of being more than 90 years old. Funding for research is extremely difficult to find and too many of my most distinguished colleagues and very dear friends have departed these mortal coils.

"The past, and its many lessons, should not be forgotten, but it is even more important to focus on the future."

Acknowledgements: I thank Kat Smythe and Massie Viojee for their assistance in preparing this document, and Kat Smythe and Clark Blatteis for their invaluable editorial suggestions.

References:

1. Ghanta, V K, Hiramoto, R N, Solvason, H B, Spector, N H, (1985) Neural and Environmental Influences on Neoplasia and Conditioning of NK Activity. *J. Immunol.* Vol. 135 (suppl.), 848-852

2. Spector N.H., Provinciali M., di Sterano G., Mussioli M., Bulian D., Viticchi C., Rossno R., Fabris N. (1994), Immune enhancement by conditioning of senescent mice, In: N., Fabris, B. M. Markovic, N.H. Spector and B.D. Jankovic, Eds., *Neuroimmunomodulation: The State of the Art*, Ann.N.Y. Acad.Sci., Vol. 741.

3. Spector N.H., (2009), Reversal of aging and cancer by Pavlovian conditioning; NIM: some history. *Russian J. Physiol.* Vol. 95 (12); 1291-1308 (in press).

Letter to Frank Knox

Paul R. Schloerb writes: "Thanks for your letter of October 9, 2009. In accordance with your request, I am providing the Society with my curriculum vitae. It is rather obvious that recent activities

have been limited, which is probably a characteristic of nonagenarians.

"My most recent activity is a website, <http://epen.kumc.edu> which has generated 41,000 "hits" per year from 38 countries, mostly from USA.

"I come to the office nearly every day, attend lectures, read mail, and confer."

Letter to Harvey Sparks

M. Elizabeth Tidball writes: "The Acknowledgments in my Master of Science thesis from the University of Wisconsin in 1955 read in part: ". . . to Doctor Charlotte Haywood [Mary Lyon Professor of Physiology at Mount Holyoke College] whose enthusiasm toward the study of physiology first led the author into the field and maintained her interest and eagerness for teaching and research.

"Years later, in 2004, my husband, Dr. Charles S. Tidball, and I endowed a multipurpose classroom in the newly constructed Kendade Hall at Mount Holyoke to the memory of Professor Haywood, in which she was honored as Inspiring Example, Consummate Teacher, and Creator of Legacies. All of which is to say that early on I fell in love with the study of physiology—a love that continues to the present time.

"However, my pursuit of becoming a real life physiologist myself was to take many years and involve detours and challenges, some of which occurred simply because I was female. Finally, after sojourns at the Universities of Rochester and Chicago, and sufficient residency at the University of Wisconsin-Madison, I completed a PhD in 1959 while holding the Mary E. Woolley Fellowship from Mount Holyoke, and published my first single-author research papers in the *American Journal of Physiology*, becoming shortly thereafter a member of the Society. Both Professor Haywood and, subsequently, my professor and mentor at Madison, Dr. William B. Youmans, cheered me onward with pride and life-long support. (*The Physiologist* 43(2): 104-5, 2000.)

"It was during my postdoctoral fellowship at the National Institutes of Health (1959-61) that I first became aware that the 'real world' was populated by many people unhappy with the presence and progress of women, a realization that was regularly obvious not only at the NIH but also at the George Washington University School of Medicine where I subsequently obtained a faculty appointment and even-

tually became the first woman full professor of Physiology. I managed, but the cost was often very high.

"In 1974-75, during a sabbatical leave, I served as Executive Secretary at the Commission on Human Resources at the National Research Council/National Academy of Sciences and as Consultant for Institutional Research at Wellesley College. During that time my lab was given away, said to be a temporary situation. But this was not true. When I found myself spending far too much time and energy attempting to regain it, and finally became aware that this was never to be, I turned my energies to research characterizing environments for the education and employment of women. I wanted to learn the dimensions of those venues especially promoting of women's professional engagement and accomplishment. An early and regular finding demonstrated, for US educational institutions, a high woman faculty to woman student ratio to be statistically related to women students' post college accomplishment for all categories of undergraduate institutions. This paper, entitled, 'Perspective on Academic Women and Affirmative Action', was published in *Educational Record*, 54:130-135, 1973, and subsequently became not only a Citation Classic but '. . . the most-cited paper ever published in this journal.' (*Current Contents*, 18:14, 1986.). This did not please my detractors, though it made me aware of the great need to explore further the nature of educational environments especially promoting of women participants.

