



# The Physiologist

## Association of Chairs of Departments of Physiology 2004 Survey Results

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The Association of Chairs of Departments of Physiology annual survey was mailed to 182 physiology departments throughout the US, Canada, and Puerto Rico. A total of 89 surveys were returned, for a response rate of 49%. This rate is slightly higher than that of the 2003 survey (46%). Of the 89 surveys returned, there were 57 public and 29 private medical schools.

The data provide the reader with general trends of faculty, overall departmental budgets, and space available for research. For the first time, ACDP has 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 Council decided to no longer collect or report these data. Data are still provided though on tenure, gender, and ethnicity of faculty (see Faculty Information). Also included

for the first time 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 (see Student/Trainee Information).

Institutional information is provided in the group of tables labeled Institution Summary. Departmental budget information (see Institutional Financial Information) shows type of support, faculty salaries derived from grants along with negotiated indirect costs to the departments. The last table (Complete Ranking According to Total Dollars) ranks responding Institutions according to their total dollars, research grant dollars, and departmental space. Space averages are presented as research, administration, teaching and other. ❖

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**AVAILABLE  
NOW!**

**IUPS 2005  
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Published bimonthly and distributed by  
The American Physiological Society

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

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Printed in the USA

## Faculty Information

### Faculty Summary (n=1616)

	Male	Female	Total
Asian/Pacific Islander	143	45	188
Black (not Hispanic)	17	7	24
Hispanic	36	15	51
Native American	18	5	23
White (not Hispanic)	969	282	1,251
Foreign National	63	18	79
<b>Total</b>	<b>1,244</b>	<b>372</b>	<b>1,616</b>

### Medical Physiology Course Type

	Yes	No	Total Responded
Integrated Disciplines	44	39	83
Traditional	46	39	85
Within Traditional	58	24	82

### Tenure Status in each department by degree

	Tenured	Not Tenured	Not Eligible	Total
MD	31	2	15	48
PhD	950	39	345	1,334
2 Doctorates	65	3	19	87
Other	17	0	22	39
<b>Total</b>	<b>1,063</b>	<b>44</b>	<b>401</b>	<b>1,508</b>

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

	Student Type	Average (hours)	Number (inst.)
<b>Lab Hours</b>	Graduate	286.34	44
	Medical	28.64	50
	Other	65.67	24
<b>Lectures</b>	Graduate	88.49	77
	Medical	48.22	83
	Other	68.37	52
<b>Small Group</b>	Graduate	55.04	53
	Medical	34.07	68
	Other	25.84	19

### Teaching Interactions

MD/DO	77
DDS	26
DVM	6
Allied Health	41
Pharmacy	23
Other Biomedical	50
Life Science	37
Bioengineering	29
Other	17

## Student/Trainee Information

### Student/Trainee Summary

<i>US citizen / resident aliens</i>			
Predoctoral male	497	Postdoctoral male	221
Predoctoral female	487	Postdoctoral female	178
<i>Foreign</i>			
Predoctoral male	278	Postdoctoral male	493
Predoctoral female	273	Postdoctoral female	349

### Ethnicity of each pre- postdoctoral student/trainee

	Pre-doctoral		Postdoctoral	
	Male	Female	Male	Female
Native American	3	7	2	1
Asian/Pacific Islander	48	47	25	31
Black (not Hispanic)	30	45	12	6
Hispanic	23	31	16	11
White (not Hispanic)	393	357	166	129

### US Citizen/Resident alien postdoctoral trainee completions:

	Male	Female
Native American	4	2
Asian/Pacific Islander	15	16
Black (not Hispanic)	10	10
Hispanic	7	6
White (not Hispanic)	83	68
<b>Total</b>	<b>119</b>	<b>102</b>

### Average Annual Stipend (US \$)

	Average	Number
Postdoctoral	\$35,185	83
Pre-doctoral	\$20,216	84

### Predoctoral Trainee Completions Trainees completing doctoral work during year ending 6/30/2004.

	Total
Female	141
Male	162
<b>Total</b>	<b>303</b>

### Foreign National predoctoral trainee completions:

	Male	Female
African	1	0
Asian/Pacific Islander	18	20
Central/South American	2	2
European/Canadian, etc.	18	13
Middle Eastern	1	4
Other	3	0
<b>Total</b>	<b>43</b>	<b>39</b>

## Student/Trainee Information (continued)

### Number of Foreign Pre- Postdoctoral Students/Trainees

	Predoctoral		Postdoctoral	
	Male	Female	Male	Female
African	3	4	11	2
Asian/Pacific Islander	148	169	289	157
Central/South American	18	12	23	31
European/Canadian, etc.	63	60	112	111
Middle Eastern	29	13	30	25
Other	6	8	24	17
<b>Total</b>	<b>267</b>	<b>266</b>	<b>489</b>	<b>343</b>

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

	Pre-doctoral	Postdoctoral
Institutional	214	48
Research Grants	323	713
Private Foundations	11	28
Home (foreign) Gov.	12	9
Other	18	10
<b>Total</b>	<b>578</b>	<b>808</b>

## Institution Summary

### Type of Institution

Private	29
Public	57
Other	3
<b>Total</b>	<b>89</b>

### Space Controlled by Department (n=88)

	Average
Research Space	18,809
Administrative Space	3,338
Teaching Space	3,066
Other Space:	3,022
<b>Total Space</b>	<b>25,576</b>

