Published by The American Physiological Society
Integrating the Life Sciences from Molecule to Organism

The Physiologist

INSIDE

Physiologists Embedded in the Animal Research War

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First the UK, then the US and now most of the world is engaged in what is frequently called a "debate" about the value of animal research and whether it should continue at all. Unlike most debates, this one includes bombs, propaganda, damage, spies and casualties. So let's call it what is really is—a war: the animal research war. Even more than in most wars, George Orwell's observation applies: "the first casualty in war is the truth."

The War

A war? Ask your colleagues at the University of Iowa, University of Minnesota, Oxford, Cambridge, UCLA or Chiron about what it is like to have intruders break into their labs and pour acid on their data or "liberate" their animals.

Ask scientists at major pharmaceutical companies about telephone threats, "home visits"—that's when an activist follows you home and threatens you and your family there—email "denial of service" attacks, or envelopes armed with razor blades sent through regular mail. Ask the researchers who get anonymous messages calling them "vivisectors" or who find pictures of their children and their home addresses placed on the Internet. Yes, it's more than just a war of words—and we researchers are in the crosshairs.

In 1987, Tim Daley of the Animal Liberation Front made it very clear: "In a war you have to take up arms and people will get killed, and I can support that kind of action by gasoline bombing and bombs under cars, and probably at a later stage, the shooting of vivisectors on their doorsteps. It's a war, and there's no other way you can stop vivisectors."

On October 12, 2004, Jerry Vlasak, press officer for the North American Animal Liberation Press Office, expressed his view on Australian TV:

HOST: "You've been quoted as saying, 'I think, five lives, 10 lives, 15 human lives would save 1 million, 2 million, 10 million non-human lives.' And you've also said that violence is a morally acceptable tactic, and that it might be useful in the struggle for animal liberation. Do you stand by all that?"

JERRY VLASAK: "I do stand by all that."

Given a chance to back away from the implications of that stance, Vlasak made his view even more clear: "Would I advocate taking five guilty vivisector's lives to save hundreds of millions of innocent animal lives? Yes, I would."

The interest of animal rights warriors in the scientific community struck us as an odd allocation of their resources. Consider that all research only uses a tiny fraction of the animals that are used in food, clothing, as pets and in entertainment, and you have to wonder why they fight us. The only answer is that we are the softest target—we don't defend ourselves. We are too busy doing our job to spend time talking to the public about the value of what we do. Tenure committees seldom ask: "How

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The Physiologist

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Published bimonthly and distributed by The American Physiological Society

9650 Rockville Pike
Bethesda, Maryland 20814-3991
ISSN 0031-9376

Subscriptions: Distributed to members as part of their membership. Nonmembers in the USA (print only): individuals $60.00; institutions $95.00. Nonmembers in Canada: individuals $65.00; institutions $100.00. Nonmembers elsewhere: individuals $70.00; institutions $105.00. Single copies and back issues when available, $20.00 each; single copies and back issues of Abstracts issues when available, $30.00. Subscribers to *The Physiologist* also receive abstracts of the Conferences of the American Physiological Society. The online version is available free to all worldwide.

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Headquarters phone: 301-634-7118
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Email: info@the-aps.org
http://www.the-aps.org
Printed in the USA

The Physiologist
Vol. 51, No. 3, 2008

Association of Chairs of Departments of Physiology 2007 Survey Results

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The Association of Chairs of Departments of Physiology annual survey was emailed to 189 physiology departments throughout the US, Canada, Mexico, and Puerto Rico. A total of 73 surveys were returned, for a response rate of 39%. This rate is identical to that of the 2005 and 2006 surveys. Of the 73 surveys returned, there were 22 public and 51 private medical schools.

The data provide the reader with general trends of faculty, overall departmental budgets, and space available for research. As a reminder, beginning in 2004, ACDP decided not to include faculty salary information in this report. Because of the limited response rate and variability in departments responding on a year-by-year basis and the completeness of the AAMC salary data, which is more generally used, the ACDP Council decided to no longer collect or report this data. Data are still provided, though, on tenure, gender, and ethnicity of faculty (Table 1). Also included in Table 1 is information on the average number of contact hours for faculty and on the type of medical physiology course being taught.

Student/trainee information is provided by ethnicity for predoctoral and postdoctoral categories, as well as predoctoral trainee completions, stipends provided, and type of support (Table 2).

Institutional information is provided in Table 3. Departmental budget information (Table 4) shows type of support, faculty salaries derived from grants along with negotiated indirect costs to the departments. Table 5 ranks responding Institutions according to their total dollars, research grant dollars, and departmental space. Space averages are presented as research, administration, teaching and other.

For an update of AAMC salary data, please see the accompanying article. ❖

Faculty Information

Faculty Summary (*n*=1,355)

	Male	Female	Total
Asian/Pacific Islander	130	37	167
Black (not Hispanic)	7	6	13
Hispanic	40	16	56
Native American	0	0	0
White (not Hispanic)	813	237	1,050
Foreign National	48	21	69
Total	**1,038**	**317**	**1,355**

Medical Physiology Course Type

	Yes	No	Total Responded
Integrated Disciplines	38	27	65
Traditional	40	27	67
Within Traditional	45	24	69

Tenure Status in each department by degree

	Tenured	Not Tenured	Not Eligible	Total
MD	19	1	10	30
PhD	786	18	370	1,174
2 Doctorates	44	1	25	70
Other	10	0	26	36
Total	859	20	431	1,310

For your faculty, what is the average number of hours of student contact (per year) for:

	Student Type	Average (hours)	Number (inst.)
Lab Hours	Graduate	225	38
	Medical	13	37
	Other	36	20
Lectures	Graduate	154	68
	Medical	611	68
	Other	55	39
Small Group	Graduate	34	46
	Medical	32	55
	Other	21	15

Teaching Interactions

MD/DO	68
DDS	24
DVM	6
Allied Health	34
Pharmacy	16
Other Biomedical	49
Life Science	34
Bioengineering	27
Other	22

Student/Trainee Information

Student/Trainee Summary

US citizen/resident aliens			
Predoctoral male	422	Postdoctoral male	162
Predoctoral female	497	Postdoctoral female	130
Foreign			
Predoctoral male	214	Postdoctoral male	379
Predoctoral female	244	Postdoctoral female	242

Average Annual Stipend (US $)

	Average	Number
Postdoctoral	$37,708.40	70
Pre-doctoral	$22,578.72	69

Ethnicity of each pre- postdoctoral student/trainee

	Pre-doctoral		Postdoctoral	
	Male	Female	Male	Female
Native American	12	10	1	0
Asian/Pacific Islander	32	53	28	24
Black (not Hispanic)	19	36	5	7
Hispanic	16	21	9	6
White (not Hispanic)	343	377	119	93

Predoctoral Trainee Completions

Trainees completing doctoral work during year ending 6/30/2007.

	Total
Female	109
Male	117
Total	226

US Citizen/Resident alien postdoctoral trainee completions:

	Male	Female
Native American	0	3
Asian/Pacific Islander	7	13
Black (not Hispanic)	4	4
Hispanic	4	1
White (not Hispanic)	58	53
Total	**73**	**74**

Foreign National predoctoral trainee completions:

	Male	Female
African	2	0
Asian/Pacific Islander	25	22
Central/South American	3	1
European/Canadian, etc.	11	10
Middle Eastern	2	2
Other	1	0
Total	44	35

Number of Foreign Pre- & Postdoctoral Students/Trainees

	Predoctoral		Postdoctoral	
	Male	Female	Male	Female
African	3	5	5	3
Asian/Pacific Islander	123	143	224	136
Central/South American	14	7	15	15
European/Canadian, etc.	45	63	104	73
Middle Eastern	23	17	20	12
Other	6	9	11	3
Total	214	244	379	242

Number of Foreign Pre- & Postdoctoral trainees whose primary source of support is:

	Pre-doctoral	Postdoctoral
Institutional	151	41
Research Grants	319	496
Private Foundations	25	35
Home (foreign) Gov.	8	8
Other	16	13
Total	519	593

Institution Summary

Type of Institution

Private	51
Public	22
Total	73

Space Controlled by Department (*n*=73)

	Average
Research Space	18,829
Administrative Space	3,511
Teaching Space	2,305
Other Space:	3,304
Total Space	27,949

Institutional Financial Information

Budget by Institution

	All Institutions	No.	Private Medical	No.	Public Medical	No.	Nonmedical	No.
Institutional (Hard money, e.g, operating costs, state allocations)	$2,032,603	69	1,875,609	19	$1,908,619	36	$2,313,581	14
Outside Research Grants and Contracts (direct costs only)	4,548,212	69	5,918,646	19	4,032,629	36	3,693,361	14
Training Grants (direct costs only)	243,110	41	320,077	12	250,858	22	158,394	7
Endowments	313,714	38	293,287	8	383,546	21	264,310	9
Indirect Cost Recovery (amount returned to your department)	323,134	48	451,554	4	218,404	32	299,445	12
Other Budget Support (identify)	542,274	57	1,019,665	9	282,739	38	324,419	10
Average Departmental Budget	8,003,047		9,878,838		7,076,794		7,053,509	

Financial Information

Current fringe benefit rate most frequently used for Primary faculty	27.26	(n=73)
Federally negotiated indirect cost rate for FY 07-08 off campus	26.12	(n=58)
Federally negotiated indirect cost rate for FY 07-08 on campus	50.69	(n=71)
Percentage of allocated salary dollars directly returned to your department	72.64	(n=44)
Percentage of indirect costs returned to your department	20.62	(n=47)
Percentage of total faculty salaries derived from research grants (does not include fringe benefits costs)	37.56	(n=68)

Rank Total Dollars	Total Dollars	Rank Research Grant Dollars	Research Grant Dollars	Rank Research Dollars/ Faculty	Research Dollars/ Faculty	Rank Total Research Space	Total Research Space	Rank Research Dollars/ sq ft	Research Dollars/ sq ft	No. of faculty
1	$23,609,865	1	$19,660,697	2	$819,196	1	42,475	5	463	24
2	22,802,245	2	15,083,864	1	942,742	10	32,376	4	466	16
3	15,734,925	3	13,325,746	7	444,192	8	33,293	11	400	30
4	13,569,267	4	9,605,639	17	320,188	22	23,039	9	417	30
5	12,862,780	17	6,052,444	41	201,748	34	17,737	15	341	30
6	12,298,561	12	7,273,605	12	382,821	3	36,086	45	202	19
7	12,295,920	6	8,481,178	9	403,866	11	31,213	24	272	21
8	12,211,675	5	8,841,770	5	491,209	19	23,679	13	373	18
9	12,163,290	25	4,419,475	30	232,604	38	16,726	27	264	19
10	12,016,365	15	6,352,422	36	211,747	45	14,700	7	432	30
11	11,743,611	9	7,610,023	13	362,382	60	11,069	1	688	21
12	11,558,639	8	7,682,125	14	334,005	16	25,799	21	298	23
13	11,529,686	7	7,811,518	11	390,576	6	35,223	38	222	20
14	11,083,392	13	7,024,560	4	501,754	15	26,187	25	268	14
15	10,886,109	14	6,444,781	34	214,826	17	24,876	28	259	30
16	10,670,585	10	7,500,000	24	267,857	9	32,433	34	231	28
17	9,486,907	16	6,306,165	37	210,206	14	28,570	39	221	30
18	9,038,111	21	5,383,769	23	283,356	2	41,083	56	131	19
19	9,028,777	33	4,005,000	48	174,130	5	35,361	59	113	23
20	8,975,012	18	5,736,554	31	229,462	18	24,166	33	237	25
21	8,523,757	20	5,493,958	47	183,132	24	22,707	31	242	30
22	8,488,300	19	5,551,947	35	213,536	7	34,361	54	162	26
23	8,255,584	30	4,200,000	56	150,000	23	22,934	50	183	28
24	8,212,904	34	3,969,216	29	233,483	27	20,104	46	197	17
25	7,939,521	23	4,684,966	22	292,810	30	19,480	32	241	16
26	7,894,932	26	4,395,360	38	209,303	25	22,431	48	196	21
27	7,716,670	24	4,607,137	15	329,081	40	16,535	23	279	14
28	7,597,712	52	2,787,066	50	163,945	20	23,482	57	119	17
29	7,398,656	22	4,849,533	21	303,096	61	10,358	3	468	16
30	7,336,942	29	4,202,679	53	161,642	50	13,500	16	311	26
31	7,315,437	28	4,267,318	16	328,255	21	23,053	49	185	13
32	7,269,222	32	4,090,982	25	255,686	29	19,848	43	206	16
33	7,216,319	42	3,571,074	58	142,843	51	13,479	26	265	25
34	7,171,094	41	3,685,366	43	193,967	32	18,264	44	202	19
35	7,128,048	51	2,825,029	61	97,415	12	29,208	65	97	29
36	6,506,289	31	4,181,448	33	220,076	49	13,746	18	304	19

Rank Total Dollars	Total Dollars	Rank Research Grant Dollars	Research Grant Dollars	Rank Research Dollars/ Faculty	Research Dollars/ Faculty	Rank Total Research Space	Total Research Space	Rank Research Dollars/ sq ft	Research Dollars/ sq ft	No. of faculty
37	$6,366,131	38	$3,890,361	51	$162,098	64	9,270	8	420	24
38	6,332,303	35	3,953,543	27	247,096	41	16,300	30	243	16
39	6,294,559	27	4,328,778	20	309,198	31	18,799	35	230	14
40	6,100,774	63	1,379,875	66	86,242	4	36,000	71	38	16
41	6,005,412	37	3,895,176	28	243,449	35	17,535	37	222	16
42	5,987,823	44	3,428,489	32	228,566	65	8,384	10	409	15
43	5,788,031	47	3,101,652	57	147,698	28	19,996	55	155	21
44	5,778,477	55	2,668,398	45	190,600	67	6,997	12	381	14
45	5,408,753	36	3,934,904	10	393,490	58	11,384	14	346	10
46	5,089,223	43	3,567,989	3	509,713	42	15,955	36	224	7
47	5,044,006	40	3,687,677	8	409,742	55	12,348	20	299	9
48	5,019,933	56	2,476,265	64	88,438	47	14,185	53	175	28
49	4,952,612	39	3,764,649	19	313,721	44	15,070	29	250	12
50	4,799,956	49	3,011,450	55	150,573	13	28,664	63	105	20
51	4,675,712	60	1,963,414	54	151,032	36	17,361	60	113	13
52	4,667,540	53	2,719,217	39	209,171	54	12,500	40	218	13
53	4,666,646	54	2,692,777	49	168,299	63	9,368	22	287	16
54	4,616,560	45	3,308,623	26	254,509	43	15,650	42	211	13
55	4,561,644	57	2,105,695	52	161,977	33	18,059	58	117	13
56	4,496,913	48	3,055,036	44	190,940	48	14,097	41	217	16
57	4,470,408	50	2,894,830	40	206,774	62	9,384	17	308	14
58	4,094,609	61	1,745,982	62	96,999	39	16,699	64	105	18
59	3,789,153	58	2,101,859	59	123,639	56	12,009	52	175	17
60	3,686,809	64	1,283,480	68	67,552	57	11,730	61	109	19
61	3,598,495	59	2,086,738	46	189,703	68	6,947	19	300	11
62	3,470,451	46	3,126,959	6	446,708	70	6,000	2	521	7
63	3,357,326	66	1,099,765	70	47,816	69	6,165	51	178	23
64	3,201,728	68	1,006,568	67	71,898	46	14,517	67	69	14
65	2,969,125	67	1,035,481	65	86,290	26	20,269	69	51	12
66	2,846,260	65	1,217,486	63	93,653	53	12,759	66	95	13
67	2,822,066	62	1,426,000	60	118,833	52	13,329	62	107	12
68	2,620,316	69	999,070	42	199,814	71	5,095	47	196	5
69	1,433,237	70	427,980	69	53,498	59	11,203	72	38	8
70	1,248,862	71	187,938	73	18,794	66	7,291	73	26	10
71	1,042,086	11	7,352,792	18	319,687	37	16,786	6	438	23
72	1,020,417	73	150,000	72	25,000	73	2,900	68	52	6
73	966,234	72	151,963	71	30,393	72	3,941	70	39	5

AAMC Medical School Faculty Compensation Survey

Each year the American Association of Medical Colleges (AAMC) surveys all the US medical schools as to faculty compensation. Because of this, the ACDP (see associated article) decided to no longer collect the same data from its members.

As a supplement to the ACDP survey, the AAMC has agreed to allow the APS to publish selected results from their survey.

Table 1 shows the regional distribution of medical schools responding to the AAMC survey in terms of public medical and private medical. Also shown is the number of physiology departments in those regions that responded.

Summary statistics on faculty compensation in physiology departments for PhD faculty are given in Table 2. Table 3 shows the changes in salary that have occurred over the past three years. The summary statistics for separate regions of the country are given in Table 4.

Table 5 shows the salary comparison between PhD faculty in all basic science departments vs. those in physiology departments. ❖

Table 1. Distribution of Medical Schools Responding to AAMC Medical School Faculty Compensation Survey.

		Northeast	Midwest	South	West	TOTAL
All	**Private Medical**	23	11	13	3	50
	Public Medical	12	20	30	13	75
Physiology	**All Medical Schools**	18	20	30	11	79

Table 2. Summary Statistics on Physiology Department PhD Faculty Compensation.

		25th	Median	75th	Mean	Number of Faculty
Chair	All Schools	190,000	228,000	255,000	230,900	79
	Medical Public	189,000	222,000	251,000	217,900	52
	Medical Private	208,000	246,000	312,000	256,000	27
Professor	All Schools	117,000	138,000	168,000	146,700	623
	Medical Public	118,000	134,000	163,000	144,400	446
	Medical Private	117,000	150,000	174,000	152,500	177
Associate Professor	All Schools	86,000	95,000	107,000	96,500	350
	Medical Public	86,000	96,000	109,000	97,000	229
	Medical Private	86,000	94,000	104,000	95,700	121
Assistant Professor	All Schools	61,000	77,000	89,000	76,300	423
	Medical Public	60,000	78,000	89,000	76,300	281
	Medical Private	61,000	75,000	90,000	76,300	142
Instructor	All Schools	44,000	49,000	57,000	51,400	73
	Medical Public	44,000	48,000	57,000	50,400	52
	Medical Private	46,000	51,000	66,000	54,100	21

Table 3. Change in Total Compensation for Physiology Department PhD Faculty.

2006-2007		2005-2006		2004-2005		% Change 2005-2006 to 2006-2007	
Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
112,800	104,000	109,800	100,000	104,900	96,000	2.7	4

Mean and median values were combined for Assistant, Associate, and Professor.

Table 4. Summary Statistics on Physiology Department PhD Faculty Compensation by Region.