"What followed was a series of research publications that included 'Baccalaureate Origins of American Scientists and Scholars' (*Science*, 193:646-652, 1976); 'Of Men and Research: The Dominant Themes in American Higher Education Include Neither Teaching Nor Women,' (*Journal of Higher Education*, 47:373-389, 1976); 'Women's Colleges and Women Achievers Revisited,' (*Signs: Journal of Women in Culture and Society*, 5:504-517, 1980); and a number of smaller publications, newsletters and reprints of my public speeches, some 90 papers addressing these concerns. One of my favorites was entitled, 'The Ideal Gas, a Critical Mass, and Homeostasis: Three Lessons from the Sciences,' a special feature in *Women's Studies Quarterly* (11:5-7, 1983.)

"Along with indicators of the impor-

tance and appropriate scholarliness of this research, came innumerable opportunities to speak at convocations, commencements, forums, and assorted other venues, and to become a member of the Editorial Board of the *Journal of Higher Education*. With these opportunities came also some 17 honorary doctorates, medals (including the President's Medal, the highest honor from George Washington University!) and invitations to serve on boards of trustees, science commissions, and councils.

"I began to become active in the founding of groups for professional women including the American Physiological Society (see *History of the American Physiological Society: The First Century, 1887-1987*, pages 381-390) and established, at the NRC/NAS, the Committee on the Education and Employment of Women in Science and Engineering, subsequently becoming its vice chair. From 1979 through 1983 I co-authored reports with Lilli Hornig for the National Academy Press in Washington. At the George Washington University I was a founder of the Master of Arts program in Women's Studies and, for the Woodrow Wilson National Fellowship Foundation, participated for 25 years as a member of the final selection committee for their Doctoral Dissertation Awards in Women's Studies and Women's Health.

"Further, at George Washington, I derived enormous pleasure serving many years on the medical school's Committee on Admissions. Later I was asked to chair the Dedication Committee for the three days of celebration surrounding the opening of our new medical school and medical library. Elsewhere, there was room for my skills in accreditation assessments at Middle States Association of Schools and Colleges, and, for what I had learned as a member of several governing boards, I frequently served as Board Mentor for the Association of Governing Boards of Universities and Colleges. I found myself traveling widely, speaking and being listened to, and sharing what I was learning from both my research and engagement in higher and professional education. Indeed, I had moved from the particularity of physiology to the larger arena of educational policy and governance, but always with the upbringing and influence of a life scientist, indeed, of a physiologist!

"I cannot refrain from adding here a few quotes that reflect the dual life I had

developed as a physiologist and an educator, and especially as one concerned for the education and advancement of women. From an honorary LHD citation (Mount Holyoke College, 1976), '... In a succession of pioneering inquiries you have raised important questions and have worked at developing the data for a parallel series of challenging answers concerning the settings and circumstances that encourage or submerge the talents of women whose endowments warrant accomplishment.' And one of my all-time favorites: '... you chose the concept of homeostasis as a metaphor for what you believe education is all about For any living organism to survive . . . it must be able to make appropriate and sufficient adaptations to both the internal and external environments The essence of homeostasis is this: that the organism is stable because it is modifiable. So, too, with our institutions of higher learning' It went on to note that the major alteration in our history is the new majority, both within and outside of academe, to which educational institutions must learn to adapt and move forward. (LHD, Skidmore College, 1984.) Then, in 1999, with contributions from two social scientist colleagues and my computer expert husband, I finally yielded to wide-spread encouragement and published *Taking Women Seriously: Lessons and Legacies for Educating the Majority* (Phoenix: American Council on Education and Oryx Press, 228 pages, 1999.) Our book received a thoughtful review in the *The Physiologist* (42 (6):455-457) among other publications.