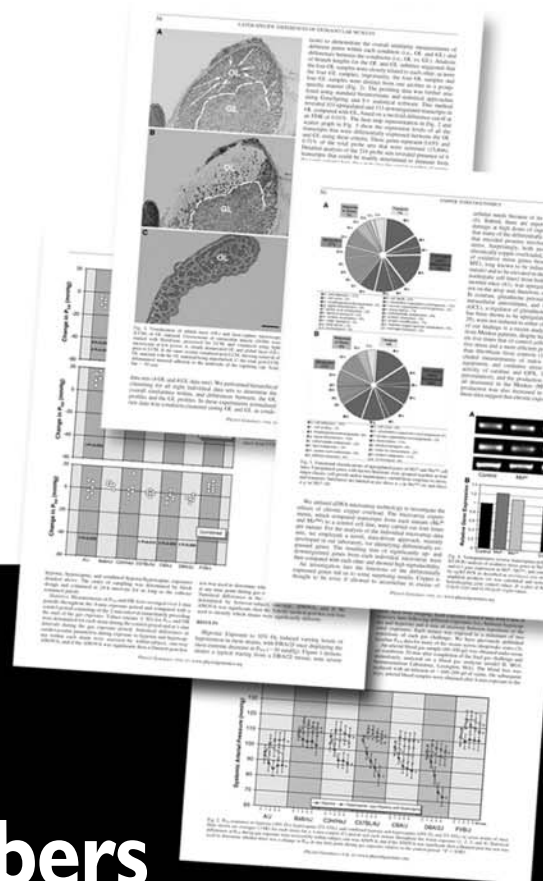
## Institutional Financial Information

### Budget by Institution

	All Institutions		Private Medical		Public Medical		Nonmedical	
		No.		No.		No.		No.
Institutional (Hard money, e.g., operating costs, state allocations)	\$1,805,927	86	\$1,600,676	26	\$1,706,842	44	\$2,110,263	16
Outside Research Grants and Contracts (direct costs only)	4,814,715	86	6,142,023	26	3,802,743	44	4,499,378	16
Training Grants (direct costs only)	316,146	51	467,496	18	213,730	27	267,214	6
Endowments	398,923	41	627,464	10	347,706	21	221,600	10
Indirect Cost Recovery (amount returned to your department)	427,164	56	892,440	9	211,844	35	177,207	12
Other Budget Support (identify)	442,856	68	863,580	15	270,448	41	194,540	12
<b>Average Departmental Budget</b>	<b>7,626,627</b>		<b>9,114,823</b>		<b>6,227,211</b>		<b>7,127,156</b>	

### Financial Information

Current fringe benefit rate most frequently used for Primary faculty	26.15 (n=89)
Federally negotiated indirect cost rate for FY 04-05 off campus	26.76 (n=67)
Federally negotiated indirect cost rate for FY 04-05 on campus	49.79 (n=87)
Percentage of allocated salary dollars directly returned to your department	70.86 (n=57)
Percentage of indirect costs returned to your department	20.78 (n=59)
Percentage of total faculty salaries derived from research grants (does not include fringe benefits costs)	36.34 (n=86)



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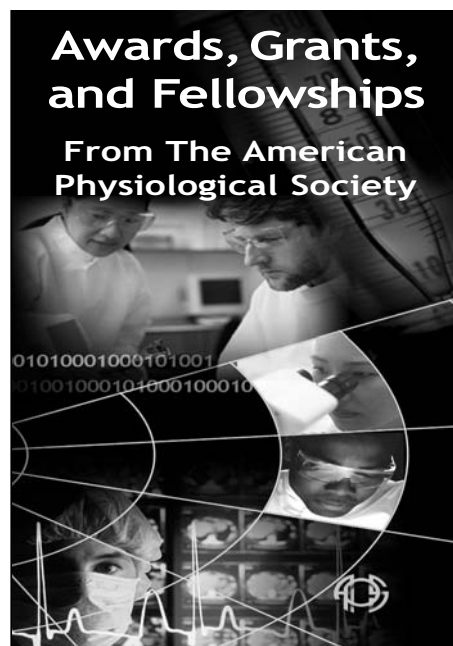
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## Complete Ranking According to Total Dollars

Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank
Total	Research	Research	Research	Research	Total	Total	Research	Research	No. of	
Dollars	Grant	Grant	Dollars/	Dollars/	Research	Research	Dollars/	Dollars/	faculty	
	Dollars	Dollars	Faculty	Faculty	Space	Space	sq ft	sq ft		
1	\$60,607,976	26	\$ 5,179,392	13	\$ 369,957	67	11,384	9	455	14
2	23,006,180	2	18,650,780	1	1,434,675	19	24,680	2	756	13
3	22,440,731	1	19,312,763	3	689,742	1	49,831	18	388	28
4	21,435,990	4	15,047,442	2	1,074,817	11	31,125	7	483	14
5	19,785,756	6	10,810,870	11	400,403	34	20,812	5	519	27
6	16,928,379	5	13,455,181	7	463,972	17	26,333	6	511	29
7	16,361,233	3	15,643,781	6	521,459	3	38,157	14	410	30
8	12,685,133	8	9,022,161	22	300,739	29	23,039	17	392	30
9	12,288,963	9	7,968,792	32	265,626	39	18,718	12	426	30
10	11,672,534	22	5,907,948	26	281,331	33	21,835	33	271	21
11	10,670,633	11	7,627,787	18	331,643	9	32,805	40	233	23
12	10,615,334	24	5,644,961	25	282,248	22	24,297	42	232	20
13	10,510,195	15	6,663,430	16	350,707	4	37,920	55	176	19
14	10,375,338	19	6,330,095	24	287,732	5	37,578	57	168	22
15	10,092,730	17	6,493,623	46	216,454	14	28,788	46	226	30
16	9,918,690	13	6,961,389	14	366,389	12	30,755	45	226	19
17	9,716,970	23	5,744,529	29	273,549	69	10,941	4	525	21
18	9,703,059	44	3,828,306	30	273,450	64	12,318	24	311	14
19	9,633,932	16	6,655,000	8	415,938	27	23,109	29	288	16
20	9,256,935	12	7,392,352	20	321,407	46	17,531	13	422	23
21	9,146,857	20	6,225,654	50	207,522	16	26,384	39	236	30
22	9,046,362	10	7,860,118	12	374,291	24	23,720	23	331	21
23	8,942,831	28	4,907,007	60	163,567	44	17,737	32	277	30
24	8,941,425	25	5,414,364	39	246,107	26	23,418	43	231	22
25	8,791,959	34	4,383,823	58	168,609	38	19,720	47	222	26
26	8,561,316	14	6,781,780	17	339,089	40	18,427	19	368	20
27	8,464,000	37	4,225,000	21	301,786	6	36,000	76	117	14
28	8,333,040	55	3,233,241	31	269,437	80	7,451	11	434	12
29	8,319,378	21	6,177,928	10	411,862	23	23,932	35	258	15
30	8,189,643	54	3,264,378	68	148,381	61	12,729	36	256	22
31	7,883,424	42	3,906,949	65	156,278	7	34,837	78	112	25
32	7,409,719	40	3,924,255	57	170,620	18	24,954	64	157	23
33	7,206,818	50	3,551,822	74	118,394	42	17,900	49	198	30
34	7,190,208	29	4,702,205	42	235,110	50	16,128	27	292	20
35	7,181,189	32	4,567,116	66	152,237	21	24,591	54	186	30
36	7,139,739	30	4,685,349	61	161,564	15	28,547	60	164	29
37	7,113,250	49	3,557,972	49	209,292	20	24,657	68	144	17
38	6,996,500	36	4,350,000	56	174,000	13	30,500	69	143	25
39	6,895,153	18	6,392,595	4	581,145	32	22,153	28	289	11
40	6,508,481	47	3,670,678	54	183,534	31	22,390	61	164	20
41	6,471,058	60	2,953,748	43	227,211	41	18,059	62	164	13
42	6,193,756	33	4,516,153	62	161,291	8	34,361	74	131	28
43	5,961,122	41	3,908,189	33	260,546	77	8,385	8	466	15
44	5,612,850	51	3,542,419	53	186,443	35	20,464	56	173	19
45	5,604,458	31	4,606,700	15	354,362	52	15,600	25	295	13
46	5,552,315	73	1,987,000	75	116,882	89		89		17
47	5,544,690	27	5,060,145	40	240,959	43	17,828	31	284	21
48	5,515,005	48	3,625,372	27	278,875	28	23,070	65	157	13
49	5,467,266	71	2,400,399	64	160,027	37	20,104	75	119	15
50	5,424,288	38	4,058,061	23	289,862	55	14,097	30	288	14
51	5,387,801	52	3,351,575	34	257,813	45	17,535	51	191	13
52	5,369,269	62	2,859,937	70	136,187	36	20,269	71	141	21
53	5,338,035	39	3,929,222	69	140,329	25	23,555	59	167	28
54	5,288,197	63	2,832,379	52	202,313	68	11,183	37	253	14