		Northeast	Midwest	South	West
Chair	25th	212,000	203,000	175,000	216,000
	Median	236,000	228,000	199,000	250,000
	75th	283,000	263,000	253,000	277,000
	Mean	248,400	234,400	213,800	242,600
	Total Faculty	18	20	30	11
Professor	25th	124,000	117,000	110,000	125,000
	Median	148,000	136,000	126,000	145,000
	75th	171,000	171,000	155,000	169,000
	Mean	154,100	146,000	136,200	157,200
	Total Faculty	165	164	198	96
Associate Professor	25th	87,000	85,000	82,000	89,000
	Median	97,000	94,000	95,000	101,000
	75th	110,000	101,000	107,000	113,000
	Mean	98,500	94,600	95,800	101,000
	Total Faculty	100	103	125	22
Assistant Professor	25th	64,000	58,000	60,000	68,000
	Median	82,000	74,000	75,000	83,000
	75th	92,000	83,000	85,000	97,000
	Mean	81,000	71,200	74,200	83,100
	Total Faculty	120	122	133	48
Instructor	25th	48,000	48,000	43,000	
	Median	54,000	50,000	48,000	
	75th	68,000	55,000	50,000	
	Mean	56,600	53,000	48,300	
	Total Faculty	19	9	38	3

much of your time did you spend telling the community about the importance of what you do and the extremes that we go to be sure that animals are well-cared for?" Our research grants don't have budgets for public lectures, and even our institutions and professional organizations avoid confrontations that require them to address the importance of animal research.

Researchers aren't the biggest losers if this war is lost. US Senator Orrin Hatch remarked to a Senate Judiciary Hearing in 2004: "When research laboratories and university researchers are targeted and attacked, the ones who lose most are those who are living with a disease or who are watching a loved one struggling with a devastating illness."

Right at the start, let's make a distinction between those who are "animal welfarists," like the authors and many readers of this article, and those who are "animal rightists." The former first group holds that humans have the responsibility to treat research animals well—humanely, doing everything possible to minimize suffering and provide food, water, medical attention, and opportunities for species appropriate behavior. The second group, on the other hand, maintains that animals have rights and can not be used by humans for any purpose, research included.

The Spies

It is not uncommon to learn about spies—for reasons of media spin, they prefer to call themselves "whistleblowers"—infiltrating animal research facilities. One hired on with us at the Oregon National Primate Research Center. A former employee of a large and well-known animal rights group, he presented false credentials and listed fellow believers as references. He used a video camera, some creative cropping and lots of misleading captions to tell a false but powerful story. That story never ceases to be told and re-told on the Internet and in mass mailings—even though it has been debunked by an exhaustive on-site USDA investigation.

"Our" spy was a capable and clever photographer—and a master film editor. He knew how to have baby monkeys who were playing with their food appear to be living in filth. He knew how to get early-morning shots that presented pre-clean-up conditions as the norm. He knew that monkeys, who are intimidated by the lens and lights of a camera, will cling together, and that a little photo-cropping could make it appear that they were huddled for want of space in overly crowded enclosures. Pictures are worth much more that a thousand words and falsified images, presented as truth, can be priceless.

The Propaganda

Animal rightists, of course, must market their notion that animals possess rights and cannot be used in research. It is a tough sell, even in a culture that legitimately prizes pets and frets about endangered species. It is much easier to claim that little or nothing useful has come from animal research and that animal research amounts to unregulated cruelty.

Animals, according to rightists, are so "different" than humans that no animal research can possibly be relevant to humans. This high-sounding theory founders on historic fact. As most readers know well, medical advances (immunizations, medications, surgical techniques) have their genesis in discoveries in animal research. Those discoveries have unquestionably lengthened the lifespan and life quality for humans and for animals as well.

They have also, ironically, set the stage for the success of animal rights propaganda. Many people today have no memory of a world without vaccinations and antibiotics, and few remember iron lungs or polio. Taking our generally good health for granted and ignoring the threats from AIDS, bird flu and other emerging diseases, we have become vulnerable to the message that animal research benefits no one.

Animal rights supporters typically draw public attention to the fact that few cures actually come from universities, hoping the public will be unaware that the basic science information passed from centers of learning to pharmaceutical companies is the font from which pills come forth.

The book behind this article (*The Animal Research War, 2008*) required slightly over 5,000 words to analyze the misinformation accepted in the animal rights world and to set the record straight about the role of animals in the development of penicillin, thalidomide, polio vaccines, insulin and stroke treatments. No wonder, then, that the public is confused by 20-word sound bytes of charge and countercharge in the animal research war. Scientists are too busy to address animal rights propaganda or expose the tendency of activists to quote each other as medical experts. So it is that the big lie about animal research appears plausible.

In researching the book, we were surprised to learn that only a little over half of people in the US support animal research, but that that this number increases dramatically when the polling question is preceded by information that animal research is currently regulated. Nearly half the people polled didn't know there is any such oversight, much less how comprehensive and detailed it is. We are bad at telling our own story and providing information that would allow the public to support us.

Many people, for example, don't know about Institutional Animal Care and Use Committees (IACUCs). Many readers of this article will be aware of them, but few in the public at large are aware of their policies, rules and sanctions, all protecting research animals. Policies and rules and sanctions are not going to make the evening news, but you can bet that an allegation of animal research cruelty, no matter how unfounded, will be at the top of the hour.

You would think researchers would want to set the record straight. Why are we reluctant to accept invitations from media to debate? When we think of debating, what comes to mind spontaneously are the civil interactions at political debates hosted by the League of Women Voters. One side speaks and then the other. Debates with animal rightists have proven different. Often they have been like street theater, attracting media coverage and getting public attention. Marked by accusation and invective, they have provided a platform for disseminating misinformation and creating suspicion. Where there is smoke, after all, there must be fire; surely, scientists are hiding something! And so the soft core of sympathy for the animal rights cause grows.

Former Surgeon General C. Everett Koop won the esteem of the public for his forthright pronouncements on various health risks. Koop's most valuable contribution might have been this caution: the animal rights war on animal research is dangerous to our health. This warning, if placed on prescription pads, organ donor cards and hospital admission forms, could help shield us from the "big untruth." It could focus our collective attention on the researchers and doctors who try to set the record straight on how we got the polio vaccine, insulin, and organ transplants or on how

our children may be better protected from cystic fibrosis, muscular dystrophy, cancer, heart disease, AIDS, and Alzheimer's. The "how," of course, is through the humane use of animals in basic biomedical research.

Damage and Casualties

Once animal rightists have played on the public's confusion and created the story-line of research cruelty, it is not a long step to so-called "direct action": the euphemism for placing bombs under cars, following people's children, spray-painting homes, and liberating lab animals. That step was taken in early July 2007, when a car bomb was discovered outside the California home of Arthur Rosenbaum, the chief of pediatric ophthalmology at UCLA's Jules Stein Eye Institute. The bomb failed to explode, despite, as the investigators reported, apparent attempts to detonate it.

Last year, animal-rights activists sent a message to another UCLA researcher when they attempted to place a firebomb at her doorstep. They delivered their warning to the wrong home, and fortunately that bomb, too, failed to ignite.

Several years earlier, two bombs exploded at biotech firm Chiron's Emeryville California office. Police indicated that the timing of the blasts was set so that the second device would go off when first responders arrived.

Some scientists give up promising careers to protect their families and others are silenced by fear that they may become the next target. Professional associations and academic institutions have become circumspect and evasive, fearing that they will become lightning rods for the next wave of attacks. At least we should be clear: it is a war—the animal research war. Universities and laboratories, homes and personal safety, careers and the advance of knowledge are all at risk, but the casualties are patients. Who among us hasn't been or will not be a patient? This is a war that we will lose if we do not come together and fight back.

(The authors have written *The Animal Research War*, a personal account of what it is like to be terrorized, an analysis of the effect of animal extremists on the world's scientists, and the changing way in which the public and legal system views animals. The book traces the evolution of the animal rights movement, profiles its leadership and reveals the remarkable value of the research enterprise, Macmillan/Palgrave, 2008). ❖

Chapter News

Ohio Physiological Society Meeting Held at Ohio University

The 22nd annual meeting of the Ohio Physiological Society (OPS) was held on November 3, 2007 at the Ohio University College of Osteopathic Medicine in Athens. The evening before the Saturday sessions, 20 society members, students and guests enjoyed a dinner reception at the Ohio University Inn. This time together provided an opportunity to become reacquainted with colleagues and to get to know new colleagues and students.

Saturday morning began with a continental breakfast. During this time research posters were set up so that they could be view throughout the day. The meeting was opened by Richard Klabunde, the 2007 OPS President. This was followed by a welcome from Jack Brose, the Dean of the College of Osteopathic Medicine who helped to co-sponsor the meeting along with the American Physiological Society.

The morning session consisted of two oral presentations, a mid-morning coffee break and poster session, and then the featured talk for the meeting. The first two oral presentations were by Chris Wyatt (Wright State University) who spoke on "AMP-activated Protein Kinase and Oxygen-Sensing in the Carotid Body," and Yang Li (Ohio University) who spoke on "Zinc, the Calcium of the 21st Century." The featured talk was by William Jackson from Michigan State University who presented an overview of his research on microcirculatory control mechanisms, particularly at the cellular level. He spoke on "Ion Channels and the Regulation of Arteriolar Tone."

Following lunch, the afternoon session began with a featured student presentation, which was new for 2007. One student presentation was selected by the President from several abstracts submitted by students. Patricia Shamhart, a graduate student at Northeastern Ohio Universities College of Medicine and Kent State spoke on "Cardiac Fibroblast Migration During In Vitro Wound Healing: The Role of Specific Collagen Substrates." Her presentation was followed by Roger Worrell (University of Cincinnati), "Intestinal Ammonium Transport: Challenging the Dogma;" Hans Folkesson (Northeastern Ohio Universities College of Medicine), "Involvement of ENaC and NEDD4-2 in the Conversion from Lung Fluid Secretion to Fluid Absorption at Birth;" and Anne Loucks (Ohio University), "Normal Leptin Levels are not Necessary for Normal LH Pulsatility in Exercising Women." These final oral presentations were followed by the afternoon poster session and brief business meeting. At this meeting, Shyny Koshy, a graduate student at Northeastern Ohio Universities College of Medicine was selected to receive the Peter K. Lauf OPS Student Travel Scholarship to attend and present her research at the Experimental Biology 2008 meeting in San Diego. Her poster title was, "IL-1β-Induced Cortisol Synthesis Stimulates Distal Lung Fluid Absorption in Fetal Guinea Pigs via SGK and NEDD4-2-Dependent ENaC Regulation."

In summary, the meeting participants were enthusiastic and highly engaged with one another, which made this a wonderful forum for faculty and students. We were particularly impressed by the quality of research presented by students and their commitment to physiology. There were 40 physiologists in attendance, 22 of which were students, representing eight different Ohio academic institutions. The 23rd Annual Meeting of the Ohio Physiological Society will be held in the fall of 2008 at the University of Toledo. ❖

Richard Klabunde
OPS President, 2007

New Regular Members

***Transferred from Student Membership**

Shrikant Anant
Univ. of Oklahoma HSC, St. Louis, MO
Monica L. Andersen
Univ. Fed. Sao Paulo, Brazil
John Araujo
Univ. Federal De Rio Grand, Brazil
Mutay Aslan
Akdeniz Univ., Turkey
Tatjane Barisic-Dujmovic
Univ. of Connecticut
Daniel James Berg
Univ. of Iowa Hosp., Iowa City
Paul Buckmaster
Stanford Univ., CA
John W. Calvert
Albert Einstein Coll. Med., NY
Daniela Calvetti
Case Western Reserve Univ., OH
Audrey N. Chang
Univ. of Texas SW Med Ctr., Dallas
Yuefeng Chen
Univ. of South Dakota, Sanford Res.
Robert G. Cutlip
National Inst. Occ. Safety/Hlth, WV
Fernando Dominici
Univ. of Buenos Aires, Argentina
John H. Dubinion
Univ. of Mississippi Med. Ctr., Jackson
Philip Richard Ershler
Univ. of Utah, Salt Lake City
Stanley Francisco Fernandez*
SUNY, Buffalo
Leonardo F. Ferreira*
Univ. of Kentucky, Lexington
Melanie Fraites *
US EPA, Res. Triangle Park, NC
Brent Arthur French
Univ. of Virgninia, Charlottesville
Nathalie Gaudreault
Univ. of California, Davis
Greg Gdowski
Univ. of Rochester, NY
Martina Gentzsch
Univ. of North Carolina, Chapel Hill
Oommen K. George
Hahnemannian Res. Ctr., Irvine, CA
David Rocco Giovannucci
Univ. of Toledo Coll. Med., OH
Michel Grino
Inst. Natl. De La Recherche Med., France
Jutta A. Guadagnoli
Univ. of Nevada, Las Vagas
Bruno Hagenbuch
Univ. of Kansas Med. Ctr.
Else Kay Hoffmann
Univ. of Copenhagen, Denmark
Jacob Hollis
Monash Univ., Australia
Wanqiu Hou
Northwestern Univ., IL
Po-Shiuan Hsieh
National Defense Med. Ctr., Taiwan
Yufeng Huang
Univ. of Utah, Salt Lake City
Naoum Issa
Univ. of Chicago, IL
Yasuhiko Ito
Nagoya Univ., Japan
Richard Jacob
Pacific Northwest Natl. Lab., WA
Frederic Jaisser
National Inst. Health, Paris, France
Linda Ann Jelicks
Albert Einstein Coll. Med., NY
Yong Soo Kim
Univ. of Hawaii
Sue Kinnamon
Colorado State Univ.
Yoshiharu Kobayashi
Kobe Pharmaceutical Univ., Japan
Richard LeBaron
Univ. of Texas, San Antonio
Ying Liu
Case Western Reserve Univ., OH
Merritt Maduke
Stanford Univ., CA
Guy Major
Cardiff Univ., UK
Amritlal Mandal
Univ. of Arizona, Tucson
Alicia Mattiazzi
Centro Investigaciones Cardiov.
Karen McCloskey
Queen's Univ., UK
Hiromitsu Miyazaki
Kansas State Univ.
Argentina Rajesh Mohanraj
National Inst. of Health, Bethesda, MD
Sidney M. Morris
Univ. of Pittsburgh, PA
Somanna Naveen
Tulane Univ., LA
Yasushi Noguchi
Massachusetts Inst. of Tech.
Joon Y. Park*
NHLBI/NIH, Bethesda, MD
Su-Kil Park
Asan Medical Center, Seoul, South Korea
Irina Petrache
Indiana Univ., Indianapolis
Anand Prasad
California Pacific Med. Ctr.
Tracy Pritchard*
Ohio Northern Univ.
Abolfazl Khajavi Rad*
Mashhad Univ. of Med. Sci., Iran
Hanim Rafidah
Intl. Islamic Univ. of Malaysia
Tadashi Saitoh*
Yamagata Univ., Yonezawa, Japan
Doron Schwartz
Tel Aviv Med. Ctr., Israel
Mohammad Shahidullah
Univ. of Arizona, Tucson
Umapathy N. Siddaramappa
Medical Coll. of Georgia, Augusta
Karen Sigvardt
Univ. of California, Davis
Gordon I. Smith
Washington Univ., St. Louis, MO
Michael Spurlock
Iowa State Univ.
Laura K. Stewart
Louisiana State Univ., Baton Rouge
Zuzana Strakova
Univ. of Illinois, Chicago
Maria V. Tejada-Simon
Univ. of Houston, TX
Praveen Thumbikat
Northwestern Univ., Chicago, IL
Stephanie Tuck
Uptake Medical Corp., WA
Eric D. Tytell
Univ. of Maryland, College Park
David E. Vaillancourt
Univ. of Illinois, Chicago

New Student Members

Denise Arrick
Univ. of Nebraska
Miranda Byse
Univ. of Kentucky
Jonathan Cook
Pennsylvania State Univ.
Mario Espada
Human Kinetics Fac., Portugal
Darah Fontanez-Nuin
Ponce Sch. of Med., Puerto Rico
Jacqueline Limberg
Univ. of Wisconsin, Madison
Kellie O'Rourke
Penn State Univ., Erie
Kevin Urban
Salisbury Univ., MD

New Affiliate Member

Charghu Du
Cincinnati Children's Hosp., OH

APS Members to Host Summer Research Experience for Science Teachers

This spring 11 teachers from across the nation were selected to participate in the year-long 2008 Frontiers in Physiology Professional Development Fellowship Program. One component of the fellowship is a local partnership between the science teacher and an APS member, who jointly applied to the program and committed to contributing a portion of the fellow's stipends. APS members serve as hosts and mentors to the teachers by providing each teacher fellow with a physiology-based laboratory research experience for seven-eight weeks this summer. Through this opportunity, the Research Teachers (RTs) learn first-hand how the research process works allowing them to enhance their own science teaching with their students in the classroom.

In July, the RTs will attend the "APS Science Teaching Forum," an intensive workshop week focused on student-centered teaching methods at the Airlie Center in Warrenton, VA. The 2008 APS K-12 Outreach Fellows, TanYa Gwathmey (Wake Forest Univ. School of Medicine) and Keisa Mathis (Louisiana State Univ. Health Sciences Center), will serve as Physiologists-in-Residence. A leadership team of past RTs will serve as Mentor/Instructors. Together they will facilitate sessions using APS curriculum units and exploring inquiry- and equity-based teaching strategies, how to integrate technology into their classroom, and equity issues in science education. As part of the fellowship in the fall, the RTs will develop and refine their own inquiry-based lab activity for the science classroom. Finally, the RTs conclude their fellowship year by experiencing a scientific meeting at Experimental Biology 2009.

The APS Council is funding this fellowship year with additional support from the National Institute of Diabetes and Digestive and Kidney Diseases at the National Institutes of Health. The following are the Teacher/Research Host teams for the 2008 Frontiers in Physiology Professional Development Fellowship Program:

Darrell Coston, Dillard Middle School, Goldsboro, NC
Mildred Pointer, North Carolina Central Univ.

Jennifer Davis, Triad Middle School, St. Jacob, IL
Jonathan Fisher, Saint Louis Univ.

Jessica Elam, Forest Park Senior High School, Woodbridge, VA
Pedro Jose, Georgetown Univ.

Monica Erwin, Upper St. Clair High School, Pittsburgh, PA
Bill Yates, Univ. of Pittsburgh

Michael Griffin, Brogden Middle School, Durham, NC
Jo Rae Wright and Amy Pastva, Duke Univ. Medical Center

Regan Lawson, Grandview High School, Aurora, CO
Celia Sladek, Univ. of Colorado School of Medicine

Terri Mitton, Highland High School, Pocatello, ID
Curt Anderson, Idaho State Univ.

Jennifer Reis, Kutztown Middle School, Kutztown, PA
Leonard Jefferson, Penn State Univ. College of Medicine

Chandra Stork, Forest Hill High School, Jackson, MS
Robert Hester, Univ. of Mississippi Medical Center

Jonathon Tuttle, Granite Technical Institute, Salt Lake City, UT
Bellamkonda Kishore, Univ. of Utah Health Sciences and VA Medical Centers

Karen Walton, Chapin High School, Chapin, SC
Gregory Brower, Univ. of South Carolina School of Medicine

APS Supports 24 Undergraduate Researchers

The American Physiological Society's Undergraduate Summer Research Fellowships (UGSRF) program is sponsored by the APS Career Opportunities in Physiology Committee and funded by the APS Council. Last year, APS doubled the number of fellowships. In 2008, we will again be funding 24 undergraduates for the summer. The program was established in 2000, making this the eighth year of the program.