"But there was still to be yet another realm in which my life as a physiologist would be brought to bear—the realm of religious studies. Through connections developed from several of my speaking engagements, I was sought after as a scientist to 'round out' panels or programs that were striving to incorporate a variety of liberal arts points of view on religion. I was fascinated and took up this new challenge with enthusiasm. From one such conference, in which I was both the scientist and the woman, my contribution, 'Religion and the Intellectual World—Lessons from the Sciences' was published (*NICM Journal*, 6:28-42, 1981) leading to future opportunities as well as an invitation not only to contribute further articles but to serve on the journal's Advisory Panel.

"Further, being female and being an academic had become an advantage

with respect to many forward-looking educational institutions seeking 'diversity.' One such was the College of Preachers, a continuing education institution for clergy, under the umbrella of the Protestant Episcopal Cathedral Foundation of Washington Cathedral. I was invited to become a member of the governing board, the Council. Additionally, I found a new opportunity for teaching physiology! Twice each year we offered a week-long conference for clergy within five years of retirement. I suggested including clergy spouses, which we did, and also some conference time devoted to health issues of aging. Soon I found myself talking about exercise, nutrition, blood pressure, sleep—a myriad of topics and questions dealing with the importance of a healthy body to support the mind and spirit. This brought great delight, for the 'students' were bright, engaged, and definitely desirous of learning from a real medically savvy teacher. My years with the College, beyond the conferences, included a term as the first woman and lay person to chair the Council and, concomitantly, to sit on the Foundation's governing board and executive committee.

"It occurred to me that I needed a more formal background in religious studies if I were to be a credible contributor in this newly-popular area of intellectual discourse. And so, while continuing to fulfill my roles at GW, I became a student at Wesley Theological Seminary in Washington, where I managed to earn an MTS degree summa cum laude in 1990 and prepare a number of papers fit for publication. My first attempt at bringing together the two worlds of science and religion was a paper entitled, 'Approaches to Truth,' in which I compared methods and outcomes of biblical analysis with those of the natural sciences, finding many parallels that intrigued me. For another assignment I wrote, 'Experimental Neuroscientists and the Geisteswissenschaften—The approaches to religion of Freud, Penfield and Gazzaniga,' (1987). By the time I wrote my MTS thesis, entitled, 'A Celebration of Order,' the first chapter, *The Meaning of Order*, included sections such as *Toward an Inclusive View of World Order and Order and Physiological Adaptation*. There one can find names such as Evelyn Fox Keller, James Gleick, Timothy Ferris, Claude Bernard, Walter B. Cannon, and Charles Richet, among the 82 references.

Subsequent chapters brought ideas and research from theological work together with the sciences to develop *The Comprehensive Character of Order* and *The Importance of Order to Human Life*. How special it was to be part of a learning community in which ideas were valued and relationships honored. I now understood myself as a physiologist with an expanded view of life, and the beneficiary of an enriching experience that encompassed science, education and theology. And I was still only 60 years old!

"I retired from George Washington in 1994, took some time out for breast cancer, but then enjoyed more fully the opportunity to share with Charlie the things we loved to do together—backpacking, white water canoeing, choral singing, exploring cathedrals, volunteering in many domains and leading a variety of committees and organizations. I was invited to bring my databases and assorted research materials to Hood College in Frederick, MD, where I had been a Trustee for some 20 years. And on February 15, 1994, the College dedicated The Tidball Center for the Study of Educational Environments in Alumnae Hall where Charlie and I, as Distinguished Research Scholars and Co-Directors of the Center, continue to work with students, doing research focused on small colleges and their importance to the larger society.