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
55	5,212,085	59	2,962,755	37	246,896	60	12,749	41	232	12
56	5,105,594	65	2,672,659	51	205,589	47	17,259	66	155	13
57	5,091,272	43	3,900,733	28	278,624	72	9,558	15	408	14
58	5,046,058	74	1,911,767	76	112,457	56	13,529	70	141	17
59	4,877,046	53	3,341,863	41	238,705	74	9,267	21	361	14
60	4,821,178	72	2,164,167	47	216,417	54	14,881	67	145	10
61	4,663,032	76	1,610,901	63	161,090	75	8,608	52	187	10
62	4,494,473	35	4,381,929	44	219,096	59	13,000	22	337	20
63	4,493,679	61	2,901,930	19	322,437	85	3,843	3	755	9
64	4,487,291	58	2,964,475	36	247,040	57	13,512	48	219	12
65	4,472,718	75	1,864,271	79	103,571	2	47,744	84	39	18
66	4,467,730	69	2,510,198	77	109,139	58	13,500	53	186	23
67	4,359,017	67	2,617,225	55	174,482	51	15,647	58	167	15
68	4,305,630	68	2,583,209	67	151,953	70	10,526	38	245	17
69	4,267,449	66	2,643,454	72	125,879	48	16,699	63	158	21
70	4,072,103	57	3,016,047	35	251,337	66	11,400	34	265	12
71	4,063,100	70	2,465,320	38	246,532	62	12,500	50	197	10
72	3,927,999	64	2,754,298	48	211,869	73	9,338	26	295	13
73	3,856,735	56	3,033,238	45	216,660	78	8,368	20	362	14
74	3,822,210	45	3,716,586	9	412,954	84	4,570	1	813	9
75	3,380,220	77	1,594,605	80	93,800	53	15,511	79	103	17
76	3,028,755	82	883,649	81	88,365	65	11,719	81	75	10
77	2,966,682	81	935,670	82	49,246	63	12,455	82	75	19
78	2,959,549	79	1,380,344	78	106,180	71	9,809	72	141	13
79	2,828,878	86	214,138	86	21,414	79	8,102	85	26	10
80	2,750,803	80	1,260,860	71	126,086	83	5,534	44	228	10
81	2,712,354	83	844,042	83	46,891	82	6,165	73	137	18
82	2,117,797	78	1,489,120	59	165,458	86	3,760	16	396	9
83	2,090,855	87	210,300	88	12,371	49	16,292	87	13	17
84	1,387,305	84	319,535	85	35,504	81	7,291	83	44	9
85	1,327,638	7	10,135,325	5	533,438	30	22,623	10	448	19
86	1,056,519	88	76,854	89	9,607	76	8,483	88	9	8
87	999,339	85	215,000	84	35,833	88	2,600	80	83	6
88	703,796	89	71,500	87	14,300	87	3,527	86	20	5
89		46	3,697,377	73	123,246	10	32,159	77	115	30



## Awards, Grants, and Fellowships

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Liverpool John Moores Univ., UK
- Elisabeth R. Barton**  
Univ. of PA Sch. of Dental Med.
- Brad Jon Behnke\***  
Texas A&M Univ.
- Helmi Ben Saad**  
Faculty of Med. of Sousse, Tunisia
- Robert Brenner**  
Univ. of Texas Health Sci. Ctr.
- Brad R.S. Broughton**  
Univ. of New Mexico
- Brian D. Burrell**  
Univ. of South Dakota
- Shannon Campbell**  
Tyco Healthcare, CA
- Antonio Canedo**  
Univ. of Santiago De Compostela, Spain
- Luis F. Canosa**  
Univ. of Alberta, Canada
- Francisco C. Sanchez**  
Max Planck Inst., Germany
- Ming-Lung Chuang**  
Buddhist Tsu Chi Gmmel Hosp., Taiwan
- Neva Ciftcioglu**  
NASA Johnson Space Ctr., TX
- Maurizio Corbetta**  
Washington Univ. Sch. of Med., MO
- Horace M. DeLisser**  
Univ. of Pennsylvania
- Krishnan M. Dhandapani\***  
Univ. of Connecticut
- Carsten J. Duch**  
Freie Univ., Berlin, Germany
- Zeljko Dujic**  
Univ. of Split Sch. of Med., Croatia
- Marshall B. Dunning**  
Med. College of Wisconsin
- Patrizia Ferrari**  
Prassis Res. Inst. Sigma-Tau S.P.A., Italy
- Albert F. Fuchs**  
Univ. of Washington
- Peter A. Goldstein**  
Cornell Univ., NY
- Helmut B. Gottlieb**  
Univ. of Texas
- Lei Guo**  
Harvard Med. School, MA
- Charles H. Halsted**  
Univ. of California, Davis
- Cathy J. Hatcher\***  
Cornell Univ., NY
- Hal K. Hawkins**  
Shriners Burns Hosp., TX
- Timothy Edwin Hewett\***  
Cincinnati Children's Hosp., OH
- Scott L. Hooper**  
Ohio Univ.
- Guocun Huang**  
Univ. of TX Southwestern Med Ctr.
- Jian Huang**  
Univ. of TX Southwestern Med. Ctr.
- Pingbo Huang**  
Hong Kong Univ. of Sci/Tech
- Robert P. Jankov**  
Sunnybrook & Women's Coll., Canada
- Jorgen Jensen**  
Univ. of Oslo, Norway
- Harinath Kasiganesan**  
Med Univ. of South Carolina
- Shigeo Kawada**  
Univ. of Tokyo, Japan
- Pawel R. Kiela**  
Steele Mem. Children's Res. Ctr., AZ
- Hitoshi Kita**  
Univ. of Tennessee, Memphis
- Sulev Koks**  
Univ. of Tartu, Estonia
- Walter A. Koltun**  
Penn State Hershey Med. Ctr.
- You Komagiri**  
Iwate Med. Univ. Sch. of Med., Japan
- Laszlo Komuves**  
Corgentech Inc., CA
- Christoph Korbmacher**  
Univ. Erlangen-Nurnberg, Germany
- Angel D. Kurtev**  
Medical Univ., Sofia, Bulgaria
- Dieter F. Kutz**  
Univ. of Bologna, Italy
- Graham D. Lamb**  
La Trobe Univ., Australia
- Scott Edward Lankford\***  
Natl. Ctr. Water Aquaculture, WV
- Chae Hun Leem**  
Univ. of Ulsan Coll. of Med., South Korea
- Lisa A. Lesniewski\***  
Univ. of California, San Diego
- Richard Leung**  
Univ. of Toronto, Canada
- Dimin Li**  
New York Medical College
- Yonghai Li**  
Kansas State Univ.
- Madeline Lindqvist**  
Karolinska Inst., Sweden
- Jennifer L. Lucitti\***  
Children's Hospital of Pittsburgh, PA
- Shane K. Maloney**  
Univ. of Western Australia
- Kathleen M. Marr**  
Lakeland College, WI
- Susan A. Marsh\***  
Univ. of Alabama, Birmingham
- Rajamma Mathew**  
New York Medical College
- Michael Mckinley**  
Univ. of Melbourne, Australia
- Masao Mizuno**  
Ribe County Hosp., Denmark
- Consuelo Morgado-Valle**  
Univ. of California, Los Angeles
- Razavi H. Moshref**  
Texas A&M Univ.
- Kazuyoshi Nakamura**  
Iwate Medical Univ., Japan
- Yasutomu Nomura**  
Yamagata Univ., Japan
- Alexander V. Ovechkin\***  
Univ. of Louisville, KY
- Alan R. Parrish**  
Texas A&M Univ.
- Viktor M. Pastukh**  
Univ. of South Alabama
- Bente Klarlund Pedersen**  
Univ. Hosp. Rigshospitalet, Denmark
- YeQing Pi**  
Molecular Cardiology Inst., NJ
- Suzanne Porszasz-Reisz**  
Charles R. Drew Univ., CA
- JianYong Qian**  
Henry Ford Hospital, MI
- Andres Quintanar-Stephano**  
Univ. Autonoma De Aguascalientes, Mexico
- Ganesan Ramesh**  
Penn State College of Medicine
- Nasser Mostafa Rizk**  
Mansoura Fac. Med., Egypt
- Patrick D. Roberts**  
Oregon Health & Science Univ.
- Walter E. Rodriguez**  
Univ. of Louisville, KY