These fellowships are to support full-time undergraduate students to work in the laboratory of an established investigator. The intent of this program is to excite and encourage students to pursue a career as a basic or clinical research scientist. Faculty sponsors/advisors must be active members of the APS in good standing but do not have to be US residents. Past awardees include students from Canada and South America.

These Fellowships provide a $3,000 summer stipend to the student (10 weeks of support), a $300 grant to the faculty sponsor/advisor, and up to $1,000 to the student so that he/she may attend and present their data at the APS annual meeting (Experimental Biology) or an APS fall Conference.

2008 UGSRF Awardees

Student/Student Institution	Research Host/Host Institution
Lindsay Ambur, Univ. of South Dakota	Evelyn H. Schlenker, Univ. of South Dakota Sch Med
Konstantin I. Bakhurin, Univ. of Michigan	John A. Faulkner, Univ. of Michigan
Kristen Berberich, College of William & Mary	Robin Looft-Wilson, College of William & Mary
Thomas J. DiStasio, Syracuse Univ.	Keith C. Deruisseau, Syracuse Univ.
Nelly M. Estrada, Univ. of Texas at Brownsville	Masako Isokawa, Univ. of Texas at Brownsville
Stephanie N. Giammalvo, Univ. of Florida	Linda F. Hayward, Univ. of Florida
Kyle E. Horst, College of William and Mary	Michael Brennan Harris, College of William and Mary
Travis D. Hull, Juniata College	Gregory L. Stahl, Brigham & Women's Hospital
Sumit Kar, Creighton Univ.	Irving H. Zucker, Univ. of Nebraska Medical Center
Dan O. Kechele, Univ. of Michigan	Linda C. Samuelson, Univ. of Michigan
Missia E. Kohler, Univ. of Georgia	Dale J. Benos, Univ. of Alabama, Birmingham
Julie K. Kretzer, Univ. of Kentucky	Jeffrey L. Osborn, Univ. of Kentucky
Lindsay LaPresto, Univ. of Arizona	Ronald M. Lynch, Univ. of Arizona Health Sciences Center
Elizabeth J. Luger, Univ. of North Dakota	Van Doze, Univ. of North Dakota
Andrew MacMillan, Ohio State Univ.	Loren E. Wold, Ohio State Univ. College of Medicine
Elizabeth G. McAndrew, Univ. of New England	Amy J. Davidoff, Univ. of New England
Sarah M. McCurdy, St. Mary's Univ.	Merry L. Lindsey, Univ. of Texas Health Science Center at San Antonio
Jessica A. Ortega, Univ. of Florida	David Julian, Univ. of Florida
Krupa V. Parikh, Univ. of Cincinnati	Marshall H. Montrose, Univ. of Cincinnati
Michael S. Park, Emory Univ.	My N. Helms/Douglas C. Eaton, Emory Univ.
Julie A. Spond, Colorado State Univ.	Norm P. Curthoys, Colorado State Univ.
Christopher D. Swenson, Univ. of Michigan	William H. Beierwaltes, Henry Ford Hospital
Gabriela G. Timoney, Univ. of Richmond	Linda M. Boland, Univ. of Richmond
Kevin J. Yavorcik, Univ. of Pittsburgh	Bill J. Yates, Univ. of Pittsburgh

APS Professional Skills Training Course Rated a Success

In January 2008, the American Physiological Society conducted its fifth live professional skills training course for graduate and postdoctoral students. This was the first time both courses, "Writing and Reviewing for Scientific Journals," and "Making Scientific Presentations: Critical First Skills," were run concurrently. It was also the first time the courses were subsidized by the APS with the remaining costs paid by attendees. Additionally, 26 minority students were given travel fellowships through NIGMS that covered course registration and travel expenses.

The writing and reviewing course provided upper level graduate students and postdoctoral students with training on the skills needed for writing and reviewing their first author manuscript for scientific journals in biomedicine. The presentation skills course was geared toward early career graduate students and the skills needed to create and present their first author posters at meetings.

The instructors for the "Writing and Reviewing" course were: Dale Benos, Univ. of Alabama, Birmingham; Mark Knuepfer, Saint Louis University; Patricia Molina, Louisiana State Univ.; Kim Barrett, Univ. of California, San Diego; Robert Hester, Univ. of Mississippi; L. Gabriel Navar, Tulane Univ.; Susan Barman, Michigan State Univ.; and Jane Reckelhoff, Mississippi State Univ.

The instructors for the "Presentation Skills" course were: Carole Liedtke, Case Western Reserve Univ.; Rob Carroll, Brody School of Medicine at East Carolina Univ.; Ann Schreihofer, Medical College of Georgia; Thomas Schmidt, Univ. of Iowa

Students completed a pre-course survey and a post-course survey. The overall mean rating for the usefulness of the Writing and Reviewing course was 4.8 out of 5. The overall mean rating for the Presentation Skills course was 5.0 out of 5. Students also rated their skills before and after the workshops. The Writing and Reviewing students rated their writing and reviewing skills as 3.0 on average out of 5 at the beginning of the course (where 5 = "excellent" and 1 = "very weak"). At the completion, students rated their skills as 4.3 on average out of 5. The Presentation Skills students rated their overall presentation skills as 2.8 on average out of 5 at the beginning of the course and at the end of the workshop they rated themselves as 4.6 on average. Therefore, in both courses, students felt they had improved their overall skills. Following the course, students completed a final "test," critiquing a standard abstract to assess student skills in applying what they learned at the course.

Overall, the courses were highly successful. Next year's courses are set for January 14-17 at Disney's Contemporary Resort in Lake Buena Vista, FL. The focus for the Writing and Reviewing course in 2009 will be cell and molecular physiology, comparative physiology, endocrinology, GI physiology, and respiration. However, all students are encouraged to apply. The Presentation Skills course is open to any student in physiology. (http://www.the-aps.org/education/profSkills2007/index.htm) ❖

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APS Presents Awards for the Best Physiology Project at Local School Science Fairs

APS members continue to judge and present Science Fair Awards for the best physiology project at local or regional science fairs for precollege students. More than 17 requests for award packages have been made this winter and spring. Each student received an APS "Physiology: Life, Logic Study" t-shirt, an APS researcher pin, and a certificate for the best physiology project. The student's teacher received the "Women Life Scientists" book and a K-12 resource packet.

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 an APS award packet. For more information, visit http://www.the-aps.org/education/sciencefair or contact Scarletta Whitsett (swhitsett@the-aps.org) in the APS Education Department.

As of April 2008, the following high school students have received the APS Science Fair Award as judged by an APS member in their local community:

Christian Owers, a freshman at Rufus King High School in Milwaukee, WI, received an APS award for the best physiology project at her school's science fair. Owers is the second student to receive a science fair award packet from the APS. APS member Caron Dean-Bernhoft of the Medical College of Wisconsin was a judge on behalf of the APS and presented Christian with her award. The title of Christian's project is "Reducing Torque at the Knee using a Flexible Sole." Her teacher and sponsor is Doug Glaseknapp.

Yi Wu, a sophomore at Little Rock Central High School received an APS award for the best physiology project at the Central Arkansas Regional Science Fair. Wu was also selected by other independent judges to be the first in her category which was Medicine and Health. She competed in the state fair which was held on April 4, 2008 at the University of Central Arkansas at Conway. The title of her abstract was "Apoptotic Effects on Multiple Myeloma Cells: Effects of Arsenic Trioxides." Her teacher and sponsor is Melissa Donham. APS member Parimal Chowdury of the University of Arkansas Medical Sciences was a judge on behalf of the APS and presented Yi with her award.

Ann Cooper, a junior at Lafeyette High School received an APS award for the best physiology project at the Intel affiliated Regional Science and Engineering fair in Lexington, KY. Cooper also received best overall high school student at the fair and went to the Intel International Science and Engineering Fair (ISEF) to present her research project. Ann was also awarded 2nd best overall high school student as a freshmen. Cooper's teacher and sponsor is Jeanne Robinson. APS member Robin Cooper of the University of Kentucky was a judge on behalf of the APS and presented Ann with her award.

Venetra King, a senior at Ramsey High School received an APS award for the best physiology project at the University of Alabama, Birmingham's Regional Science Fair. King also received best project in her category and presented at the Intel ISEF being held in May. The title of her abstract is "Binge-Eating Rats Cross Aversive Footshock for Junk Food." Her teacher and sponsor is Dasi Price-Mosley.

APS Councillor J. Michael Wyss of The University of Alabama at Birmingham was a judge on behalf of the APS and presented Venetra with her award.

Nayana Ghosh-Choudhury, a junior at Health Careers High School received an APS award for the best physiology project at the Alamo Regional Academy of Science and Engineering Science Fair. The title of Nayana's project is "Benefits of Statins in Preventing Breast Cancer Growth and Metastasis." Her teacher and sponsor is Nandini Ghosh-Choudhury. APS members Merry Lindsey, Lourdes Fortepianai, and Carmen Hinojosa-Laborde from the University of Texas Health Science Center were judges on behalf of the APS and presented Nayana with her award.

Michelle Kay Chu, a senior at Fort Lee High School received an APS award for the best physiology project at the North Jersey Regional Science Fair. The title of Chu's project is "The anti-Infammatory A2A Adenosine Receptor Modulates ERK Phosphoylation via cAMP PKA and cAMP Epac Pathways." Her teacher and sponsor is Phyllis Citrin. APS member Sue Shapses of Rutgers University was a judge on behalf of the APS and presented Chu with her award.

Mike Beeler of West Central Valley High School received an APS award for the best physiology project at the 22nd Annual South Central Iowa Science and Engineering Fair. Beeler's project was titled "Nocturnal Color Vision." His teacher is Larry Schwinger. Shelby Behrendt and Lydia Payne of Woodbine Elementary School also received an award for the best physiology for their group project title "Lung Capacity." Their teacher is Don Groff. APS member Jacqueline Brittingham of Simpson College was a judge on behalf of the APS and presented the awards.

Stephanie Simpson, a junior at Noblesville High School received an APS award for the best physiology project at the Central Indiana Regional Science Fair. The title of her project is "Cardiovascular and Weight Exercise: How Both Affect Blood Sugar Levels." Her teacher and sponsor is Charles Emmert. APS members Steven J. Miller and C. Subah Packer of Indiana University School of Medicine were judges on behalf of the APS and presented Simpson with her award. ❖

Moving?

If you have moved or changed your phone, fax or Email address, please notify the APS Membership Office at 301-634-7171 or Fax to 301-634-7241. Your membership information can also be changed by visiting the Members Only portion of the APS Website at http://www.the-aps.org. ❖

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Dantzler Receives ACDP Distinguished Service Award

William S. Spielman, President of the Association of Chairs of Departments of Physiology (ACDP), presented the ACDP's highest award, the Distinguished Service Award, to William H. Dantzler, MD, PhD, Univ. of Arizona College of Medicine, during the organization's 2007 fall meeting in Puerto Vallarta, Mexico.

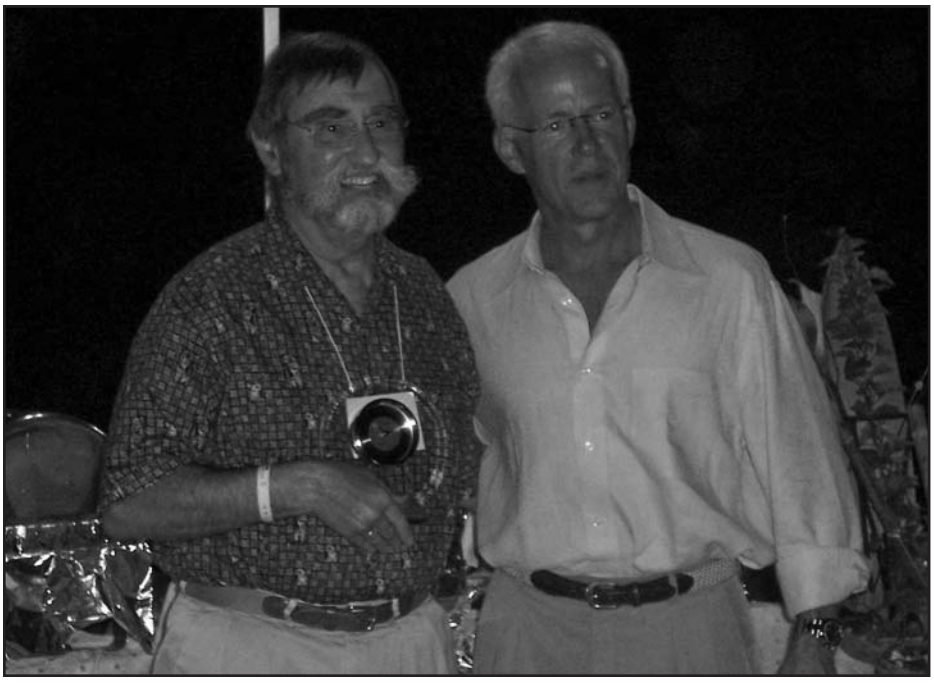
Dantzler was selected to receive the ACDP Distinguished Service Award for his long and illustrious service to ACDP, to science, and to physiology.

Dantzler was born in Mt. Holly, NJ. He graduated from Princeton Univ. in 1957 and then continued on to Medical School at Columbia Univ. After finishing his MD degree in 1961, he did his internship at the Univ. of Washington Hospital for a year. He then moved to Duke Univ. for his PhD where he studied under Bodil Schmidt-Nielsen. He was awarded his PhD in 1964.

Dantzler was recruited to the College of Physicians & Surgeons at Columbia Univ. as an Assistant Professor of Pharmacology. In 1968, he moved to the Univ. of Arizona when Paul Johnson hired him as an Associate Professor in his brand new Department of Physiology in the new medical school. Dantzler was promoted to Professor, then Acting Head, and became the permanent Chair of the Department in 1991. He stepped down from the chairmanship and became Professor Emeritus in 2005. Dantzler's career includes a number of stints as a visiting professor at the Physiologisches Institut of the Univ. of Wurzburg in the Federal Republic of Germany and one at the Institut fur Physiologie of Innsbuck Univ. in Austria.

Dantzler continues his research on two main fronts, both focused on the kidney: *1*) the relationship of the three-dimensional functional and structural organization of thin limbs of Henle's loops, vasa recta, and collecting ducts in the mammalian inner medulla to the urine concentrating mechanism; and *2*) the cellular and molecular mechanisms and regulation of organic anion and cation transport in proximal tubules of mammals, birds, and reptiles.

As an ACDP member, Dantzler served as Councillor from 1996-1998 before being chosen as President-elect in 1998. He served as ACDP President in 1999-2000. He was also very active in The American Physiological Society, serving as President in 1993-1994. In addition, he served as a member of the Membership, Finance, and Daggs Award Committees and the Committee on Committees. He has also served as Secretary and Chairman of the Renal Section, as Councillor and Chairman of the Water and Electrolyte Homeostasis Section, and as Councillor and Treasurer of the Comparative Physiology Section. Dantzler has played a particularly active role with the APS's publications, serving as Associate Editor for many years for both *News in Physiological Sciences* and *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology.* He served as Editor of the latter journal from 1990-1995 and also as Editor of the *Handbook of Comparative Physiology* from 1990 to 1997. He was a long-time representative to the AAMC's Council of Academic Societies, serving on the Administrative Board, Nominating Committee, and Executive Council. He was elected Chair-elect in 2001, serving as Chair in 2002-2003. As a result of his outstanding service, he was named a Distinguished Service Member (honorary) of the AAMC in 2005.



ACDP President William S. Spielman presenting the Distinguished Service Award to William H. Dantzler.

Nationally, Dantzler has served on many scientific and educational advisory and review groups for National Institutes of Health, National Science Foundation, and National Kidney Foundation, as well as a myriad of institutional and program evaluations. Internationally, Dantzler served the International Union of Physiological Sciences (IUPS) on the US National Committee, on the Committee on Scientific Commissions, and on the Organizing Committee for the 2005 IUPS meeting held in San Diego.

Dantzler has been recognized at the Univ. of Arizona College of Medicine numerous times for his teaching, including Basic Sciences Educator of the Year, Spotlight of Excellence Award for Outstanding Teaching and Outreach to Medical Students, Top Ten Contributors to Basic Sciences Curriculum, and Dean's List for Excellence in Teaching in the Basic Sciences. His research has also been recognized by many awards, including the Alexander von Humboldt Senior US Scientist Award and Univ. of Arizona's Founders Day Award.

Because of his scientific endeavors, his mentoring and teaching abilities, and his service to ACDP and physiology, the ACDP was proud to present its 2007 Distinguished Service Award to William Dantzler. ❖

Sweeney Presents First Annual ACDP Arthur Guyton Lecture

H. Lee Sweeney, PhD, Univ. of Pennsylvania School of Medicine, was named the first Arthur Guyton Lectureship recipient. As the Arthur Guyton Lecturer, he presented the major scientific talk at the 2007 ACDP Fall Meeting in Puerto Vallarta, Mexico.

Sweeney spoke on his efforts to find and characterize a member of the myosin superfamily that moves in the reverse on actin and his work to create a therapy for patients with genetic diseases in which the disease-causing mutation is a point mutation that results in a premature stop codon.

The Guyton Lectureship was established in 2006 when then ACDP President Richard Bergman suggested that a named lectureship be established to bring an outstanding researcher to the ACDP fall meeting to participate in the program. The membership unanimously approved the suggestion and proposed naming it after the late Arthur C. Guyton, MD, a giant in the world of physiology. William S. Spielman, 2007 ACDP President, had the honor of selecting the first Guyton Lecturer.

H. Lee Sweeney

Sweeney is the William Maul Measey Professor and Chair of Physiology at the Univ. of Pennsylvania School of Medicine. He has been chair since 1999. He received his undergraduate education at MIT and received his PhD in physiology from Harvard Univ.

Sweeney's research program has both basic research and translational research components. The translational work is focused on the muscular dystrophies involving the dystrophin-glycoprotein complex. His recent efforts have focused on the development of pharmacological strategies for the treatment of Duchenne muscular dystrophy. His basic research efforts address the structure and function of members of the myosin superfamily of molecular motors. Recent efforts have mostly focused on the unconventional myosins, myosin V and myosin VI. ❖

Mentoring Forum

Discovering Medical Education: A Circuitous Road to Success

Adrienne S. Zion, PhD
Vice President
Medical Director & Executive Editor, MEDCON

While finishing my doctorate in physiology from a prestigious university, it seemed all the advice I was given regarding career tracks was to pursue either a postdoc in clinical medicine, research, or in academia. Having worked in research for many years, the idea of chasing grants, tenure track, or committing to many long years of research in one (or a few specific) areas of science with little in the way of remuneration did not seem appealing.

One of the things that helped shape my career path was the ability to develop keen editorial skills via writing original scientific abstracts and student grants. As any researcher can attest, the discipline to stay within a precise word count, effectively communicate principal ideas, and provide adequate information can be a challenge. Further justifying the relevance of the research to clinical practice also led me to learn to "market" the science. Given the fact it seems as if no one reads anymore, the secret to communication, and yes, even the most highly complex science I have found, is to synthesize the salient features and translate it to an appropriate audience. When I would ask smart scientists to explain their research in a couple of sentences, and in a way mere mortals could understand, time and again, they could not. While at an APS career symposium, the concept of working in industry was suggested to me, but, no leads were offered. Searching the web with key buzz words, scrutinizing my strengths and promot-

Adrienne S. Zion

Adrienne S. Zion is Vice President, Medical Director & Executive Editor at MEDCON, a medical education company located in East Rutherford, NJ where she leads the scientific teams in the development of CME materials for physicians and healthcare professionals.