"Since 2000 we have resided in a Continuing Care Retirement Community in Frederick County, MD, although we have kept a small condominium in DC to facilitate some of our volunteer activities and to obtain specialized medical care as needed. We no longer yearn for the more vigorous activities of that earlier time but rather enjoy our daily morning swim and shorter walks, while we continue to serve our communities and enjoy our friends both old and new. My affiliation with the Cathedral Choral Society spans 48 years and continues; my service as a Trustee of Skidmore College is in its 22nd year; and I have just retired from the Board of Trustees of the Bishop Claggett Center which is the conference/camp/retreat center for the Episcopal Diocese of Maryland. I continue my 48 years of volunteering, currently in the Worship Department, at Washington National Cathedral, and participate in Cathedral services as eucharistic minister and reader. Happily, Summer Seminars for Women, the residential conference for adult women I founded in 1988 and directed for many years at the Miniwanca Education Center in western Michigan, is very much alive and well, now under the most able direction of a young woman and her helpers, so that I have the great pleasure of attending with few program responsibilities but many opportunities for refreshment and growth. And while Charlie and I are in

good health for our ages, we must acknowledge that we are, indeed, more fragile than we once were. Last year I was diagnosed with pancreatic cancer and have now survived a Whipple procedure and chemotherapy. And, while I am doing well, I suspect that these are the last words to come from this Senior Physiologist to an APS publication. So be it.

"You have asked what I am doing, and I would respond that I am doing much of what I have done all of my life—looking for and finding ways to arrange the many dimensions of an active and ongoing life into a coherent whole with relevance and meaning in the building of an equitable and humane society. My calling to academic life as a physiologist has enabled me to fulfill the three classic roles of a university professor: teaching, research and service. Further, I have done this through a felicitous articulation as medical scientist, social psychologist and theological interpreter. In turn, this calling has been foundational to the integrated person I am forever attempting to become. I have been enormously blessed by the people of my life and by the energy I have been granted, which have enabled me to learn about life in the midst of living. In sum, it has indeed been an awesome journey!" ❖

People & Places

Julien Steven Baker is a Professor Chair and Head of Exercise Sciences at the University of West Scotland, School of Sciences, Hamilton, Scotland. Prior to this move, Baker was at the University of Glamorgan in Pontypridd, UK.

Fady T. Botros is an Associate Consultant at Eli Lilly and Company, Indianapolis, IN. Previously, Botros was an Assistant Professor in the Department of Physiology at Tulane University Health Science Center, New Orleans, LA.

Kimberly A Huey is now an Associate Professor at the Drake University College of Pharmacy and Health Sciences, Des Moines, IA. Huey had been an Assistant Professor at the University of Illinois, Department of Kinesiology, Urbana IL.

Youichirou YoYo Ootsuka has taken a position as an Associate Professor, at the Kagoshima University, Department of Physiology, Kagoshima, Japan. Prior to this position, Ootsuka was in the Senior Research Office at Flinders University School of Medicine, Department of Human Physiology, Adelaide Australia.

James L. Robotham has moved to the Department of Anesthesiology and Pain Management at Seattle Children's Hospital, Seattle, WA. Previously, Robotham was in the Department of Anesthesiology at Strong Memorial Hospital in Seattle, WA.

Hiromi Sakai is now an Associate Professor, Principal Investigator at Weseda Bioscience Research, Singapore. Sakai had been an Associate Professor

in the Department of Advance Research Institute for Science and Engineering at Waseda University, Tokyo, Japan.

Christian L. Tipsmark has moved to the Institute of Marine Biology at the University of Hawaii-Manoa, Kaneohe, HI. Tipsmark moved from the Department of Biology at the University of Southern Denmark, Odense M, Denmark.

David Anthony Tulis is currently an Associate Professor in the Brody School of Medicine at East Carolina University, Greenville, NC. Prior to this position, Tulis was an Assistant Professor in the BBRI Department at North Carolina Central University, Durham, NC. ❖

The Wine Wizard Peter Wagner

Whites (and a pink) that will survive a cold winter night's indulgence:

2008 Curtis "Heritage Blanc" central coast, \$10. This wine is 50/50 Viognier and Roussanne, which are Rhone white grapes. It has a honey and citrus nose, with citrus, pear, and honey on the palate. Rich viscosity, dry, with a good acid kick and long finish.

2007 Bethel Heights Pinot Gris, Oregon, \$13. Pinot Gris (aka Pinot Grigio) is taking hold in the USA, and growers/winemakers are starting to produce some nice stuff. The nose is complex and forward with quince, grapefruit and cashew nut. The palate is similar with additional flavors of lime and apricot. It is lush, intense, clean, and dry.