- Terry B. Rogers**  
Univ. of Maryland School of Med.
- Hiroyuki Sakurai**  
Tokyo Women's Medical Univ., Japan
- Reza Shadmehr**  
Johns Hopkins Univ., MD
- Donald Shaw**  
Augustana College, IL
- S. Murray Sherman**  
Univ. of Chicago, IL
- Winnie W.C. Shum**  
Chinese Univ., Hong Kong
- Richard Sindelar**  
Uppsala Univ., Sweden
- Thomas C. Skalak**  
Univ. of Virginia
- Stephen J.M. Skinner**  
Living Cell Technologies NZ Ltd.,  
New Zealand
- Christopher L. Smelley**  
Louisiana State Univ.
- Marc A. Sommer**  
Univ. of Pittsburgh, PA
- James A. Stewart**  
Univ. of South Carolina
- Olaf Strauss**  
Univ. of Hamburg, Germany
- Baogen Yu Su**  
Columbus Children's Res. Inst., OH
- Suk Hyo Suh**  
Ewha Women's Univ., Republic Korea
- Tadayoshi Takeuchi**  
Osaka Prefecture Univ., Japan
- Kechun Tang**  
Univ. of California, San Diego
- Scott C. Thomson**  
Univ. of California, San Diego
- Jagan Nath Thupari**  
Johns Hopkins Univ., MD
- Yingaro Tian**  
Virginia Commonwealth Univ.
- Lars Tomanek**  
Univ. of California, Davis
- Stephen John Trumble**  
National Marine Mammal Lab, WA
- Bruce A. Vallance**  
Univ. of British Columbia Children's  
Hosp., Canada
- Frank Van Bel**  
Univ. Medical Center,  
The Netherlands
- Manuel J. Villalon**  
Pontificia Univ., Catolica De Chile
- Sandra P. Villanueva**  
Pontificia Univ. Catolica De Chile
- Ulrich Hans Von Andrian**  
Harvard Univ., MA
- Pierre-Yves Von der Weid**  
Univ. of Calgary, Canada
- Gexin Wang**  
Univ. of Maryland School of Dentistry
- Xinhua Wang**  
Univ. of Texas Southwestern Med. Ctr.
- Rachel J. Webb**  
Univ. College of London, UK
- David S. Weiss**  
Univ. of Alabama, Birmingham
- Marianne Wessling-Resnick**  
Harvard Univ., MA
- Bruce J. West**  
Army Research Office, NC
- Jeffrey A. Whitsett**  
Cincinnati Children's Hosp., OH
- Donglan Xia**  
Univ. of Texas Southwestern Med. Ctr.
- Lusha Xiang**  
Univ. of Mississippi
- Jie Xu**  
Univ. of Cincinnati, OH
- Katsuhiko Yokoi**  
Seitoku Univ., Japan
- Syed I.A. Zaidi**  
Howard Univ., DC
- Rong Zhang**  
Univ. of California, Los Angeles
- Xiao Lei Zhang**  
New York Medical College
- Ying Zhang**  
Beijing Sport Univ., China
- Weixin Zhao**  
Wake Forest Univ., NC
- Yingbi Zhou**  
Ohio State Univ., OH
- Bing Zhu**  
Univ. of South Alabama
- Noah Paul Zimmerman\***  
Univ. of Southern Mississippi
- Sergey L. Znoyko**  
Med. Univ. of South Carolina