Zion holds an Adjunct Associate Professor position in the Department of Biobehavioral Sciences, Columbia University Teachers College. She is involved in the TC Alumni Mentoring Program, educating students about opportunities beyond the lab.

Prior to her current position, she was Medical Director, Cardinal Health, and Officer, Department of Rehabilitation Medicine, College of Physicians and Surgeons, NY.

A graduate of the dance department (BFA) from the Julliard School, Zion received her masters and doctoral degrees in Applied Physiology from Columbia University Teachers College. ❖

ing them accordingly, ultimately led me to stumble into a career in Medical Education (MedEd) which couldn't make me happier.

"Like many, I was completely unaware of the existence of medical advertising or medical education. Trained as a synthetic organic chemist, I was working in the research department of a plastics firm and hating it. A photographer friend suggested I speak to a NY medical advertising agency where potentially, I could combine my background and outside interests. Eventually, I joined a well known company and from there worked briefly in medical public relations, and then, finally, in Med Ed, at which point I immediately knew I had found my niche." Alan G. Morrice, PhD, Director, Scientific Services, MEDCON.

What is MedEd?

Education related to the practice of medicine and designed for healthcare professionals, patients, or consumers. The business of MedEd involves:

development of scientific materials of a variety of calibers on a given therapeutic agent, device, or condition;

collaboration with KOLs (key opinion leaders: experts in respective fields);

working with medical strategists either on the pharmaceutical or medical education side to align appropriate educational messages;

exploring the wide realm of opportunities as new business initiatives, whether in the print or website domain;

researching new venues to disseminate original or repurposed content through electronic media driving towards a wider physician population;

collaboration with other medical education organizations to build and leverage strategies and resources.

Venues Utilizing MedEd

Communications and professional relations agencies

Medical Education Companies (MEC)

Publishing companies (journals)

Pharmaceutical companies

Web-based venues utilizing new and competitive trends in electronic media

Healthcare and policy organizations

Nonprofit organizations

Academic institutions

Hospitals and group practice settings

Medical Societies

Preparing for a career in MedEd

An advance degree in science is a given. Supporting degrees in English or Journalism are helpful but not required. A passion for precision in language is essential, as is humility: it's not about you, it's about the data and interpretation of the data. Matching the right personality for the type of job is key. Do you like to chat up KOLs and pick their brains for new ideas about research? Do you prefer to stay in the background and immerse yourself in data and facts? Do you like to market science to help promote physician education or enhance patient care? Are you better sticking with one project over a protracted time or are you better juggling a variety of projects? Do you have a knack for strategically marketing science for education and the ability to understand the principles of adult learning?

Few schools offer formal programs in medical writing. Most of us arrived in the field serendipitously, dissatisfied with what we found ourselves doing after graduation. Now imagine collaborating with the finest minds in their respective medical fields, working on cutting edge research—work that will not be in the public domain for years. That's why we stay. As with other fields, there is a spectrum. A useful analogy is to consider Law or Journalism. It's easy to come up with bad examples of those professions. But, fundamentally, they are concerned with objective not subjective fact, as is MedEd, and the firms that are based on that represent the high end of that spectrum.

Supporting skills one should have include understanding medical terminology, clinical study designs, statistics, and complex data. The ability to work in mixed media is a necessity nowadays. There can be a tremendous amount of flexibility regarding working remote or onsite with occasional travel to attend client meetings, international congresses, etc. The ability to work within tight timelines and work as part of the team is crucial as is having excellent organization skills and precise attention to detail. Because the skills writers, editors, and medical directors bring to this industry, there is a high premium to recruit and retain smart individuals. Working in this business is never dull; one is constantly learning to obtain diverse therapeutic experiences.

"After graduating with a Bachelor's degree in Biology and working at a Master's level in basic medical research, I did not see a career path in primary research as a great fit for me. I spent a number of years in Marketing, Consumer Research, and freelance writing before hitting upon MedEd. The mix of writing, editing, fact-checking, and proofing in MedEd is a welcome combination guaranteed to keep me fully engaged. I find working on high quality, scientifically rigorous slide kits, monographs, web postings, and other formats extremely satisfying." Pamela J. Clark, Senior Editor, MEDCON

Distinctions in MedEd

Traditionally, MedEd is divided into two broad categories, CME and promotion. A CME piece must be developed to follow strict rules as determined by an accrediting institution or organization offering continuing medical education accreditation. All information must be fair balanced, not include product brand names, and should discuss both the merits and flaws of a drug class. CME material should foster the development of tools to enhance physician care in regard to optimizing quality patient care and the continuum of medical education.

CME projects in regulatory agencies or legal entities should be aligned with AMA, related regulatory requirements, and copyright laws, as needed. Educational activities must comply with regulatory CME requirements and legal mandates through site visits and annual reports as set forth by the accrediting institution.

Promotional materials are used by pharmaceutical companies to highlight a drug. Information is provided from the package insert as reviewed by the FDA and does not discuss off-label uses in the development of teaching tools to physicians. A strict medical legal review process is required in the development of these materials that can be used. Examples of promotional work are seen in ads in a variety of media and may often be linked selling a product.

Working collaboratively

There is a great deal of both internal and external collaboration when developing educational materials. External collaboration with principal investigators, CME departments, grantors, and faculty, in addition to collaboration within the internal teams including account development, program management, editorial, and art departments, to name a few.

Selling out?

I have often heard scientists and medical doctors refer to the idea that working in industry is akin to "selling out." While no doubt there may be exceptions to every rule, in general, all the scientists I have encountered take scrupulous efforts to ensure their research is transparent and reproducible, and all data may be checked by external reviewers. At the end of the day, a good scientist is an ethical scientist. Results, whether positive or negative beg to be disseminated. Some of the most beautiful labs, yes I mean beautiful, have been owned by pharmaceutical companies - a far cry from the dismal basement labs some major teaching hospitalities run.

Careers in Medical Education, A Partial List

Medical Writers, Editors, Proof Readers, Fact Checkers, Copywriters, Publication Managers: all work within medical publishing, including regulatory, promotional, and educational materials. These individuals develop scientific content via literature review or primary data for publications (manuscripts, posters, abstracts, slides, etc, for symposia/focus groups/advisory board meetings etc), clinical study reports, FDA filing reports, slide kits, newsletters, and websites.

Grant Writers: Conduct medical education market analysis; develop medical education strategy for educational area of focus. Can develop Request for Proposal (RFP) to external medical education vendors that support the strategic initiatives to satisfy unmet medical education needs. Responsible for maintaining currency with FDA, CME, PhRMA and OIG Guidelines.

Medical Directors: Used by all procurers of MedEd, Medical Directors counsel clients and develop medical strategies that are consistent with product marketing goals in an assigned disease area through content review of journal articles and other communication materials.

Medical Liaisons: work with pharmaceutical companies to educate physicians on a given therapeutic medication, device, or condition.

Medical Marketing: understand key business processes, business drivers, roles/responsibilities of decision makers and influencers, common issues and obstacles faced by healthcare institutions and other distinctive industry attributes to drive marketing campaigns, market awareness, and sales training, and to meet revenue goals.

Account Services: manage components of an account or grant. Oversight includes budgeting, tracking, logistics, and generating sales.

Business Development: help to identify potential new business opportunities; keep teams abreast of all current competitive intelligence, develop strong relationships with KOLs, and lead the team in identifying pertinent research related to grants or clients.

Creative and Production Services: direct and maintain the print and design process, develop branding concepts and apply throughout the specific initiative; vendor selection and print delivery and fulfillment; lead the team in the best design applications and research.

Program Management: interface with faculty, grantors and all internal teams; traffic components for projects from start-up to delivery, update current trafficking systems and project management, track budgetary details and report results to team, create standard operating procedures specific to cost and time efficiencies.

Operations: liaise with both internal and external teams in the day-to-day management of projects from inception to completion, work with teams in budget development and management, participate in the development and execution of new business proposals, research new vendor opportunities and selection, create resourcing and staff opportunities and build the right team.

Selected resources:

http://www.us.oup.com/us/companion.websites/9780195176339/aboutthebook/?view=usa&view=usa

AMA Manual of Style, 10th Edition published in 2007 by Oxford University Press, is the authoritative book on medical writing. The legal and ethical considerations chapter has expanded; nomenclature has continued to expand and greater coverage of references and visual presentation of data is included. Throughout the book, there is an increased international scope and recognition of the changes in scientific publishing field associated with advances in technology, the Internet, and the electronic evolution of writing, editing, and publishing.

http://www.amwa.org

The American Medical Writers Association (AMWA), founded in 1940, is the leading professional organization for medical communicators. The more than 5,400 members include a variety of medical communicators from around the world.

http://www.accme.org/

The ACCME's Mission is the identification, development, and promotion of standards for quality continuing medical education (CME) utilized by physicians in their maintenance of competence and incorporation of new knowledge to improve quality medical care for patients and their communities.

http://www.councilscienceeditors.org/

Council of Science Editors: CSE's purpose is to serve members in the scientific, scientific publishing, and information science communities by fostering networking, education, discussion, and exchange and to be an authoritative resource on current and emerging issues in the communication of scientific information.

http://vbwg.org

Vascular Biology Working Group: The mission of the VBWG is to improve the cardiovascular health of patients by providing a forum for the review, exchange, and assimilation of findings from vascular biology research for dissemination to the clinical medicine community. This is a top site offering a wide range of CME activities accredited by the University of Florida. ❖

Introducing Paul A. Insel

Effective July 1, 2008, Paul A. Insel is the new editor for *AJP-Cell Physiology*.

Insel was born in New York City and grew up in Dayton, OH and near Washington, DC. He attended George Washington University for two years and then the University of Michigan Medical School, from which he graduated *cum laude*, receiving his MD in 1968. After completing his internship and residency on the Harvard Medical Service at Boston City Hospital, he entered the United States Public Health Service at the National Institutes of Health for four years, during which time he also worked as an Attending Physician at Baltimore City Hospitals' Endocrine Unit and as an Assistant in Medicine at Johns Hopkins University.

Paul A. Insel

In 1974, he began research training at the University of California, San Francisco's (UCSF) Department of Medicine/Clinical Pharmacology Division and Cardiovascular Research Institute, serving as an Assistant Professor in Residence at UCSF before moving in 1978 to the Division of Pharmacology at the University of California, San Diego (UCSD). He has been Professor of Medicine and Pharmacology at UCSD since 1987 and since 1989, Director of the Medical Scientist (MD/PhD) Training Program. Insel was the Founding President of the National Organization of MD-PhD Training Directors. He has also served as Chair of Step 1 of the USMLE, the national licensing examination for US physicians. He has received a *Doc. Hon. Causa* from the University of Paris and been elected as Fellow, American Association for Advancement of Science and to the American Society for Clinical Investigation and Association of American Physicians. He has served on numerous editorial boards, as Associate Editor of several journals and Editor-in-Chief of *Molecular Pharmacology* and co-Chief Editor of the *Journal of Clinical Investigation.* Since 1996, Insel has been an Associate Editor of the *American Journal of Physiology–Cell Physiology* and is now its Editor-designate.

Insel's research emphasizes signal transduction by G-protein-coupled receptors and has been supported by grants from the National Science Foundation, American Heart Association, American Cancer Society, National Institutes of Health, Ellison Medical Foundation and other agencies. He is the author of over 200 original articles and over 100 reviews and book chapters. ❖

Introducing David Linden

As of July 1, 2008, David Linden is the new Editor for the *Journal of Neurophysiology*.

Linden is Professor of Neuroscience at The Johns Hopkins University School of Medicine in Baltimore, MD. Following undergraduate work at the University of California, Berkeley with Joe Martinez, he performed his doctoral research in the lab of Aryeh Routtenberg at Northwestern University, examining the role of protein kinase C in long term synaptic potentiation and modulation of voltage-gated ion channels. In 1990, he began postdoctoral work with John Connor at the Roche Institute of Molecular Biology, where, together with several colleagues, he developed a cell culture system to study cerebellar long-term synaptic depression, a putative memory mechanism. He joined the faculty of the Department of Neuroscience at Johns Hopkins University School of Medicine in 1992, where he remains, propped up at his rig by an impressive stack of unread documents.

David Linden

Linden's laboratory has used single cell recording and imaging techniques in brain slices and cultures to examine the cellular and molecular basis of information storage, often using the cerebellum as a model system. Other interests of the lab include synaptic transmission, neuron-glia communication, ion channel modulation, and, more recently, dynamic imaging of neuronal, glial and vascular fine structure in the intact brain. [http://www.neuroscience.jhu.edu/DavidLindenrecentpapers.php]

Linden has a long standing interest in scientific communication, serving on the Editorial Boards of *Journal of Neurophysiology*, *Neuron*, and *The Cerebellum*. He is author of a neuroscience book for a general audience, *The Accidental Mind: How Brain Evolution Has Given Us Love, Memory, Dreams and God* (Belknap/Harvard, 2007). He intermittently blogs at http://www.accidentalmind.org. ❖

Media Fellow to Work at *U.S. News & World Report*

The Society will once again sponsor a AAAS Mass Media Fellow, and this year it will be Rachel Lindsay Chura. Chura will do her ten-week fellowship at *US News & World Report* in Washington, D.C.

She is among the two dozen fellows who will work as science journalists during the summer. Fellows spend 10 weeks developing their ability to communicate complex scientific issues to non-scientists and improving public understanding of science. Participating media outlets include newspapers, magazines, online news outlets, and radio and television stations.

Chura is a graduate of Holyoke College and spent a year as a Fulbright Fellow in Australia, where she studied the relationship between obesity and infertility. She was also a research fellow for two summers in the stress neurobiology laboratory at the Department of Psychiatry at Emory University School of Medicine. Among the projects she worked on: evaluating the effects of prenatal stress on placental expression of genes coding for barrier proteins and measurement of expression of the proteins. Chura also did a brief internship at the ABC News affiliate in Albany, NY.

Physiology in the News

This year marked the 121st meeting of our membership and with it our continuing emphasis on reaching the non-scientific public about the value and benefit of our science. To that end we developed ten consumer-friendly press releases and four podcasts highlighting EB presentations that demonstrated how physiology is all around us and is an accessible science. You can read the releases at http://www.the-aps.org/press/index.htm and listen to the podcasts at http://www.lifelines.tv/.

Media pick-up to date has included coverage in the print and/or online editions of: *Nature*, CBS News, *Forbes, MSNBC, New Scientist, Philadelphia Inquirer*, Reuters Health, *Science News*, Slate, UPI, *US News & World Report, USA Today, Washington Post* and WebMD. This is in addition to the 549 mentions of our stories on TV stations in the top 20 TV markets, a record number for the APS. The EB-related podcasts also attracted significant listener interest, and interest continues to climb. ❖

Science Policy

Small Business Research Programs up for Reauthorization

Thanks to an amendment sponsored by Representative Vernon Ehlers (R-MI) and the strong support of Representative David Obey (D-WI), the House reauthorization of two small business innovation programs did not include a proposal to increase the set-asides from research agencies including the NIH.

The Small Business Innovation Research (SBIR) program was established in 1982 through the Small Business Innovation Development Act. The purpose of the program is to stimulate technological innovation, increase private sector commercialization of innovation, use small businesses to meet federal research and development needs, and encourage the participation of minority and underrepresented persons in technological innovation. SBIR programs are administered by all federal agencies that distribute more than $100 million per year in extramural research funds. These agencies are required to set aside 2.5% of their extramural budgets to make research grants to small businesses. Eleven federal agencies currently meet these criteria, including the National Science Foundation (NSF), NASA and the National Institutes of Health (NIH). A second program was established in 1992 to fund Small Business Technology Transfer (STTR), a program designed to foster collaborations between small businesses and the academic research community. Funded in a manner similar to SBIR, the STTR program set aside is currently 0.3%. It is important to note that the percentage set aside for these programs represents a minimum spending level, and that agencies have the flexibility to spend more than the set aside amount, but not less.

Like many federal programs, SBIR and STTR require periodic reauthorization through legislation passed by Congress. The programs were last reauthorized in 2000 (SBIR) and 2001 (STTR) and this year Congress has been considering legislation that would reauthorize both programs through September 30, 2010. The House of Representatives passed a bill on April 23, 2008 entitled the SBIR/STTR Reauthorization Act (H.R. 5819).

Of significant concern in the original version of the bill was a provision that would increase the percentage set aside for SBIR and STTR programs from 2.5 to 3.0% and from 0.3 to 0.6% respectively. At a time when research budgets at most agencies have failed to keep pace with inflation, any increase in small business programs would come at the direct expense of investigator-initiated research project grants. According to an analysis by the Office of Management and Budget, the increased set aside would result in the diversion of approximately $100 million over the current amount at the NIH, for a total of nearly $700 million. At the NSF an additional $18 million would go to small business programs, which would total nearly $110 million. Moreover, demand for these programs does not seem to indicate an urgent need for an increase in

the funding level. As noted in testimony given before the House Subcommittee on Technology and Innovation on April 26, 2007 by Dr. Norka Ruiz Bravo, NIH Deputy Director for Extramural Research, the number of applications for SBIR grants at NIH actually declined in 2005 (down 11.9% from 2004) and 2006 (down 14.9% from 2005). This comes at a time when research project grant applications at the NIH have risen sharply, causing success rates to fall as a result of flat funding.

It was in recognition of the danger that the increased set-aside represented to research that Rep. Ehlers proposed his amendment to strike the increases from the bill, keeping the set-aside percentages the same. Rep. Ehlers is a physicist and long time champion of research in Congress. Rep. David Obey, chairman of the Appropriations committee, made strong statements in support of research funding during the debate on the bill, discouraging the proposed increases for small business programs. While the threat was avoided in the House bill, similar proposals to increase the SBIR and STTR programs have been included in Senate version of the legislation. The APS will continue to work with organizations such as the Federation of American Societies for Experimental Biology (FASEB), Association of American Medical Colleges (AAMC) and the Association of American Universities (AAU) who have all sent letters to Congress expressing concerns about the proposed increase in the SBIR set aside.

APS Responds to NIH Peer Review Report

Over the course of the last year, the National Institutes of Health (NIH) has been evaluating and overhauling the peer review process. While NIH's peer review system is regarded as the gold standard for funding the best science, a flattened NIH budget and rising numbers of applications have caused success rates to fall to a projected low of 18% in FY 2009. As a result, morale among reviewers and applicants has fallen significantly and the process has begun to show signs of the strain. The overhaul of the peer review system is intended to optimize the efficiency and effectiveness of the system, with the goal of identifying and funding the best research with the least amount of administrative burden.

In the first phase of this project, the NIH consulted with stakeholders in the intramural and extramural communities. A working group of the advisory committee to the director was established and chaired by Lawrence Tabak, DDS, PhD, Director of the National Institute of Dental and Craniofacial Research, and Keith Yamamoto, PhD, Univ. of California, San Francisco. A series of meetings was held in Washington, DC, Chicago, San Francisco and New York City. The APS was represented by members of the Public Affairs Committee and APS staff at the meetings in Washington, DC and Chicago. In addition, last summer the APS Public Affairs Committee prepared a formal response to the NIH's request for information on peer review and the final draft report.