2008 Pascal Janvier Chenin Blanc "Jasnieres," \$15. This wine has an intense gooseberry, almost vegetal nose. The palate is rich, viscous with some residual sugar. There is rich, viscous gooseberry fruit up front, giving way to lime with good acidity to balance the sweetness. No oak.

2008 Bugay Syrah Rose, Sonoma County, \$15. Yes, Rose. The red berry nose is clean and fresh and slightly floral. The palate is slightly sweet, but with good red berry fruit intensity. There is a raisiny tinge to the flavors. The acidity is modest, meaning it will taste too sweet if too warm. This should go really well with ham or turkey, and you can select the sense of sweetness by the temperature at which you drink it.



Peter Wagner

Reds

Here are some cold-night reds that will vasodilate even the most refractory autonomic systems.

2005 Fritz Zinfandel, Dry Creek Valley, \$12. This has a perfumed raspberry nose, forward, soft red berry fruit on the palate, medium acid and soft tannins. It is not a huge wine, in alcohol or extract, but is very pleasant, and a rare find in Zin - not too big for turkey day.

2006 Ballentine Zinfandel, Napa "old vine", \$15. The nose is muted with dark fruit and a bit of forest floor (leaves,

mushrooms). The palate is totally different – big, forward, in your face. The ripe fruit tastes like sweet blueberries. Despite considerable tannin, the wine is smooth and balanced. If you choose venison this Thanksgiving, this wine will do you well. Alcohol is high – 15.5% - but it does not taste ethanolic.

2008 Seghesio Zinfandel, Sonoma, \$19. This is a benchmark wine. It is better than its price suggests, and you know I am leery of wines over \$15. The nose has floral blueberry and blackberry. The palate is rich, elegant, smooth and mouthfilling without being forced, over-extracted, tannic or rough. There is nice vanilla oak to balance the forward dark berry fruit, good acid and medium tannins. It is a first rate wine. Despite the high alcohol (15.5%), there is no sense of undue heat on the palate.

2007 Gamba Zinfandel, Russian River Valley, \$25. Why am I discussing a \$25 Zin? Only because some people like Mae West in a bottle, which this wine is. The nose doesn't give much away (either did hers; it was other anatomical parts) – nice dark fruit and oak – but the palate is lush, rich, soft, curvy and sweet. There is fair acidity so that this does not taste like sweet candy. Some will hate this, some will love it. Goes with red meats and strong cheeses, it is NOT a wine for wimps, or menus deficient in myoglobin.

Happy recent holidays to you all. (Written pre-holidays, but you all know about publication lag!) ❖

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11-4-09

February 10-13

Fifth International Conference SUMO, Ubiquitin, UBL Proteins: Implications for Human Diseases, Houston, TX. *Information:* Amy Heaton. Email: aheaton@mdanderson.org; Internet: <http://www.mdanderson.org/education-and-research/departments-programs-and-labs/departments-and-divisions/cardiology/sentrin/index.html>.

February 13-18

SPIE Medical Imaging, San Diego, CA. *Information:* Internet: http://spie.org/medical-imaging.xml?WT.mc_id=RPREREGAPE.

February 15-18

The Con-Joint Meetings of Biology and Synchrotron Radiation (BSR) and Medical Applications of Synchrotron Radiation (MASR), Melbourne, Australia. *Information:* Internet: <http://www.masr2010.org>.

February 20-24

Biophysical Society 54th Annual Meeting, San Francisco, CA. *Information:* Alexandra Frager. Tel: 301-634-7326; Fax: 301-634-7133; Email: afrager@biophysics.org; Internet: <http://www.biophysics.org/2010meeting>.

March 17-20

XVIII World International Family Therapy Association (IFTA) Congress, Buenos Aires, Argentina. *Information:* Victoria Tomsky, CLA 2010-Industry Liaison & Sales, Paragon Conventions - Part of Liberty International Group, 18 Avenue Louis Casai; 1209 Genève, Switzerland. Tel: +41 (0)22-5330-948; Fax: +41(0) 22-5802-953; Email: vtomsky@paragon-conventions.com; Internet: <http://www.paragon-conventions.net/IFTA2010/>.