## New Student Members

- Kara L. Achen**  
Univ. of Colorado
- Cecilia Acuin**  
Cornell Univ., NY
- Mansoor Ahmad**  
New York Med. College
- Samar Al-Maalouf**  
Ohio State Univ.
- Gabriela Aleman**  
Inst. Natl. De Ciencias Med Y  
Nutricion, Mexico
- Fabiano Amorim**  
Univ. of New Mexico
- Felix Anyomi**  
Oklahoma State Univ.
- Merlin Ariefdjohan**  
Purdue Univ., IN
- Luz Arocho**  
Univ. of Puerto Rico
- Erman Aytac**  
Istanbul Univ., Turkey
- Amelia Bailey**  
Univ. of Mississippi Med. Ctr.
- Mark Bailey**  
Univ. of Pittsburgh, PA
- Tejus Bale**  
State Univ. of NY, Stony Brook
- Animesh Barua**  
Russian Slovak Univ.
- Holly Bauser**  
Indiana Univ.
- Silize Becker**  
King's College, London, UK
- Francoise J. Benay**  
Univ. of Colorado, Boulder
- Dellice Berezan**  
Univ. of Alberta, Canada
- Lui Yan Chan**  
Univ. of Hong Kong
- Jian Chen**  
Univ. of Alabama, Birmingham
- Kaewon Cho**  
Purdue Univ., IN
- Jason A. Clayton**  
Univ. of NC, Chapel Hill
- Helena E. Costa**  
Rutgers Univ., NJ
- Joana Dado**  
Texas A&M
- Thomas Dawson**  
Univ. of Oxford, England
- Shekhar Deo**  
Univ. of North Texas
- Pooamjot Deol**  
Univ. of California, Riverdale
- Ketaki Desai**  
Texas A&M Univ.
- Anushika DeSilva**  
King's College, London
- Goksel Dikmen**  
Istanbul Univ., Turkey
- Ankur Dnyanmote**  
Univ. of Louisiana, Monroe
- Dolores Doane**  
Univ. of Illinois

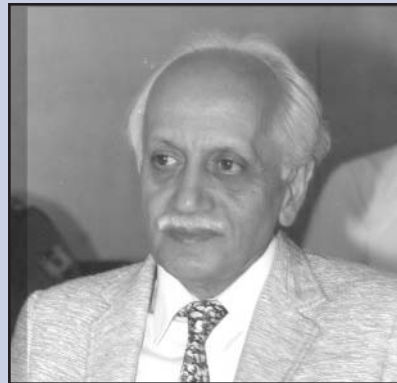
- Catherine Dreiza**  
Arizona State Univ.
- Deborah Enns**  
Univ. of Western Ontario
- Steven K. Esser**  
Univ. of Wisconsin, Madison
- Adebola Fabiyi**  
Univ. of Oxford, England
- Glen E. Foster**  
Univ. of Calgary, Canada
- Daniel A. Galvao**  
Edith Cowan Univ., Australia
- Tom Gee**  
Loughborough Univ., UK
- Melissa Georgi**  
SUNY, Stony Brook, NY
- Patricia Gonzales**  
NIH/NHLBI, Bethesda, MD
- Matthew Goodwin**  
Auburn Univ., AL
- Frederick D. Gregory**  
Univ. of California, Los Angeles
- Anurag Gupta**  
Univ. Women's Hosp., Switzerland
- Kathryn Hagedorn**  
Univ. of Alberta, Canada
- Elizabeth Heilig**  
Harvard Univ., MA
- Daniel Hodyc**  
Univ. of Prague, Czechoslovakia
- Sharon Hom**  
Univ. of Arizona
- Archana Iyer**  
Penn State Univ.
- Azita Jacobson**  
New York Med. College
- Mallika Jainu**  
Univ. of Madras, India
- Nili Jin**  
Oklahoma State Univ.
- Aditya Joshi**  
Univ. of Texas Medical Branch
- Stephanie Kaestle**  
Charite-Univ., Berlin, Germany
- Hermien E. Kan**  
Radbud Univ., The Netherlands
- Yevgeniya Kashman**  
Univ. of Illinois, Chicago
- Muthu Kathiresan**  
Sri Ramachandra Med. Coll., India
- Benjamin Kautza**  
Winona State Univ., MN
- Pimonrat Ketsawatsomkron**  
Medical College of Georgia
- Kyoung-Han Kim**  
Univ. of Toronto, Canada
- Nicolas D. Knuth**  
Univ. of Michigan
- Brian J. Krawiec**  
Penn State College of Med.
- Maya Kumar**  
Tufts Univ., MA
- Lee Kun-Ze**  
Nat'l Taiwan Normal Univ.
- Christopher Ladipo**  
Univ. of Lagos, Nigeria
- Johanne M. Lewis**  
Mem. Univ., Newfoundland
- Gang Li**  
Univ. of Texas Med. Branch
- Na Li**  
Univ. of Louisville, KY
- Yuk Yin Li**  
Univ. of Hong Kong
- Congrong Lin**  
Rush Univ., Chicago, IL
- Barbara J. Lutjemeier**  
Kansas State Univ.
- Tyson J. MacCormack**  
Mem. Univ., Newfoundland
- Debaki Maduweqeder**  
Monash Univ., Australia
- Kevin Malley**  
New Jersey City Univ.
- Yingying Mao**  
Temple Univ., PA
- Andrea Marjerrison**  
Ball State Univ., IN
- William F. Martin**  
Univ. of Connecticut
- Sarah K. Melville**  
Univ. of Western Ontario
- Paula C. Mendonca**  
Mem. Univ., Newfoundland
- Maureen Meyer**  
Saint Louis Univ., MO
- Jeffrey Mills**  
SUNY Upstate Med. Univ., NY
- Christopher Mingone**  
New York Med. Coll.
- Shikha Mishra**  
Univ. of California, San Diego
- Prabhakara R. Nagareddy**  
Univ. of British Columbia, Canada
- Bernhard Nausch**  
Univ. of Vermont
- Lydia Nausch**  
Univ. of Vermont
- Erik R. Nelson**  
Univ. of Calgary
- Sophia Nimphius**  
Edith Cowan Univ., Australia
- Lina Nordquist**  
Uppsala Univ., Sweden
- Ololade Olaoye**  
Univ. of Lagos, Nigeria
- Elizabeth Orr**  
Univ. of Alberta
- David Osmond**  
Med. College of Georgia
- Bolanle B. Owokunle**  
Univ. of Lagos, Nigeria
- Sara Paiva**  
Georgetown Univ., DC
- Yee Man Flora Pang**  
Univ. of Calgary, Canada
- Gustavo Pedrino**  
Univ. Fed De Sao Paulo, Brazil
- Karen Porter**  
Univ. of Florida
- Vijay Ramakrishnan**  
Oklahoma State Univ.
- Anne Riquier**  
Univ. of Southern California
- Edelmaine Rivera**  
Ponce School of Med., Puerto Rico
- Rachel Rubino**  
Univ. of Missouri, Columbia
- Bhaskaran Santosh**  
Univ. of Pune, India
- Natalie B. Schweitzer**  
Miami Univ., OH
- Anagha S. Sen**  
Tulane Univ., LA
- Gulnar Shahid**  
Univ. of Houston, TX
- Arti Sharma**  
Univ. of North Texas, Fort Worth
- Jianzhang Shen**  
Univ. of Missouri, Columbia
- Shang-an Shu**  
Univ. of California, Davis
- Sunhapas Soodvilai**  
Mahidol Univ., India
- Joy Stacey**  
Ocean Science Ctr., St John's, Canada
- Mesia Steed**  
Univ. of Louisville, KY
- Premkumar Sundararajan**  
Sri Ramachandra Med. College, India
- Hye-Young Sung**  
Daegu Univ., South Korea
- Nasser Syed**  
Iowa State Univ.
- Bonnie Teague**  
King's College, London, UK
- Candice M. Thomas**  
Univ. of Louisville, KY
- Jason Tilan**  
Georgetown Univ., DC
- Jonathan D. Toot**  
Univ. of Akron, OH
- Aaron J. Trask**  
Wake Forest Univ., NC
- Mario Trevino-Villegas**  
Centro De Investigacion, Estud Avanzados, Mexico
- Shigeharu Tsuda**  
Univ. of Florida