After collecting input from the scientific community, the NIH prepared a final draft report which was issued on February 29, 2008. In this report, NIH outlines seven major challenges to the peer review system (below), as well as goals and recommendations to address each challenge. The report was 88 pages and contained dozens of recommended actions. The entire report can be accessed from the NIH website (http://enhancing-peer-review.nih.gov/). Drs. Yamamoto and Tabak presented a summary of the report at the EB 2008 meeting in San Diego, which gave members a chance to ask specific questions and offer comments on the report's recommendations.

Challenges Outlined in Final Draft Report

Challenge 1: Reducing Administrative Burden on Applicants, Reviewers, and NIH Staff

Challenge 2: Enhancing the Rating System

Challenge 3: Enhancing Review and Reviewer Quality

Challenge 4: Optimizing Support for Different Career Stages and Types

Challenge 5: Optimizing Support for Different Types and Approaches of Science

Challenge 6: Reducing the Stress on the Support System of Science

Challenge 7: Meeting the Need for Continuous Review of Peer Review

The NIH had a brief comment period ending on March 17, 2008. Excerpts from APS comments on the report appear below. To read the entire APS comment letter, go to http://www.the-aps.org/pa. Because of the brief comment window, the Society chose to focus on the issues of greatest concern, rather than addressing every aspect of the 88 page report.

The next steps in the process will be determined by the NIH Director and the Steering Committee Peer Review Implementation Group, which will issue a final report and announce new initiatives based on the report's recommendations. The APS Public Affairs Committee will continue to track these issues as recommended actions are implemented.

From the APS response *(Please note that the recommended actions listed below in bold are the recommendations contained in the report, NOT the recommendations of the APS.)***:**

"We appreciate the working group's thorough review of the peer review process, and the attention paid to maintaining the core values that make this system successful. While we agreed with many of the report's recommendations, there are areas that are of concern to APS members, and the comments below focus on those recommended actions.

"Recommended Action: Provide unambiguous feedback to all applicants.

In our original comments submitted in response to NOT-07-074, APS proposed eliminating the practice of not scoring each application and we are pleased to see that the report makes this recommendation. By providing comments and a score for each application, and using the full range of scores (1.0 to 5.0) we feel that the implementation of a Not Recommended for Resubmission (NRR) designation will become unnecessary. In other words, a score of 4.5 should reasonably be interpreted as not recommended for resubmission. In order for this to be effective, reviewers would need to be aware of their obligation to use the full range of scores, and applicants would need to understand the implications of receiving a poor score. Program officers could be involved in counseling applicants about the advisability of resubmitting grant applications that scored poorly.

"Recommended Action: Eliminate the "special status" of amended applications.

While we recognize the troubling trend towards not funding applications

until the second resubmission, the recommendation to treat all applications as new is of great concern to the Society's members. Many NIH funded scientists find tremendous value in the process of revising grants in response to reviewer comments, and feel that this practice should not be discontinued. Because applications would still be resubmitted, we are concerned that there will be an increase in administrative burden on the new reviewers who will not be able to benefit from seeing the prior reviewers' comments and insights, and that applicants will essentially be trying to hit a "moving target" as they revise their grant applications. In addition, not providing the previous reviews diminishes the value of the original reviewers' efforts. The APS recommends that the NIH not move forward with this idea.

"Recommended Action: Pilot the use of short, bi-directional 'prebuttals' (for applicants and/or reviewers) to correct factual errors or explain factual items in review.

We feel that the use of "prebuttals" has the possibility of being useful for reviewers and applicants, but that it may ultimately increase the burden on reviewers by requiring them to complete and post reviews in a shorter time frame. In addition, it may be difficult to define "factual errors" and separate them from what are more often errors of judgment in grant reviews.

"Recommended Action: Rank applications considered by the study section.

Our members are concerned that explicitly ranking all of the applications at the end of the meeting, removed in time from a discussion of the pros and cons of an application, will lead to an undesirable degree of arbitrariness in the final scores. The process of ranking also suggests that the success of an application will be directly affected by the quality of the other applications that happened to be at a particular meeting. Instead, we suggest that the applications be briefly discussed at the end of the meeting and the opportunity given to rescore all of the applications.

"Recommended Action: Link potential study-section service to the most prestigious NIH awards.

We agree that linking study section service to receipt of NIH awards is a necessary step towards increasing the pool of expert reviewers and ensuring that study sections have experienced scientists contributing to the review process.

"Recommended Actions regarding early career investigators

For early career investigators, we agree that continuing to fund more R01s is an important part of securing the success of the next generation of scientists. We also agree with taking into account the applicant's institutional commitment when evaluating the environment rating criteria. Rather than having early career investigators reviewed by generalists, we feel that evaluating early career investigators in regular study sections and comparing them to each other instead of the general applicant pool is an idea worth pursuing.

"Recommended Action: Use the NIH Director's Pioneer, NIH Director's New Innovator and the EUREKA award programs as starting points to develop a path to invite, identify and support transformative research, expanding the number of awards to a minimum of 1 percent of all R01-like awards.

Regarding the expansion of award mechanisms such as the Director's Pioneer, new Innovator and EUREKA awards, we feel that it is important to have some measure of the success of these relatively new award programs before expanding them to a significant fraction of R01-like awards.

"Recommended Action: Determine the underlying causes of submission patterns and results in CSR and IC panels and consider corrective actions if needed.

The report notes that concerns about inadequate human subjects protections can cause applications to be scored poorly. We are concerned that reviewers may not have adequate training and experience to proficiently evaluate the appropriateness of human subjects protections in grants. The "just in time" rule that allows grants to be submitted prior to IRB approval may be adversely affecting the scoring of clinical research grants, and we suggest having a review for human subjects research concerns by experts who are familiar with the OHRP rules that is separate from the review of the merit of the application.

"Recommended Action: Require, in general, a minimum percent effort on research project grants.

We agree with the recommendation for grants to require a minimum percent effort for Principal Investigators, which would limit the number of grants that one researcher could hold. However, we feel that it is important that there be a process for requesting exemptions from the rule when necessary. There may be cases where requiring a minimum 20 percent effort on a grant causes problems in terms of level of salary support for senior investigators submitting modular grant applications.

"Recommended Actions: Mandate a periodic, data-driven, NIH-wide assessment of the peer review process. Capture appropriate current baseline data and develop new metrics to track key elements of the peer review system.

With all of the suggested changes under consideration, we are in favor of continuous review of the peer review system. We feel that it is necessary to pilot as many of the recommendations as possible, and follow up with a transparent evaluation process. Because the peer review system depends on the participation of scientists, it is of the utmost importance that scientists have confidence in the functioning of the system."

Student Group Supports Research

March 28 marked the launch of Speaking of Research (http://www.speakingofresearch.org), a new animal research advocacy group focused on rallying the support of university faculty and students. Speaking of Research founder, Tom Holder was a leader in the Oxford grassroots group Pro-test (http://www.pro-test.org.uk), which confronts animal rights extremism in the UK.

Holder played an integral role in founding of Pro-Test and in the remarkable success of its first event—a march attended by an estimated 1,000 people supporting the construction of an animal research lab in Oxford, the construction of which was long delayed by vandalism and harassment. Thanks in large part to the role played by this student-lead group, the animal research dialogue in the UK is far less dominated by the shouts of extremists.

Speaking of Research debuts at a time of escalating extremism in the US. On

top of what has become a norm of threats and harassment, the last six months have seen the firebombing of one researcher's home and an attempt to invade the home of another during her child's birthday party.

"Students played a major part in changing public attitudes toward animal research in the UK," Holder noted in a statement, adding that he "believe[s] that American students can do the same." He exhorts Americans: "It's time to stand up for science, reason and the belief that a small and sometimes violent minority should not be allowed to dictate the future of medical research."

Jacquie Calnan, president of Americans for Medical Progress (http://www.amprogress.org), hailed the new group: "For far too long our college campuses have been prime recruitment turf for animal rights groups seeking to misrepresent scientists' need for animals in biomedical research." Calnan explains, "[a]nimal rights disinformation campaigns have dissuaded some students from pursuing careers in the life sciences, and others to actively oppose the ongoing search for medical progress."

Speaking of Research provides information on its website (http://www.speakingofresearch.org) to empower people to respond to animal rights arguments. Its online outreach efforts also include an RSS feed as well as groups on a Facebook [http://www.facebook.com/group.php?gid=9224245414] and MySpace [http://groups.myspace.com/speakingofresearch]. In addition to these resources, Speaking of Research provides speakers for talks or debates on animal research. To request a speaker to visit your university or organization, call 703-395-0646 or go to http://speakingofresearch.wordpress.com/contact-us/request-a-speaker/. ❖

Senior Physiologists' News

Letters to Virendra Mahesh

Louis J. Poirier writes: "I really appreciated your good wishes at the occasion of the anniversary of my 90th birthday. I have always considered The American Physiological Society as one of the most eminent organizations in regard to its major role in the promotion of basic and applied research.

"As to my own activities, they are at a slow ppace. I still have interest regarding the development of scientists and the promotion of basic and applied research. Now living in the countryside, I have developed interest in wild animals and vegetation around the world. I am also involved in gardening specially growing asparagus and raspberries. With my best regards."

Ian Glynn writes: "Please forgive me for taking so long to reply to your very kind letter; I rather expect my Cambridge college to notice the approach of my eightieth birthday but I am deeply touched that the American Physiological Society should do so. It confirms my long-held prejudice that

physiologists are a likeable lot.

"As to my current activities, they are of three main kinds. First, family. With six grandchildren ranging from nine to eighteen there are plenty of opportunities - in fact my wife and I are just recovering from two weeks of assorted half-term holidays. And at the other end of the age-range there are the problems of elderly friends and relations.

"Second, college. Trinity is peculiar in having no retiring age for Fellows who have been Fellows for a long time. So we try to deserve our privileges by serving on various committees, so lightening the load for our younger colleagues. And it works.

"And, thirdly, writing. Having spent most of my working life as an experimental scientist studying the mechanism of the sodium pump, and having, fortunately, reached a convenient stopping point when I had to retire, I decided to write about problems that I had long been interested in but had not had time to do much about. In 1999, four years after retiring, I completed *An Anatomy of Thought: The Origin and Machinery of the Mind*, published by Weidenfeld and Nicolson, in the UK, and by the Oxford University Press, New York, in the USA. Then in 2002, my wife and I - who had always been interested in each other's writing but had never written anything together - joined forces to write *The Life and Death of Smallpox*, published in 2004 by Profile Books, in the UK, and by Cambridge University Press, New York, in the USA. (There is also a Chinese translation published in Beijing, but it lacks notes and an index.) At present I am working on a third book, which I hope to complete this year, but until I am sure it's going to work I had rather not talk about it. "And after that. Who knows?

"With all good wishes." ❖

Postdoctoral Positions

Postdoctoral Fellowship: The Center for Research and Education in Special Environments in the School of Medicine and Biomedical Sciences at the University at Buffalo is recruiting for a Postdoctoral Fellow with interest in one or more of the following fields: undersea and hyperbaric medicine, environmental physiology, gravity or exercise physiology. This is a three year Office of Naval Research funded fellowship. The successful candidate must have a Medical Degree or PhD or equivalent. CRESE is a grant supported multidisciplinary, officially recognized University Organized Research Center. The major facilities include a human-rated hyperbaric/hypobaric chamber, animal/cell hyperbaric chambers, human centrifuge, climatic chamber, and annular swimming pool. Additionally, there are exercise, biochemistry, animal surgery and open laboratories and offices. The position will be available in the fall of 2008 and the salary is dependent upon qualifications. Applications will be considered until the position is filled. Interested candidates can get further information or send a letter of application and curriculum vitae to: Dr. David R. Pendergast, Professor of Physiology and Biophysics and Adjunct Professor of Mechanical and Aerospace Engineering Director, CRESE, 124 Sherman Hall, University at Buffalo, 3435 Main Street, Buffalo, NY 14214, 716-829-3830, dpenderg@buffalo.edu.

Postdoctoral Position: Postdoctoral position immediately available in our research group, which is focused on studying the molecular and cellular mechanisms of peripheral angiogenesis in hypertension and diabetes. The successful applicant will utilize state-of-art molecular, cellular and physiology technologies to determine mechanisms that can improve the altered angiogenesis in hypertension and diabetes. Candidates must have a PhD and strong backgrounds in physiology (animal surgery), cellular and molecular biology. Application should be sent to: Khalid Matrougui, PhD, Department of Physiology, Tulane University, School of Medicine, 1430 Tulane Ave, New Orleans, LA 70112, USA or Email: kmatroug@tulane.edu.

Postdoctoral Position in Membrane Transport: A postdoctoral position is available to study the molecular physiology of membrane transport, under the direction of Bryan Mackenzie PhD at the University of Cincinnati. Our primary focus is an NIH-funded project to study transporters serving iron and other metal ions, and their role in metal-ion absorption. We are concerned with the molecular mechanisms, structure-function, and regulation of membrane transport proteins. Other projects underway include amino acid transporters in neurotransmission, and vitamin C transport. Visit http://mcp.uc.edu for more details. We seek postdoctoral candidates with skills and experience in fluorescence techniques, electrophysiology, or molecular biology. A willingness to learn these approaches is essential. Applications will be considered on an ongoing basis. Please provide via email a single pdf file containing a cover letter (including a statement of career goals), curriculum vitae (CV), and contact information for two referees to bryan.mackenzie@uc.edu.

Postdoctoral Position: An NIH-supported postdoctoral position in translational research is available in the laboratory of Dr. Lorraine Ware to investigate the effect of mechanical ventilation on extravascular fibrin deposition in the acutely injured lung. Experiments focus on the role of the murine alveolar epithelium in modulating intra-alveolar fibrin deposition and fibrinolysis and are complemented by studies of human samples and tissues. Techniques emphasize mouse models of acute lung injury and ventilator-induced lung injury, coagulation and fibrinolysis assays, cell culture and molecular biology. A background in pulmonary physiology or cell biology with experience in mouse models, cell culture, and molecular biology is preferred. Our highly interactive Pulmonary Division has excellent depth and breadth in clinical, translational and basic research in a variety of human lung diseases. Postdoctoral training emphasizes the development of professional independence and collaboration. Interested individuals should send a brief email to Dr. Ware (below) highlighting research experience and interests. Please include a Curriculum Vitae and the names and contact information of two to three references. Arrangements can be made to meet with Dr. Ware at American Thoracic Society 2008 (Toronto). Stipends are in accord with experience and NIH guidelines. Applicants must be US citizens or have permanent resident status. [EOE]

Postdoctoral Position: A postdoctoral position in behavioral neuroscience of obesity is available at the Institute of Veterinary Physiology, Vetsuisse Faculty University of Zurich. The candidate will be part of a research group focusing on the mechanisms underlying the physiological control of food intake and body weight. Our main targets are pancreatic and gut hormones that affect the neuronal regulation of energy homeostasis. The experimental work will include behavioral studies, electrophysiological and immunohistochemical experiments. Starting date: August 2008. Employment type: depending on the qualifications of the candidate; university-funded position with competitive salary. Environment: the research environment involves close collaboration with the group of Prof. Wolfgang Langhans and Prof. Nori Geary. Please apply to: tomlutz@vetphys.uzh.ch.

Postdoctoral Position in Human Respiratory/Exercise Physiology: A postdoctoral position in Respiratory/Exercise Physiology is available at the Institute for Exercise and Environmental Medicine (IEEM) in Dallas, TX. The IEEM is part of the Presbyterian Hospital of Dallas system and is affiliated with The University of Texas Southwestern Medical Center. Qualifications: Candidates should have a doctorate in exercise science, respiratory physiology, or a closely related discipline. Successful applicants must have a strong background in human systems/integrative physiology. The documented ability to conduct research studies in respiratory and exercise physiology is highly desirable. General Information: The IEEM is a purpose-built research facility devoted to human physiology research with five major research laboratories in environmental, cardiopulmonary, autonomic/cardiovascular, neuromuscular, and thermal physiology. Facilities include a hypo-/hyperbaric chamber, environmental chamber, swim flume, state-of-the art cardiopulmonary function equipment, and a devoted on-site biochemistry lab. The cardiopulmonary group's current research studies

focus on adaptive mechanisms within the control of ventilation during exercise in health and disease, and the mechanism of exertional dyspnea in otherwise healthy obese individuals. We also conduct clinical cardiopulmonary exercise testing in patients referred to our clinic, and are involved in a number of clinical trials. The IEEM is located close to Presbyterian Hospital of Dallas, seven miles north of the downtown area. For further information please refer to our website: http://www.ieemphd.org/ Application: Submit a cover letter describing interests and qualifications for the position, curriculum vitae, and copies of recent research publications along with the name, address, and phone number of three references. Direct all correspondence and recommendations to: Tony G. Babb, PhD, Institute for Exercise and Environmen-tal Medicine, 7232 Greenville Avenue, Suite 435, Dallas, TX 75231-5129. [AA/EOE]

Postdoctoral Position: available in the area of cardiac cellular electrophysiology. A wide range of projects are of interest, including the following: *1*) gating mechanisms of unitary cardiac L-type Ca channels; *2*) local Ca signaling in normal, aging, and failing hearts; and *3*) ion channels in cardiac-directed stem cells. The ideal candidate (PhD or MD) would have experience in whole-cell and single-channel patch-clamp recording and analysis. Additional experience in Ca imaging, cell culture and/or molecular/cell biology is desirable. To apply please Email your CV, a letter describing your research experience and interests, and contact information for three references to: Ira R. Josephson, PhD, Associate Medical Professor, Department of Physiology and Pharmacology, Sophie Davis School of Biomedical Education, City College of New York, 138th Street and Convent Avenue, H-310, New York, NY 10031, Tel: 212-650-7838, Email: josephso@med.cuny.edu. The City College of New York values diversity and is committed to equal opportunity in employment.

Postdoctoral Position: Available to study pancreatic islet physiology in the Islet Signaling Group at the Alberta Diabetes Institute (http://www.adi.med.ualberta.ca) in Edmonton, Canada. We are a dynamic and growing group, supported by several national and international research grants, studying numerous aspects of islet function including intracellular signal transduction and granule trafficking, ion channel regulation, insulin secretion and exocytosis, and pancreatic alpha-cell function. A number of potential projects in these areas are available, and we are happy to discuss potential projects with anyone who has an interest in islet biology. More information about the research interests of our group can be found on our website (http://www.bcell.org). Applicants should possess, or be near completion of, a recent PhD in a related field. A strong publication record and experience in one of the following would be considered an asset: advanced molecular techniques, patch-clamp electrophysiology or cellular imaging and image analysis. Applicants should forward their CV and names and contact information for three references to Dr. Patrick MacDonald at applications@bcell.org.