March 21-25

6th World Congress for Neurorehabilitation, Vienna, Austria. *Information:* Internet: <http://www.wcnr2010.org>.

May 6-8

The Power of Programming: International Conference on Developmental Origins of Health and Disease, Munich, Germany. *Information:* Internet: <http://www.metabolic-programming.org/munich2010>.

May 14-19

2010 American Thoracic Society International Conference, New Orleans, LA. *Information:* ATS International Conference Department. Tel.: 212-315-8652; Email: conference@thoracic.org; Internet: <http://www.thoracic.org>.

June 13-18

Molecular Mechanisms in Lymphatic Function and Disease, Lucca, Italy. *Information:* Internet: <http://www.grc.org/programs.aspx?year=2010&program=lymphatic>.

August 1-13

8th International Workshop on The Biology of Desert-Dwelling Bats, Berlin, Germany. *Information:* Dr. Carmi Korine. Email: ckorine@bgu.ac.il.

September 2-4

6th International Muscle Symposium, Vienna, Austria. *Information:* Internet: <http://www.musclesymposium2010.at>.

September 13-16

14th European Congress on Biotechnology, Barcelona, Spain. *Information:* Chiara Angelucci, IBS 2010 Organizing Secretariat, Adria Congrex Srl, Via Sassonia, 30, 47900 Rimini. Tel: +39 0541 305896; Fax: +39 0541 305842; Email: c.angelucci@adriacongrex.it; Internet: <http://www.adriacongrex.it>.

September 26-30

23rd Scientific Meeting of the International Society of Hypertension "Global Cardiovascular Risk Reduction", Vancouver, Canada. *Information:* Meeting Secretariat: Sea to Sky Meeting Management Inc., Suite 206, 201 Bewicke Avenue, North Vancouver, BC Canada, V7M 3M7. Tel: 604-986-6455; Fax: 604-984-6434; Email: info@vancouverhypertension2010.com; Internet: <http://www.vancouverhypertension2010.com/>.

November 4-6

8th Annual World Congress on Insulin Resistance, Diabetes, and Cardiovascular Disease, Los Angeles, CA. *Information:* Tel.: 818-342-1889; Fax: 818-342-1538; Email: info@insulinresistance.us; Internet: <http://www.insulinresistance.us>.

December 2-5

14th Asia-Oceania Congress of Endocrinology, Kuala Lumpur, Malaysia. *Information:* Congress Secretariat, Console Communications Sdn Bhd, Suite 11.8, Level 11, Wisma UOA 11, 21, Jalan Pinang, 50450 Kuala Lumpur. Tel: +603 2162 0566; Fax: +603 2161 6560; Email: aoce2010@console.com.my.

2012

September 1-6

AAPS 2012 Congress, Alexandria, Egypt. *Information:* African Association of Physiological Sciences, Office of the Secretariat, 82 Bulwer Road, Durban 4001, South Africa. Tel.: +27 31 2011392; Fax: +27 31 2013950; Internet: <http://www.aapsnet.org/conferences.htm>.

2013

July 21-26

37th Congress of the International Union of Physiological Sciences (IUPS 2013), Birmingham, United Kingdom. *Information:* Internet: <http://www.iups2013.org/>.



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Last Name or Family Name First Name Middle Name

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Month Day Year

4. Institution Name _____ Department _____
(Please do not abbreviate Institution Name)

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8. Work Phone _____ Home Phone _____

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Dates	Title	Institution	Department	Supervisor
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Prior Positions:

Dates	Title	Institution	Department	Supervisor
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15. LIST YOUR MOST SIGNIFICANT PUBLICATIONS, WITH EMPHASIS ON THE PAST 5 YEARS (Publications should consist of manuscripts in peer-reviewed journals. List them in the same style as sample below.)

Sample: MacLeod RJ and Hamilton JR. Volume Regulation initiated by Na⁺-nutrient contransport in isolated mammalian villus enterocytes. *Am J Physiol Gastrointest Liver Physiol* 280: G26-G33, 1991.

16. DOCTORAL DISSERTATION TITLE (if applicable):

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