- Ehizokhai Uhumuavbi**  
Ambrose Alli Univ., Nigeria
- Emmanuel K. Uzum**  
Ambrose Alli Univ., Nigeria
- Diederik Van Bodegom**  
Tulane Univ., LA
- Shivakumar Vasanth**  
Cleveland Clinic Foundation, OH
- Harish Vasudevan**  
Univ. of British Columbia, Canada
- Amanda Versteilen**  
VU Univ. Med. Ctr., Amsterdam
- Christian Vidal**  
SUNY Upstate Med. Univ., NY
- Suzanne Vinson**  
Saint Louis Univ., MO
- Ashley E. Walker**  
Univ. of Colorado
- Xiaohong Wang**  
Univ. of Alabama, Birmingham
- Jittima Weerachayaphorn**  
Univ. of Texas Medical Branch
- TingTing Weng**  
Oklahoma State Univ.
- Clintoria Williams**  
Univ. of Alabama, Birmingham
- Sarah Williams**  
Univ. of Adelaide, Australia
- Jason B. Winchester**  
Louisiana State Univ.
- Joshua S. Wooten**  
Texas Women's Univ.
- Douglas Wright**  
Louisiana State Univ.
- Yalie Wu**  
Univ. of Alabama, Birmingham
- Paulette Yamada**  
Univ. of New Mexico
- Nuray Yazihan**  
Ankara Univ. Fac. of Med., Turkey
- Hongying Zhang**  
Loma Linda Univ., CA
- Jian-Liang Zhang**  
Hong Kong Baptist Univ.
- Qian Zhang**  
Medical College of Georgia
- Dan Zheng**  
Univ. of Southern California

## Recently Deceased

- Adamu Alemayehu**  
La Jolla, CA

## Autar Singh Paintal (1925-2004)



**Autar Singh Paintal**

**Autar Singh Paintal**, an icon of post-war cardio-pulmonary physiology, died on December 21, 2004 in Delhi at age 79 years. He was elected to the Royal Society of Edinburgh, as well as to the Royal Society. The Government of India awarded him the *Padma Vibhushan*.

He was an honorary member of the American Physiological Society.

Born in Mogok, Burma (now Myanmar), Paintal's scholastic career was meritorious as a medical student and later, a postgraduate student in physiology at the King George's Medical College, Lucknow, India. Subsequently, while completing a PhD in **David Whitteridge's** laboratory in Edinburgh, UK, Paintal achieved a breakthrough by developing the single-fiber technique for recording afferent impulses from individual sensory receptors. Using this novel approach, Paintal discovered several sensory receptors including atrial B receptors, pulmonary J-receptors, ventricular pressure receptors, stomach stretch receptors, and muscle pain receptors. The single fiber technique was widely

used, and so great was its impact that Corneille Heymans (Nobel Prize, 1938) and Eric Neil coined the terms *pre-Paintal* and *post-Paintal* to recognize the new era in physiological understanding.