Postdoctoral Position: Membrane Transport: a postdoctoral position is available to study the molecular physiology of membrane transport, under the direction of Bryan Mackenzie PhD at the University of Cincinnati. Our primary focus is an NIH-funded project to study transporters serving iron and other metal ions, and their role in metal-ion absorption. We are concerned with the molecular mechanisms, structure-function, and regulation of membrane transport proteins. Other projects underway include amino acid transporters in neurotransmission, and vitamin C transport. Visit http://mcp.uc.edu for more details. We seek postdoctoral candidates with skills and experience in fluorescence techniques, electrophysiology, or molecular biology. A willingness to learn these approaches is essential. Applications will be considered on an ongoing basis. Please provide via email a single pdf file containing a cover letter (including a statement of career goals), curriculum vitae (CV), and contact information for two referees to bryan.mackenzie@uc.edu.

Postdoctoral Position: The Pennsylvania State University, College of Medicine, Department of Heart and Vascular Institute has an NIH-funded postdoctoral position is immediately available to study autonomic control of circulation in health and cardiovascular diseases. Our laboratory uses multidisciplinary approaches to study cardiovascular responses to muscle afferent inputs and neural mechanisms of the response. Background in cardiovascular physiology or neurophysiology and experience with electrophysiological recording techniques in small animal is preferred. Required qualifications include a PhD or MD in Physiology or a related field. Salary will be commensurate with experience. Send curriculum vitae, names and addresses of three references to Dr. Li, (Email: jzl10@psu.edu). Heart & Vascular Institute H047, and Department of Medicine, The Penn State University College of Medicine, 500 University Dr., Hershey, PA 17033. Tel: 717-531-5051. Materials accepted until position is filled. The Pennsylvania State University Office of Human Resources - http://www.ohr.psu.edu - © 2004 all rights reserved. Penn State is committed to the diversity of its workforce. [AA/EOE]

Faculty Positions

Professor/Associate Professor & Director/ Associate Director: The School of Medicine and Biomedical Sciences at the University at Buffalo is recruiting for a Professor or an Associate Professor and Director or an Associate Director of the Center for Research and Education in Special Environments (CRESE). The successful candidate must have a Medical Degree and qualify for licensure in the State of New York and have a demonstrated successfully extramurally funded research program in Undersea and/or Hyperbaric Medicine. The appointment will be housed in the Medical School and the successful candidate may have an associated clinical appointment and provide leadership in the development of a hyperbaric oxygen treatment program and ties with Bioengineering. CRESE is a grant supported multidisciplinary, officially recognized University Organized Research Center and reports to the Dean of the Medical School. The major facilities include a human-rated hyperbaric/hypobaric chamber, animal/cell hyperbaric chambers, human centrifuge, climatic chamber, and annular swimming pool. Additionally, there are exercise, biochemistry, animal surgery and open laboratories and offices. At present CRESE is staffed with three funded fac-

ulty members and six experienced technicians, and an administrative assistant. The position will be available in the fall of 2008 and the salary is dependent upon qualifications. Applications will be considered until the position is filled. Interested candidates can get further information or send a letter of application and curriculum vitae to: Dr. David R. Pendergast, Professor of Physiology and Biophysics and Adjunct Professor of Mechanical and Aerospace Engineering Director, CRESE, 124 Sherman Hall, University at Buffalo, 3435 Main Street, Buffalo, NY 14214, 716-829-3830, dpenderg@buffalo.edu.

Visiting Assistant Professor of Vertebrate Physiology: Earlham College invites applications for a Vertebrate Physiologist. This is a full-time, one-year appointment in the Biology Department at the rank of Visiting Assistant Professor, beginning in August 2008. The Department seeks an individual that is first and foremost excited about teaching physiology—in lecture, laboratory and research venues—to bright and motivated undergraduates in a nationally ranked department at a small liberal arts college. Teaching responsibilities include a human physiology course(s), an upper-level specialty course, and contributions to team-taught introductory courses in cell physiology and genetics. Applicants who have an interest in one or more of the following are especially attractive: comparative physiology, anatomy, neurophysiology, systems biology, use of "omics" tools. A PhD or equivalent is required; teaching or postdoctorate experience is desirable. For an expanded description of the position and information about Earlham College and the Biology Department please visit: http://www.earlham.edu/biology/content/positions/physiologist.html Note: This position will fulfill a temporary staffing vacancy in the Biology Department. A tenure-track search for an Assistant Professor in Vertebrate Physiology will begin August 2008. A successful applicant for the current one-year position would be encouraged to apply for the tenure-track position. To apply: please send curriculum vitae, a statement of teaching philosophy and three letters of reference to: Dr. Peter Blair, Department of Biology, Earlham College, 801 National Road West, Richmond, IN 47374-4095. Dr. Blair can be contacted at: blairpe@earlham.edu Review of applications will begin immediately and will continue until the position is filled.

Assistant Professor: The Pennsylvania State University, the Altoona College invites applications for a tenure-track position in Biology with a specialization in Vertebrate Physiology. Teaching responsibilities include lower and upper level courses in vertebrate anatomy and physiology, introductory biology, and an upper level course(s) in the candidate's related specific area(s) of interest. Those with the ability to teach immunology, neurobiology, developmental biology, vertebrate anatomy, and/or physiological ecology are especially encouraged to apply. In addition, the successful candidate is expected to conduct research and perform professional, university, and community service. Located in the beautiful Allegheny Mountains of central Pennsylvania, Penn State Altoona is a largely residential campus of 4,000 students offering 18 baccalaureate degree programs and the first two years of 180 Penn State baccalaureate degrees. Degree offerings at Penn State Altoona will continue to expand. Only 40 miles from the University Park campus, Altoona College offers the advantages of small college teaching with the readily available resources of a major research university. The position requires a PhD in Biology or related field, and is a tenure-track appointment at the level of assistant professor or a rank commensurate with qualifications beginning in Fall 2008. Applicants should present a record of evidence and potential effectiveness in teaching, research, and service. Candidates should have a strong commitment to undergraduate education, research, student recruitment and retention, and curricular development and assessment. Penn State Altoona offers a competitive salary and an attractive benefits package. Applicants should send a letter of application establishing their qualifications; a current vita; a description of teaching philosophy and evidence of teaching effectiveness; a statement of research interests; transcripts (official transcripts required at the time of an interview); and three letters of reference. Applicants are strongly encouraged to submit their applications and accompanying materials electronically to mnsdiv@psu.edu in Word or PDF formats. Review of applications will begin the week of April 14, and continue until the position is filled. Non-electronic inquiries, applications, and additional materials should be sent to: Chair Search Committee for Biology, Penn State Altoona, Box B-27306, 3000 Ivyside Park, Altoona, PA 16601-3760. For additional information about Penn State Altoona, please visit our web page at http://www.altoona.psu.edu. [AA/EOE]

Physiology Faculty Position: The Department of Physiology and Pharmacology at West Virginia University is seeking a well-qualified educator in physiology at the rank of Assistant, Associate or Full Professor for appointment to a non-tenure track position. This is a three-year, annually renewable appointment and can start as soon as July 1, 2008. The successful candidate will lead departmental colleagues in providing instruction for dental, nursing and other health professionals and contribute to educational endeavors, educational innovation and scholarship in the department. Opportunities are available for qualified applicants to collaborate with research groups focused in cancer, neuroscience, cardiovascular physiology, and respiratory biology. Minimum Qualifications: PhD or equivalent degree; record of demonstrated experience teaching physiology effectively to professional students in a formal classroom setting; ability to coordinate teaching activity of a faculty group; promise of growth as a health science educator; ability to speak and write English fluently. Preferred Qualifications: experience with a variety of teaching methods and development/design of teaching materials (computer assisted instruction, courses, textbooks); record of research and/or scholarly activity related to physiology. Faculty rank and salary will be commensurate with teaching and research experience. Start-up funds and some shared resources for educational research are available. Position will remain open until filled; applications are reviewed as received. Applicants should submit [electronic submission required] a current curriculum vitae, a cover letter summarizing relevant experience, career interests and potential contributions to the Department of Physiology and Pharmacology, and the names and Email addresses of three persons qualified to provide letters of reference to: tmcpherson@hsc.wvu.edu. Please contact

Tammy McPherson at 304-293-4992 or at the email address listed above if you have questions or problems. [AA/EOE]

Biology (Two positions): The Pennsylvania State University, the Altoona College invites applications for the following positions in the Division of Mathematics and Natural Sciences. *1*) Vertebrate Anatomy and Physiology (multi-year, non-tenure track); teaching responsibilities will include introductory level courses in biology including biology courses for non-science majors, human biology courses for allied health majors, and to participate in courses for science majors depending upon expertise; ability to teach introductory microbiology desirable; duties will consist of 12 contact hours per week in lecture and/or laboratory courses and college service, including advising; a PhD in Biology or related discipline is required. Penn State Altoona offers a competitive salary and an attractive benefits package. *2*) Cell Biology or Animal Physiology (one-year, fixed term); depending on qualifications, teaching responsibilities could include introductory cell biology for biology majors, mammalian physiology, or microbiology, and other introductory majors and non-majors courses, as well as the possibility of teaching an upper-level course(s) in the candidate's specific area(s) of interest; position requires a master's degree in Biology or closely related field; a doctoral degree is preferred. Penn State Altoona offers a competitive salary and an attractive benefits package. Penn State Altoona is located in a suburban setting 45 miles from the University Park Campus. The approximately 4,000 undergraduate students can complete one of 18 baccalaureate majors or eight associate degrees at Altoona. The college also offers the first two years of 190 Penn State baccalaureate degrees. Degree offerings at Penn State Altoona will continue to expand. Applicants should send a letter of application establishing their qualifications; a current vita; a description of teaching philosophy and evidence of teaching effectiveness, transcripts (official transcripts required at the time of an interview); and three letters of reference (preferred) or names and contact information for at least three references. Applicants are strongly encouraged to submit their applications and accompanying materials electronically to mnsdiv@psu.edu in Word or PDF formats. Review of applications will begin the week of April 30, 2008, and continue until the positions are filled. Non-electronic inquiries, applications, and additional materials should be sent to: Chair Search Committee for Biology, Penn State Altoona, Pos. # E-27432, 3000 Ivyside Park, Altoona, PA 16601-3760. For additional information about Penn State Altoona, please visit our web page at http://www.altoona.psu.edu. [AA/EOE]

Assistant, Associate, Full Professor; Neuroscientist: The Department of Biomedical Sciences (BMS) at the Colorado State University seeks a scientist to fill a tenure-track position at open rank of Assistant-Full Professor in Neuroscience. Candidates with expertise in any area of molecular, cellular or systems neuroscience are encouraged to apply. Preference will be given to those with expertise in molecular/cellular neuroendocrinology. The successful candidate is expected to develop an independent, extramurally-funded research program, preferably in an area that complements existing departmental program strengths. The individual selected for this position is also expected to contribute to undergraduate and graduate teaching. The BMS Department has 28 regular faculty members. The Department's strengths are focused in two University Programs of Research and Scholarly Excellence; the Molecular, Cellular and Integrative Neurosciences Program (MCIN) and the Animal Reproduction and Biotechnology Laboratory (ARBL). Interests of faculty in MCIN include ion channel and neurotransmitter receptor structure/function, mechanisms of neurotransmitter release, integrative neurotransmission, taste transduction, degenerative diseases, neuroendocrinology, and developmental neurobiology. Research programs in ARBL broadly address regulatory mechanisms that underlie mammalian reproductive function. In addition, the department is currently expanding its program in cardiovascular physiology. Opportunities for collaboration exist with faculty in clinical and other basic science departments. Additional information about the BMS Department and its faculty can be found at www.cvmbs.colostate.edu/bms. The Department sponsors an undergraduate Biomedical Sciences major and both MS and PhD graduate programs. Department faculty members participate in DVM/PhD training and in a NIH training grant emphasizing graduate students and postdoctoral fellows. Facilities available include well-equipped general instrumentation rooms, a fluorescence-activated cell sorter/flow cytometer laboratory, a laser-capture microdissection laboratory, machine shops, central animal care facilities, confocal microscopes including a Zeiss LSM 510 Meta and a spinning disk confocal dedicated to live cell imaging, an electron microscopy center equipped with a 200KEV JEOL Transmission EM, and a scanning EM, and the University Macromolecular Resource Facility containing DNA/RNA synthesizers, peptide synthesizers, gas-phase protein sequencer, automated capillary DNA sequencer, Affimatrix gene chip array reader, and electrospray, MALDI/TOF, and MALDI/TOF/TOF mass spectrometers. Information on the city of Fort Collins can be found at http://www.ci.fort-collins.co.us/. Applicants must have a PhD, DVM, MD or equivalent degree and at least two years of postdoctoral research experience. A letter of application, curriculum vitae, statements of research and teaching interests, and a list of three references, who may be contacted when appropriate, should be sent to the Chair of the search committee: Dr. Stuart Tobet, Department of Biomedical Sciences, Campus Delivery 1617, Colorado State University Fort Collins, CO 80523. Application materials can be submitted to stuart.tobet@colostate.edu or Karen Solomon: Karen.Solomon@ColoState.EDU. Review of applications will begin July 1, 2008, and continue until a successful candidate is found. Applications received after July 1, 2008 may or may not be considered. Colorado State University is an Equal Opportunity/Affirmative Action employer and complies with all Federal and Colorado state laws, regulations and executive orders regarding affirmative action requirements and programs. The Office of Equal Opportunity is located in 101 Student Services. To assist Colorado State University in accomplishing its affirmative action objectives, ethnic minorities, women and other protected class members are encouraged to apply and to so identify themselves.

Director of the Program in Human Anatomy Education: The Department of Integrative Biology and Physiology

within the University of Minnesota Medical School is inviting applications for the position of Director of the Program in Human Anatomy Education. This is a full-time, 12-month faculty position. Depending on qualifications, the position may be tenured, tenure-track or teaching track. The faculty rank is commensurate with experience. Requirements include: *1*) all applicants must have a PhD or equivalent degree in anatomy or related field; *2*) all applicants must provide documentation of experience and excellence in teaching anatomy to health professionals; *3*) those applying for a tenured or tenure-track position should demonstrate a strong publication record and be expected to have, or demonstrate potential for, an externally funded research program; *4*) those applying for a teaching-track position should provide evidence of a leadership role in prior contributions to course development and a record of peer-reviewed accomplishments. The successful candidate will be expected to commit at least 50% of their time to human gross anatomy education. Responsibilities will include: *1*) directing an educational program that includes two current full-time faculty members and annually serves about 1,400 undergraduate, graduate and professional school students, as well as teaching assistants; *2*) participating in team-teaching gross anatomy courses for medical and/or dental students; *3*) Participation in the development of computer-based educational opportunities for students; *4*) leading the planning and implementation of a graduate program in anatomy education, including research opportunities for students. The preferred start time is Summer of 2008, but accommodations can be made for a later start time. Applications will be reviewed beginning May 1, 2008 and the search will remain open until the position is filled. Interested candidates should submit a curriculum vitae, a cover letter summarizing their relevant experience and potential contributions to anatomy education, and names/addresses/emails of three persons who will submit letters of recommendation. All applications are submitted electronically at http://employment.umn.edu. For further information, please contact: James R. Carey, PhD, PT, Chair, Search Committee, MMC 388, University of Minnesota, 420 Delaware Street SE, Minneapolis, MN 55455, 612-626-2746, Carey007@umn.edu.

Gastrointestinal Physiologist Faculty Position: Ross University School of Medicine, located on the Caribbean island of Dominica in the West Indies, invites applications for a faculty position in the Department of Physiology. Our mission is to prepare highly dedicated students to become effective and successful physicians in the United States. Basic science coursework is taught in Dominica and students complete their clinical studies in the United States. After passing all prerequisite examinations, Ross graduates are licensed to practice medicine in all 50 states of the United States. Ross University School of Medicine is a division of DeVry, Inc. (NYSE:DV). Education is the primary focus of the faculty. The academic year is divided into three semesters with a new class of students admitted each semester. Lectures and other educational responsibilities continue throughout the year. Effective teachers are sought, particularly individuals who are interested in improving medical education and who work well on a team. Research opportunities exist, primarily in the area of medical education. Essential Academic Responsibilities: the preparation of course material (handouts etc.); the delivery of effective lectures; the preparation, administration, marking and reporting of examinations; participation in problem-based-learning course. Essential Faculty Responsibilities: participate in academic programs and carry out duties and responsibilities as assigned by the Dean and the Department Chair including, but not limited to, instruction and development of teaching programs within the framework of our curriculum; participate in faculty meetings, work on assigned committees and be available to meet with individual students as appropriate. Willingness to participate in additional faculty responsibilities as requested and assigned by the Department Chair and with concurrence of the Dean. Required Knowledge, Skills and Abilities: excellent communication and teaching skills; documented record of teaching effectiveness; knowledge of gastrointestinal physiology at the graduate level Required Credentials and Education; PhD or MD in relevant field of study; previous teaching position at a North American or United Kingdom medical school desirable. Ross University offers competitive annual salaries potentially tax-free, relocation assistance to and from the island, a deferred compensation program, medical benefits, 35 days of paid annual leave, and opportunities for professional development. If you have questions about Ross or the position please contact Dr. Charles Seidel, Associate Dean for Faculty Affairs (cseidel@rossmed.edu.dm). To apply, please visit our website (http://www.rossu.edu); select Careers and complete our online application process.

Chair of Physiology: Ross University School of Medicine is accepting applications for the Chair of Physiology. Physiology, along with the other preclinical basic sciences, is taught on our Caribbean campus on the beautiful island of Dominica in the West Indies. The campus provides the latest teaching facilities and technology and utilizes modern medical education philosophy and teaching approaches to produce well-trained physicians. Following successful completion of Step 1 of the USMLE, our students carry out their clinical studies in the United States. After passing all prerequisite examinations, Ross graduates are licensed to practice medicine in the US. Ross University School of Medicine emphasizes curricular innovation and medical education research. Since 2004 Ross has placed more individuals into US medical residencies than any US medical school. Ross University School of Medicine is a division of DeVry, Inc (NYSE:DV). Job Description: The chair of physiology will lead the department in providing excellent instruction in physiology as part of a well-integrated medical curriculum. This will include development and incorporation of evolving educational knowledge and utilization of new technologies. Duties and Responsibilities: oversee the overall operation of affairs related to the department of physiology; recruit, interview, and hire faculty within the department of physiology; mentor and provide support for faculty members toward promotion within the department; evaluate and recommend to the dean merit raises of faculty based on performance; supervise the implementation of policies and procedures for educational and administrative affairs and maintain currency of procedures and programs; participate in faculty and chairs meetings with the dean; make recommendations regarding appropriate faculty appointments to committees at the request of the dean;

foster faculty participation in integration of the curriculum; hold regular departmental meetings; prepare annual budget for the department; facilitate departmental contribution to continuing medical education and clinical grand rounds; participate in teaching within the department and in Problem Based Learning. Advocate for: a) integration of material among the basic science disciplines as well as with the clinical sciences; b) incorporation of active learning (including use of audience response systems); c) utilization of adult learning methods; d) use of technology such as eLearning. Contribute to curricular development; work to achieve improvement in departmental performance on student test scores, especially those with national norms; participate in learning about the science of education; establish departmental goals aligned with institutional goals; assign faculty appropriately to cover curricular needs; contribute to community; promote academic scholarship in self and faculty within department. Skills and Abilities: we are seeking an individual with a record of outstanding achievement as a scholar and evidence of teaching success and/or senior-level academic administrative experience. The individual must be able to effectively communicate issues vital to the university both verbally and in writing both within the institution and to outside constituencies such as business and governmental leaders. The position requires a well-organized and self-directed individual who is a team player with the ability to think strategically, build consensus, and engage the faculty, staff, and administration in collegial and constructive decision making. Experience with assessment programs and a record of leading successful curricular and programmatic changes based upon assessment results will be considered a major asset. The desire and ability to advance the university in curricular and other academic initiatives is important for this position. A demonstrated ability to utilize and incorporate technological innovation to advance and support learning is an important asset. Required Credentials and Education: earned MD or PhD degree from an accredited institution of higher education; a strong record of scholarly achievement and progressive teaching/leadership; medical education experience in a US medical school. The candidate should qualify for the level of full professor. Ross University offers a competitive annual salary, relocation assistance to and from the island, a deferred compensation program, medical benefits, and 35 days of paid annual leave along with opportunities for professional development. For further information concerning this position, you may contact the search committee chair at mthomas@rossmed.edu.dm or the faculty recruiter, Laura Welke, at 732-978-5300 ext: 3602. To apply, please visit our website http://www.rossu.edu; select Careers and complete our online application process. [EOE]

Assistant/Associate Professor: Barry University seeks candidate to fill one long term contract graduate faculty position beginning August 2008. PhD and teaching experience required in Histology and Medical Physiology. Expected to teach graduate students in both lecture and labs. Experience in small liberal arts college preferred. Responsibilities include academic advising, committee work, some research and/or writing grants and publishing. Strong record of teaching excellence and scholarship desirable. Send letter stating interest, complete resume, transcripts, and three letters of reference to: Ralph Laudan PhD, Associate Dean & Director Graduate Biomedical Sciences, Barry University, 11300 NE Second Ave, Miami Shores, FL 33161.

Faculty Position in Physiology and Neurobiology: The Department of Physiology and Neurobiology at the University of Connecticut, Storrs, invites applications for a non-tenure track faculty position available in fall, 2008, at the Assistant Professor-in-Residence level. The primary responsibility of the successful candidate will be to participate in the Department's undergraduate teaching. Applicants will be expected to teach human physiology and anatomy as well as beginning biology courses and to coordinate revisions of the human physiology and anatomy teaching laboratories. Applicants must possess an earned doctorate in a relevant field and be familiar with techniques and instrumentation common in a Physiology laboratory. Review of candidates will begin on June 15, 2008, and the position will start August 23, 2008. Preference will be given to applications submitted by June 15, 2008. Send curriculum vitae, a brief summary statement of teaching interests, and the names of at least three references to: Chair, In-Residence PNB Search Committee, University of Connecticut, Department of Physiology & Neurobiology, Box 4-3156, 75 North Eagleville Road, Storrs, CT 06269-3156.

Tenure-Track Faculty Position: The Department of Biomedical Sciences at the Baylor College of Dentistry, a component of the Texas A&M Health Science Center, Dallas, is seeking outstanding candidates for a tenure-track faculty position at the Assistant or Associate Professor level. A PhD or DDS/PhD in physiology, neurophysiology, immunology, neuroimmunology or a related science area is preferred. The department has recently enhanced its research infrastructure through the purchase of major core equipment and the recruitment of funded or promising scientists in developmental biology, genomics-proteomics, stem cell biology and tissue engineering. Applicants must have a demonstrated ability to establish an independent research program and to procure extramural funding. This faculty member will be expected to participate in ongoing research projects associated with current departmental research strengths that include inflammation/pain and craniofacial biology (http://bcd.tamhsc.edu/education/biomedicalsciences.html). Priority will be given to the applicant who demonstrates the skills needed for the clinical translation of laboratory discoveries. To teach in the predoctoral and graduate courses, the applicants should have a broad system-based knowledge of physiology and/or immunology. Applications will be reviewed until the position is filled. Please electronically (PDF format) submit a curriculum vita, summary of current research activities, statement of career goals, teaching philosophy, and the contact information for at least three individuals from whom letters of recommendation may be requested to: baylorposition@bcd.tamhsc.edu. For further information, please contact Dr. Phillip Kramer, Search Committee Chair (pkramer@bcd.tamhsc.edu). [EOE]

Assistant Professor: The Department of Physiology and Biophysics, Keck School of Medicine, is seeking an individual to fill an open position of

Assistant Professor of Research Physiology and Biophysics. This position is in the non-tenure track and is entirely supported by research grants and/or contracts. Candidates interested in this position should have an MD and/or PhD in the areas of Physiology/Biophysics. Postdoctoral training and peer review publications are also required. The research activities associated with this position center on in vivo metabolism. Required experimental skills include experimental design, statistical analysis, writing skills, presentation experience at scientific meetings. Individuals interested in the position should send a cop of their CV plus the names of three persons familiar with their work to: Ms. Elena Camarena, Department of Physiology and Biophysics, Keck School of Medicine, 1333 San Pablo Street, MMR 626, Los Angeles, CA 90033; Fax: 323-442-2283; Email: ecamaren@usc.edu.

Research Positions

Scientific Investigator: The University of Colorado Denver School of Medicine, Anschutz Medical Campus, Aurora, CO is seeking an established investigator with interests in the hypothalamic regulation of food intake, glucose homeostasis, or energy expenditure at the cellular/molecular level. The successful candidate will complement a well-established multidisciplinary group investigating mechanisms that underlie perturbations in energy balance, from perspectives of both whole body and end organ metabolism. This investigator will also have the opportunity to interact with researchers studying the hypothalamic-pituitary-gonadal, hypothalamic-pituitary thyroid and hypothalamo-neurohypophyseal systems. The ideal candidate would have a strong background in hypothalamic endocrinology and expertise in the pathways that control body weight. The faculty member will have the opportunity to build a research program focused on the neural control of energy balance with collaborative interactions that integrate his/her expertise with ongoing preclinical and clinical studies of metabolism. Salary range: Commensurate with qualifications and experience. To apply for this position, please log on to http://www.jobsatcu.com and reference posting 803317. [AAEOE]

Technician Position Available: A technician position in behavioral neuroscience of obesity is available at the Institute of Veterinary Physiology, Vetsuisse Faculty University of Zurich. Experience in behavioral research in rodents, surgery and standard laboratory techniques are desirable. The candidate will be part of a research group focusing on the mechanisms underlying the physiological control of food intake and body weight. Our main targets are pancreatic and gut hormones that affect the neuronal regulation of energy homeostasis. The experimental work will include behavioral studies, electrophysiological and immunohistochemical experiments, and clinical chemistry. Starting date: August 2008 Employment type: depending on the qualifications of the candidate; university-funded position with competitive salary. Environment: the research environment involves close collaboration with the group of Proff. Wolfgang Langhans and Nori Geary. Please apply to: tomlutz@vetphys.uzh.ch.

Sr. Research Pharmacologist: Follow your aspirations to Abbott for diverse opportunities, competitive salaries, great benefits, a 401(k) retirement savings plan, a company paid pension plan and profit sharing, all with a company providing the growth and strength to build your future. We are seeking a talented cardiovascular pharmacologist to perform studies using in vivo animal models to assess integrated cardiovascular and cardio-renal profiles of lead therapeutic compounds in support of discovery research. This individual should be an independent, creative and critical thinker able to develop and implement state of the art disease models to advance discovery efforts in such therapeutic areas as neurological diseases and cancer. The successful candidate will possess a PhD in the Biological sciences; additional postdoctoral training in areas relevant to integrative cardiovascular pharmacology or physiology is preferred. Extensive experience with in vivo assessment of cardiovascular and circulatory function in animal models is essential. Experience in areas of renal pharmacology and/or in vitro cellular or molecular biology techniques is a plus. Strong written and oral communication skills and the ability to work in a dynamic, fast-paced environment are key attributes. This individual's primary responsibility will be to define the cardiovascular safety profile of Abbott compounds using an anesthetized dog model. This individual must be able to manage a laboratory as well as analyze and interpret key results. Data derived from these studies are essential to determining level of risk for human subjects enrolled in early, Abbott-sponsored clinical trials. Qualifications: A PhD with emphasis in Cardiovascular Pharmacology or Physiology is required Abbott welcomes and encourages diversity in our workforce. For immediate consideration please apply at: http://appclix.postmasterlx.com/track.html?pid=402881bd192793a801194e8d2d7663e7&source=the-aps&p=codes=TAO. [EEO/AA]

Neurophysiologist: Interpret intraoperative neurophysiologic data. Record & interpret evoked potentials from surgical patients. Train two fellows. Maintain neuro monitoring equipment. Collaborate on research studies & publish articles. Present at Symposium & Congresses. PhD in Intraoperative Neurophysiology, or MD with four years of training in SEP, VEP, TcMEP & intraoperative neuromonitoring required. Published articles in any of the evoked potentials. Knowledge in PC's, DOS & Windows based operations. Mail CV to St. Luke's-Roosevelt Hospital Center, 1000 Tenth Ave., NY, NY 10019, Attn: Dr. Vedran Deletis, Director, ION, Rm 1C-02.

Research Lab Technician: Position available for one year in the laboratory headed by Dr. J. Ashot Kozak. Longer appointments are possible contingent upon funding. Requirements: Bachelor's degree in biology or biochemistry with a minimum of one year of laboratory experience with the knowledge of molecular biological techniques including preparation of plasmid DNA, gel electrophoresis, PCR amplification and primer design, cloning and site-directed mutagenesis. Motivated candidates will have opportunities to publish research results. Review of application will begin April 30, 2008 with the position starting June 15, 2008. For first consideration, submit cover letter, resume and names of three references to: Dr. J. Ashot Kozak, Dept. of Neuroscience, Cell Biology and Physiology, WSU, 3640 Col Glenn Hwy, Dayton, OH 45435 or email to: juliusz.kozak@wright.edu. WSU is an AA/EO Employer. ❖

Douglas C. Eaton Named Chair of Physiology in Emory University School of Medicine

Douglas C. Eaton, PhD, distinguished professor of physiology in Emory University School of Medicine, has been named chair of the Department of Physiology. Eaton has served as acting chair of the department since 2007 and as deputy chair since 1987. He also is a professor in the Department of Pediatrics. Eaton also served the APS as its 78th President from 2005-2006.

Eaton directs the Center for Cell and Molecular Signaling, and his research focuses on ion transport across cell membranes; cellular signal transduction; cellular and molecular biology of membrane transport; and nanosensor methods applied to clinical samples. He has been a principal investigator or co-principal investigator for more than 15 NIH grants. In 2001 he was the recipient of a Merit Award from the National Institute of Diabetes and Digestive and Kidney Diseases.

Eaton has directed the Fellowships in Research and Science Teaching (FIRST) program since 2005. FIRST is an NIH-funded fellowship program that trains postgraduate students to become researchers and teachers in the biological sciences. The program is a collaboration among Emory University and four historically minority-serving institutions within the Atlanta University Center.

Eaton received a BS degree from the California Institute of Technology and an MS degree in marine biology from the Scripps Institute of Oceanography. He received a PhD in neuroscience in 1971 from the University of California, San Diego and completed postdoctoral training at the University of California, Los Angeles.

Kayode Adeniyi, a Professor, recently affiliated with Stace College, Narangba Australia. Adeniyi had been associated with the Massey University Institute of Food Nutrition and Human Healing New Zealand.

Peter Agre is currently Director, Johns Hopkins School of Public Health, Baltimore, MD. Prior to his new position, Agre was Vice-Chancellor at Duke University Medical Center, Department of Cell Biology, Durham NC.

Markus Amann is currently a Senior Scientist at the University Zurich, Institute of Physiology, Zurich, Switzerland. Previously, Amann was a Postdoctoral Fellow, University of Wisconsin Medical School, Madison, WI.

Frank C. Barone has taken the position of Professor, Director of Basic Research, at the SUNY Downstate Medical Center, Department of Neurology, Brooklyn, NY. Prior to this position Barone was a Consultant, Wyeth Research, Discovery Translational Medicine, King of Pussia, PA.

Ben T. Chen has moved to Merck & Co, Department of Imaging, Rahway, NJ. Prior to this position Chen was at Merck Frosst Canada & Co., London, Canada.

Farhad R Danesh is currently an Associate Professor at Baylor College of Medicine, Houston TX. Prior to his new position, Danesh was at Northwestern University, Department of Medicine and Nephrology Chicago, IL.

Mark G. Davies, Professor, is now at The Methodist Hospital, Department of Cardiovascular Surgery, Houston, TX. Prior to this position, Davies was Assistant Professor, University of Rochester Medical Center, Department of Vascular Surgery, Rochester, NY.

Claire M. Doerschuk is now affiliated with the Director Center for Airways Disease, University North Carolina, Chapel Hill, NC. Previsouly, Doerschuk was Professor, Case Western Reserve University, Department of Pediatrics, Cleveland, OH.

Yasser Mohamed El-Wazir, an Associate Professor at the Suez Canal University, Faculty of Medicine, Ismailia, Egypt, was previously an Associate Professor at the King Khaled University, Department of Physiology, Abha, Saudi Arabia.

Andreas Fahlman has joined Global Diving Research, Ottawa, Ontario, Canada as a Postdoc Fellow, having moved from the University of British Columbia Marine Mammal Research Unit in Vancouver, Canada.

Bryan G. Helwig is now a Research Physiologist at USAREM, Natick, MA. Prior to this position Helwig was a Postdoctoral Fellow at the Kansas State University, Department of Anatomy and Physiology, Manhattan.

Kenneth Hoekstra, a volunteer pathologist with the American Society for Clinical Pathology, is traveling to Maseru, Lesotho (Africa) as part of the President's Emergency Plan for AIDS Relief (PEPFAR) to develop laboratory training and education programs to assist in combating the AIDS epidemic.

John D. Imig is now Professor of Pharmacology & Toxicology, Medical College of Wisconsin, Cardiovascular Research Center, Milwaukee, WI. Imig had been Associate Professor, Medical College of Georgia, Department of Physiology and Vascular Biology Center, Augusta, GA.

Flavia Jung, Associate Professor, recently affiliated with the University of Maryland, Department of Pediatrics, Baltimore, MD. Prior to this position Jung was at the Louisiana State University Health Science Center, New Orleans.

Mikito Kawamata has taken the position of Professor, Shinshu University School of Medicine, Matsumoto, Japan. Previously, Kawamata was Assistant Professor, Sapporo Medical University School of Medicine, Sapporo, Japan.

David M. Keller Assistant Professor recently affiliated with University of Texas at Arlington. He had been associated with the Presbyterian Hospital of Dallas as a Postdoctoral Fellow, Institute for Exercise and Environmental Medicine, Dallas, TX.

Andrew R. La Barbera has moved to Birmingham, AL as a Professor at the American Society of Reproductive Med., Birmingham, AL. Prior to this position La Barbara was Professor, University of Cincinnati College of Medicine, Department of Obstetrics/Gyn, Cincinnati, OH.

Jonathan Ledoux has joined the Montreal Heart Institute Research Center, Montreal, Canada as an Assistant Professor. Prior to his new position Ledoux was a Postdoctoral Associate in the Department of Pharmacology at the University of Vermont, Burlington.

Christine Maric is presently an Associate Professor in the Department of Physiology and Biophysics at the University of Mississippi Medical Center. Maric had been a Research Fellow at Georgetown University Medical Center, Washington DC.

Jasna Maronovic, a Senior Instructor at the University of Split Medical School, Split, Croatia, has moved from being a Postdoctoral Fellow at the Medical College of Wisconsin, Milwaukee.

Satoshi Matsunaga is currently a Professor Faculty of Education and Culture at the Miyazaki University, Miyazaki, Japan. Prior to his new position, Matsunaga was an Assistant Professor Research Center Urban Health Sports, Osaka City University.

Dmitry N. Mayorov has affiliated with the University of Melbourne, Department of Pharmacology, Parkville, Australia as a Senior Research Fellow. Previously, Mayorov was at the Baker Heart Research Institution, Department of Cardiovascular Neurosciences, Melbourne, Australia.

Jeremiah J. Morrissey has affiliated with the Washington University School of Medicine, Department of Anesthesiology, St. Louis, MO as a Research Professor of Anesthesiology. Prior to this position, Morrissey was Research Professor of Medicine, Barnes-Jewish Hospital North Campus, St. Louis, MO.

Koichi Nakayama has moved to the Iwate Medical University, Department of Molceular/Cellular Pharmacology, Yahaba, Japan as a Professor Head. Prior to this position Nakayama was Professor Head, University of Sizuoka, Department of Pharmacology, Shizukoa, Japan.

Tadahiro Oonishi is currently, CEO, Medical Consultation Office, Yokohama, Japan. Prior to this position Oonishi, was Research Director, Research Institution, Tokyo, Japan.

Ana M. Patois is currently a Professor at the University of California San Diego, Skaggs School of Pharmacy in La Jolla, CA. Previously, she was at the University of Texas Medical Branch, Department of Biochemistry and Molecular Biology, Galveston TX.

Sergio Ray, a Postdoctoral Fellow at Johns Hopkins University School of Medicine, Baltimore, MD, has moved from being an Associate Instructor, Pontificia University Catolica De Chile, Santiago, Chile.

William M. Selig is now Senior Director of Preclinical Development, Magen Biosciences, Groveland, MA. Prior to this position, Selig was Senior Directory Pharmacology and Toxicology, CombinatoRX Incorporated, Cambridge, MA.

Douglas H. Sweet is an Associate Professor, School of Pharmacy, Virginia Commonwealth University Richmond, VA having moved from the position of Assistant Professor at the Medical University of South Carolina, Charleston, SC.

Douglas G. Whyte has taken the position of Lecturer at the Charles Sturt University, School Biomedical Sciences, Bathurst, Australia. Prior to this position Whyte was Research Officer, University Melbourne, Howard Florey Institute, Parkville, Australia.

Xiao Qiu Xiao is now a Research Scientist and Group Leader at the lab of Metabolic Medicine, Singapore. Prior to this position Xiao was a Postdoctoral Fellow, Oregon Health & Science University, Beaverton.

Weimin Yang has affiliated with the Kunming Medical College, Yunnan Pharmacological Lab, Kunming, Peoples Republic of China as a Vise Researcher. Prior to this position, Yang was at the East Carolina University, Department of Physiology, Greenville, NC.

Cuicua Zhang has taken the position of Associate Professor at the University of Missouri, Cardiovascular Research Center, Columbia, MO. Prior to this position, Zhang was Assistant Professor, Texas A & M University, Department Vet Physiology/Pharmacy, College Station, TX.

Recently Deceased Members

Joseph A. Chromiak
Mississippi State, MS

Belmont G. Farley
Philadelphia, PA

Werner P. Koella
Oberwill, Switzerland

Robert F. Rakowski
Athens, OH

Joseph E. Rall
Bethesda, MD

G. Donald Whedon
Clearwater Beach, FL

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Vol. 51, No. 3, 2008

The Wine Wizard

Peter Wagner

Peter Wagner

I have to start this month with a reminder to try and grab the last of the 2004 Grove Street Cabernet Sauvignon ($8). This wine has appeared in this column more than once. It is easily worth three times the price. Enough said. Strong, but black fruit comes first. Structured with modest tannins and just right acid. I look forward to the 2005 when it comes.

Whites:

Yet another New Zealand SB: 2007 Matua (Marlborough) $8. Just as good as the mainstream NZ SB's which sell for $12-15. Clean, herbal/gooseberry, moderately high acid, grassy – the words are always the same. Identifiable, enjoyable alone or with food. Make sure the wine is not too cold. Right out of the frig it will be too tart and too lean. At about 60 degrees the fruit comes forth and the acid is less biting, and the wine is very good.

2006 Hook and Ladder Chardonnay, Russian River, $13. This wine has a lot of forward citiric lemon/lime and apple fruit and a good acid backbone that makes it crisp. However, there is a good dose of oak as well with vanilla and toast to give a nice, integrated balance to the wine.

Some good pinots are surfacing, but the damn film still makes them command unduly high prices. But if you like Pinot Noir, here are a few at reasonable prices:

2005 Fairhall Downs single vineyard Marlborough $22. Quite a big, extracted style, dark in color with spicy oak and strong cherry fruit on the nose and palate. Tannins are medium, length is excellent, but make no mistake – not elegant, but a big wine for a PN.

2006 Clay Hill, Dundee Hills, Oregon $20. Lovely forward red/dark cherry nose with some spice and oak. Palate is forward but soft in tannin and balanced in acid. Oak is in the background, the mouthfeel is light but the flavors are firm. There was a touch of sulfur that blew off.

2006 Foley, Santa Rita Hills, $27. Nose was a bit dull and almost like paint thinner, but the palate was great with excellent cherry fruit and light oak and tannin. I stick it in as a good wine, but I would never buy it if I could get the above Clay Hill for $7 less.

2005 McIntyre, Monterey $27. Nose is better, but the same comments apply – very nice cherry fruit, good length and balance but too expensive at $27 unless it appeals to you in a special way.

Some other reds:

2006 Don Gascon Malbec, Mendoza, Argentina $9. Dark cherry fruit with a touch of oak char on the nose, but a rich, full dark berry palate with nice structure of medium tannin and acid. Great value.

2005 Waterwheel, Bendigo, "Memsie" Shiraz/Cabernet $10. This is a fullbodied, fleshy red blend that is very tasty and supple, but does not have a lot of structure. There is a touch of oak char. The fruit is in the plumy direction, but very pleasant. Thus, drink soon. The 14.5% alcohol is not evident. Tannins are soft, acid a touch low, but still ok, and the wine is easy to drink as a result.

2006 Tamarack "Firehouse red" $15. This is a very appealing wine and has some structure. Get this: 54% Cabernet, 30% Syrah, 21% Merlot, 8% Cabernet Franc, 3% Sangiovese, 2% Carmenere, 2% Malbec. Nice dark fruit and slight oak char on the nose. The palate is forward and rich but not over-extracted. Good acidity makes it lively, spicy and gives it good length. There is very nice vanilla to balance the acid. It is a medium weight wine that should last a few years.

2005 Leal "San Benito" Threesome, $19. A bit more expensive, but a very appealing Rhone blend wine (Syrah 83%, Mourvedre 13%, Grenache 4%). The nose is intense with lots of dark fruit, vanilla and dry herbs (sage). Palate has soft, lush dark berry fruit with a hint of green stemminess that adds complexity. Tannin is soft, acid just right, and the length is excellent. This wine is ready now, but has the structure to age well for a few years. ❖

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Vol. 51, No. 3, 2008

Physiological Basis of Aging and Geriatrics

Fourth edition. Edited by Paola S. Timiras. New York, Informa Healthcare, 2007. 407 pp., illus., index $229.95. ISBN 978-0-8493-7305-3.

The expected length of the human life span increased dramatically in industrialized countries during the 20th century. In the United States in 1900, life expectancy at birth was about 48 years while in the early 21st century life expectancy is nearing 80 years. Even in developing countries, life expectancy, though not as high as in the industrialized countries, is increasing. Clearly, humans are aging more successfully than in the past.

During much of the last century, the study of aging was devoted to defining the biochemical and physiological changes that occurred in individuals as they aged. In particular, emphasis was on declines in physiological functions that appeared to lead to diseases and disabilities. In more recent years, however, ideas about aging have changed. Research is showing that older adults retain reasonable levels of physiological adaptability and regenerative capability that provide for adequate biological functioning and for increasing lengths of time.

The Fourth Edition of *Physiological Basis of Aging and Geriatrics*, edited by Paola S. Timiras, is certainly timely. It not only maintains the respected tradition of its predecessor editions but also extends that tradition to a recognition of the plasticity of physiological function in the aged. Its 25 chapters are grouped into three parts: Part 1, *General Perspectives;* Part II, *Systemic and Organismic Aging*; and Part III, *Prevention and Rehabilitation*. Throughout, the emphasis is on physiology combined with a liberal coverage of biochemistry and molecular biology.

Part I describes demographic, epidemiologic and comparative aspects of aging. Extensive research affirms that individuals experience aging in highly variable ways and show a wide variety of responses to it. Even for individuals of the same age, changes that occur do not involve all the same physiological functions nor do they occur to the same degree or even at the same time. Research has elucidated many of the physiological changes that occur with aging and hinted at the biological basis for at least some of them. We now better understand that functional changes that do occur with aging follow from numerous and complex interactions at diverse genetic and environmental levels.

Part I also covers current thinking about theories of aging and evaluates the evidence for each of them. Discussed are the evolutionary basis of aging and the potential roles of gene regulation, error catastrophe, free radical accumulation, programmed cell death, and altered neuroendocrine and immunologic controls.

Also considered are insights gained from studies on "comparative aging." This area considers the fact that species differ widely in longevity. Even so, relevant research has uncovered evidence for conserved metabolic pathways that appear to regulate longevity regardless of its length. Quite recent studies indicate that such conserved pathways involve insulin/IGF-1 and /or GH/IGF-1 in the very short-lived nematodes and flies; the comparatively longer-lived mice and possibly even in the much-longer lived humans.

Part II comprises the largest portion of the book and considers the vast amount of information that is accumulating on organ systems and how they age. It thoroughly covers current insights on how the body, as it ages, adjusts its physiology as it works to sustain optimal functioning and to respond to environmental changes.

Any new text on aging, to be up-to-date, must accommodate an ever-increasing number of topics. This new text succeeds at doing this in a concise, thorough and authoritative way. Body systems and organs are each discussed in terms of the structural and functional changes that occur or are likely to occur with age. However, it is also clearly shown that some organs such as the pituitary and the parathyroid glands hardly change at all with age. Further, there are only minor changes in renal function with aging. An acute form of renal failure does occur more often in the aged than in younger individuals. Even here, though, considerable progress has been made as mortality from renal failure has significantly decreased during the later years of the twentieth century.

A new view about aging of the nervous system has come into vogue. The prior view was that the nervous system severely and progressively deteriorated with age. This view was reinforced by the common observation of detrimental changes in sensory systems such as vision and hearing. In contrast, the current view is that the nervous system is quite plastic and retains the capacity to repair damage and injury into old age. Research shows that normal brain function can persist even in the very elderly.

Degenerative disease involving the cardiovascular system remains the single most important cause of death worldwide in both sexes. As people live longer, they become more susceptible to cardiovascular morbidity and ultimately mortality. Nevertheless, progress has been made in our understanding and clinical control of cardiovascular disease. Over the last 50 years, total death rates due to heart disease and stroke, in the more advanced countries at least, have declined 56% and 70%, respectively.

Though much study remains to be done to further understand the body's systems and organs, research is showing that their aging need not be as detrimental as once thought. The body retains its ability to maintain homeostasis and to respond to stress, as long as the stress is not overly severe or prolonged. For the immune system, senescence does not necessarily mean deterioration. In the elderly, innate immunity remains relatively intact. However, acquired immunity is affected and the body's capacity to cope with a major immunological stress such as a chronic or acute infection does appear to decrease. Even so, basal levels of immune function are maintained with age.

Much more interesting and up-to-date information about the aging of body systems and organs is included in Part II. In all cases, current basic and clinical aspects are covered along with updated tables and figures that emphasize current trends and new research data.

Part III considers interventions, pharmacologic, nutritional, regenerative and assistive, that further successful aging. For example, research on physical activity and its relation to physiologic aging is very active currently. Indeed, losses once thought inevitable with age, for example loss of muscle mass and strength, can be reduced or even counteracted through regular exercise.

Pharmacological medications have obvious benefits. However, they must be used cautiously because, in general, with age, the risk of side effects such as drug-drug interaction, increases.

Part III presents useful information on nutrition and diet for the elderly. Included also is the topic of caloric restriction, the use of which was first shown in the 1930s to extend the lifespan of rats. The experimental approach

to caloric restriction has been standardized and its use prolongs physiological functional competence, postpones age-related pathologies, and extends the mean and maximum lifespan of multiple species including mammals.

In the late 19th century, the theory developed that normal somatic cells are mortal with a finite capacity for replication. This theory was challenged in the first half of the 20th century but finally was vindicated in 1965. Part III discusses the recent finding that a progressive shortening of telomeres in somatic cells, other than germ cells and neoplastic cells, occurs and eventually leads to their inability to replicate. This shortening is due to the shut-down of telomerase, the enzyme that regenerates telomeres to an optimal length. A question currently being researched actively is can telomerase be kept active, with drugs for example, and, if so, will this prolong the life of tissues by keeping their complement of fully functional cells at an optimal level? A related, but very new, area of research discussed in Part III is the use of embryonic stem cells to regenerate aging tissues.

In sum, the chapters in this book are up-to-date and very informative. Each chapter is written by one or more experts and is clearly presented and well-illustrated. Each contains useful summary statements and an extensive reference list. An appealing feature of the book is that clinical issues are interspersed throughout. Overall, this is an informative and practical guide on aging for the gerontologist, the geriatrician and the interested layperson who has some background knowledge of biological, especially physiological, concepts. ❖

Dennis E. Buetow
Univ. of Illinois, Urbana-Champaign

July 3-6
The World Congress on Controversies in Cardiovascular Diseases: Diagnosis, Treatment and Interventions [C-Care], Berlin, Germany. *Information:* ComtecMed, 53 Rothchild Blvd., Tel Aviv 61000, Israel. Tel.: +972 (3) 566 6166; Fax: +972 (3) 566 6177; Email: ccare@comtecmed.com; Internet: http://www.comtecmed.com/ccare/2008/.

July 6-11
SEB at Marseille 2008, Society for Experimental Biology Annual Meeting, Marseille, France. Information: Email: k.steel@sebiology.org; Internet: http://www.sebiology.org/meetings.

July 26-30
Society for Developmental Biology 67th Annual Meeting, Philadelphia, PA. *Information:* Society for Developmental Biology, 67th Annual Meeting, 9650 Rockville Pike, Bethesda, MD 20814. Internet: http://www.sdbonline.org/2008Mtg/webpage.htm.

August 17-22
IASP 12th World Congress on Pain, Glasgow, Scotland, UK. *Information:* Fiona McGillvray or Vicki Grant, Congress Secretariat, Meeting Makers, Jordanhill Campus, 76 Southbrae Drive, Glasgow G13 1PP, United Kingdom. Tel.: +44 (0) 141 434 1500; Fax: +44 (0) 141 434 1519; Email: jasp2008@meetingmakers.co.uk; Internet: http://www.iasp-pain.org/AM/Template.cfm?Section=World_Congress_on_Pain&Template=/CM/HTMLDisplay.cfm&ContentID=3928.

September 3-7
Society of General Physiologists 62nd Annual Meeting and Symposium (SGP), Calcium Signaling and Disease, Woods Hole, MA. *Information:* Susan Shephard, Society of General Physiologists. Tel.: 508-540-6719; Fax: 508-540-0155; Email: sgp@mbl.edu; Internet: http://www.sgpweb.org/symposium2008.html.

September 8-9
1st International Symposium on Audible Acoustics in Medicine and Physiology, West Lafayette, IN. *Information:* Jo Gelfand, Weldon School of Biomedical Engineering, Purdue University, 206 S. Martin Jischke Drive, West Lafayette, IN 47907-2032. Tel.: 765-494-2996; Email: jo@purdue.edu; Internet: https://engineering.purdue.edu/Acoustics/.

September 8-15
Cardiovascular & Respiratory Systems Modeling: From Cell to Organ, Seattle, WA. *Information:* Kay Sterner, The NSR Physiome Project, Box 355061, University of Washington, Seattle, WA 98915-5061; Tel.: 206-685-2005; Email: sterner@u.washington.edu; Internet: http://www.physiome.org/Course/sept07.html.

September 11-14
Workshop on the Biology of Signaling in the Cardiovascular System, Cape Cod, MA. *Information:* Bernadette Englert, Tel: (301) 760-7745; Email: mailto:bernadette@navbo.org; Internet: http://www.navbo.org/BSCVS.

September 18-20
23rd AACVPR Annual Meeting, Indianapolis, IN. *Information:* Internet: http://www.aacvpr.org/meeting/.

September 27-28
Workshop on Mathematical Modeling of Human Metabolism and Body Weight Regulation, Bethesda, MD. *Information:* Kevin Hall. PhD, Investigator, Laboratory of Biological Modeling, National Institute of Diabetes & Digestive & Kidney Diseases, NIH, 12A South Drive, Room 4007, Bethesda, MD 20892-5621. Tel.: 301-402-8248; Fax: 301-402-0535; Email: kevinh@niddk.nih.gov; Internet: http://www.mitacs.ca/conferences/HMBW/.

September 28-October 2
XXII International complement Workshop, Basel, Switzerland. *Information:* Administrative Secretariat, ICW, C/O AKM Congress Service, Clarastrasse 57, PO Box 4005, Basel, Switzerland. Tel.: +41 61 686 77 11; Fax: +41 61 686 77 88; Email: info@akm.ch; Internet: http://www.akm.ch/ICW2008/.

October 20-November 1
19th International Symposium on the Autonomic Nervous System, Kauai, HI. *Information:* Anita Zeller, AAS Executive Secretary, 18915 Inca Avenue, Lakeville, MN 55044, USA, Tel.: 952-469-5837; Fax: 952-469-8424; Email: zeller.anita@mayo.edu.

October 23-26
The 2nd World Congress on Controversies in Neurology (CONy), Athens, Greece. *Information:* ComtecMed, Congress Organizers, 53 Rothschild Boulevard, PO Box 68, Tel Aviv, 61000, Israel. Tel.: +972-3-5666166; Fax: +972-3-5666177; Email: info@comtecmed.com; Internet: http://comtecmed.com/cony/2008/.

October 30-November 2
The 2nd World Congress on Controversies in Diabetes, Obesity and Hypertension (CODHy), Barcelona, Spain. *Information:* Comtec Headquarters & Administration, 53 Sderot Rothschild, PO Box 68, Tel Aviv, 61000, Israel. Tel.: 972-3-5666 166; Fax: 972-3-5666 177; Email: cony@comtecmed.com; Internet: http://www.codhy.com/.

October 30-November 2
2008 Biophysical Society Discussions: Calmodulin Modulation of Ion Channels, Asilomar, CA. *Information:* Alexandra Frager, Meetings Assistant, Biophysical Society, 9650 Rockville Pike, Bethesda, MD 20814. Tel.: 301-634-7325; Fax: 301-634-7133; Email: afrager@biophysics.org; Internet: http://www.biophysics.org/discussions/.

October 31-November 1
International Congress Laser Medicine, Laser Florence 2008, Florence, Italy. *Information:* Internet: http://www.laserflorence.org/.

November 11-15
58th Annual Meeting of the American Society of Human Genetics, Philadelphia, PA. *Information:* The American Society of Human Genetics, 9650 Rockville Pike, Bethesda, MD 20814. Tel.: 1-866-HUM-GENE; Fax: 301-634-7079; Email: society@ashg.org; Internet: http://www.ashg.org/2008meeting/.

MEMBERSHIP APPLICATION FORM

The American Physiological Society

1. Check membership category you are applying for: ❑ Regular ❑ Affiliate ❑ Student
2. Do you currently hold membership in the APS? ❑ Yes ❑ No
3. If you answered yes to above, what is your category of Membership?_____ Year elected?_____
4. Name of Applicant: _____ / _____ / _____
   Last Name or Family Name *First Name* *Middle Name*
5. Date of Birth_____ / _____ / _____ Optional: Male ❑ Female ❑
   Month *Day* *Year*
6. Institution Name_____ Department_____
   (Please do not abbreviate Institution Name)
7. Institution Street Address_____
8. City/State/Zip/Country_____
9. Home Address ***(Students only)***_____
10. Work Phone_____ Home Phone _____
11. Fax_____ E-mail_____

12. **EDUCATIONAL STATUS:** ▶ **IMPORTANT for STUDENTS: **If you are enrolled as a student for an advanced degree (Ph.D., M.D., D.V.M.) please include the month and year you expect to receive your degree.**

Dates**	Degree	Institution	Major Field	Advisor

13. **WHAT IS YOUR SECTION AFFILIATION?** Please identify and rank up to three sections to which you desire affiliation. (e.g., 1 = primary affiliation, 2 = secondary affiliation, 3 = tertiary affiliation). **There can be only one "Primary" affiliation.**

___Cardiovascular	___Endocrinology & Metabolism	___Renal Physiology
___Cell & Molecular Physiology	___Environmental & Exercise Physiology	___Respiration Physiology
___Central Nervous System	___Gastrointestinal & Liver Physiology	___Teaching of Physiology
___Comparative & Evolutionary Physiology	____Neural Control & Autonomic Regulation	___Water & Electrolyte Homeostasis

14. **DO YOU WORK IN INDUSTRY?** ❑ YES ❑ NO

15. **SPONSORS** (Sponsors must be Regular APS Members. If you are unable to find sponsors, check the box below, and we will locate them for you.)

CHECK THIS BOX IF APPLICABLE: ❑ Please locate sponsors on my behalf.

#1 Sponsor Name_____
Mailing Address_____

Phone_____
Fax_____
E-mail_____
Sponsor Signature*_____

#2 Sponsor Name_____
Mailing Address_____

Phone_____
Fax_____
E-mail_____
Sponsor Signature*_____

**signature indicates that sponsor attests applicant is qualified for membership.*

▶ **Please turn over for more questions...and mailing instructions.**

Membership Application (Continued...)

Applicant Last Name (please print)_____

16. OCCUPATIONAL HISTORY [Check if student ❒]

Current Position:

Dates	Title	Institution	Department	Supervisor

Prior Positions:

Dates	Title	Institution	Department	Supervisor

17. 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.

18. DOCTORAL DISSERTATION TITLE (if applicable):

_____

19. POSTDOCTORAL RESEARCH TOPIC (if applicable):

_____

_____

20. WHICH FACTOR INFLUENCED YOU TO FILL OUT OUR MEMBERSHIP APPLICATION?

❑ Mailer ❑ Meeting (Which meeting?_____) ❑ Colleague ❑ Other_____

Mail your application to: Membership Services Department, The American Physiological Society
9650 Rockville Pike, Bethesda, Maryland 20814-3991 (U.S.A.)
(or fax to 301-634-7241) ***(or submit online at:*** *www.the-aps.org/membership/application.htm)*

Send no money now—you will receive a dues statement upon approval of membership.

Approval Deadlines: Membership applications are considered for approval on a monthly basis.

Questions? Call: 301-634-7171, Fax: 301-634-7241, E-mail: members@the-aps.org , Web: www.the-aps.org

R/ 2005