In 1953 Paintal returned to India where as head of the VP Chest Institute, and later

of the Council of Medical Research, he tirelessly promoted physiological research, this writer being one of many who were inspired by his scientific enthusiasm. Those who knew him will remember his incisive intellect, his youthful charm and his graciousness. He championed the highest standards of scientific conduct and scientific method, accepting no compromise on the quality and elegance of experimental data. These were the hallmarks of his research. His wife and partner in science, Ashima Anand, of New Delhi, India, his daughters Anita, of Bombay, India and Priti, of Kent, UK, and his son, Gautam, of Lincoln, UK, survive him. ❖

*Jahar Bhattacharya,  
Columbia University*

## Bowditch Award Lecture

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

More information on the award and nomination procedures are available at <http://www.the-aps.org>. Nominations should be sent to: The APS Bowditch Lecture Award, c/o Linda Jean Dresser, 9650 Rockville Pike, Bethesda, MD 20814-3991; or submitted online at [http://www.the-aps.org/cgi-bin/Election/Lecture\\_form.htm](http://www.the-aps.org/cgi-bin/Election/Lecture_form.htm).

## APS Receives Funding to Develop Interactive, Online, Professional Development Courses

APS is pleased to announce that it has received a three-year grant from the National Institute of General Medical Sciences of the National Institutes of Health to develop professional skills courses for trainees based on the "APS/ACDP List of Professional Skills for Physiologists and Trainees."

The overall goal of the grant is to promote the development of key professional skills, particularly among minority graduate and postdoctoral students in biomedicine by creating effective live, online, and CD-ROM short courses. Specifically, the project will develop and disseminate two

proven live, web, and CD-ROM short courses that focus on two critical skills areas. Each course will include a strong focus on the interaction of racial/ethnic background and culture with the development of these skills.

Products from the project will include:

- print materials to allow easy replication of the live course;

- CD-ROMs that can be used to take each course individually or as a seminar group; and

- online interactive web courses that can be accessed at any time by individuals or groups or as part of a regularly

offered web course, led by experienced biomedical researchers and mentors.

An Advisory Board will guide the selection of topics, development of materials, and selection of participants for the workshops. It will also help in the development of the web courses and in coordinating the interactive portions of the web courses.

An evaluation component will document progress on the project activities, dissemination of the courses, and impacts on participants.

For more information, contact the APS Education Office ([education@the-aps.org](mailto:education@the-aps.org) or 301-634-7132). ❖

## Resource Website Created for Medical Physiology Course Directors

The APS Education Committee in conjunction with Association of Chairs of Departments of Physiology (ACDP) has developed a new website to bring together key resources to assist course directors in the development and conduct of medical physiology courses.

The website will include resources in 10 major areas:

- Course Administration
  - Medical Physiology Learning Objectives
  - Teaching Methods and Materials
  - Content Resources
  - Assessment of Students
  - Evaluation of Course
  - Curriculum Design
  - Course Director Roster
  - Educational Meetings & Conferences
  - Faculty Development Resources
- Before the site can go live, however,

additional materials are needed to enrich the pages. For a list of materials that are needed, please contact Melinda Lowy in the APS Education Office ([mlowy@the-aps.org](mailto:mlowy@the-aps.org)). Anyone with material that they are willing to share can send the actual documents or appropriate link to **Rob Carroll** ([carrollr@mail.ecu.edu](mailto:carrollr@mail.ecu.edu)) or Melinda Lowy at APS ([mlowy@the-aps.org](mailto:mlowy@the-aps.org)). If someone is willing to share but does not want the material freely available to members, contact information can be put up in its place on the web site.

The web site structure was developed by a working group that included both APS and ACDP members. APS members included **Rob Carroll** (APS Education Committee Chair, East Carolina Univ.), **Martha Blair** (Univ. of Rochester Med. Center), **Jeffrey Freedman** (SUNY Upstate), and

**Thomas Schmidt** (Univ. of Iowa). ACDP members were **Mike White** (Drexel Univ.), **Robert Gunn** (Emory Univ.), and **Robert Blair** (for Robert Foreman, Univ. of Oklahoma). The group met via email and conference call to develop a detailed listing of topics that should be included in a resource website for medical physiology course directors.

APS already provides continuing education resources, such as the EB Refresher Courses (and related *Advances in Physiology Education* articles), peer-reviewed teaching materials via both *Advances* and the APS Archive of Teaching Resources digital library and, in conjunction with the ACDP, developed the *Medical Physiology Learning Objectives*. ❖

## 2005-2006 Porter Physiology Fellows Announced

The APS and Porter Physiology Development Committee congratulate the 2005-2006 APS Porter Physiology Fellows from the first round of applications:

- Jessica Clark**, Univ. of Arizona;
- Damon Jacobs**, Univ. of North Carolina, Chapel Hill;
- Lymari López-Díaz**, Univ. of Michigan;
- Walson Metzger**, UMDNJ;
- Adrienne L. Orr**, Stanford Univ.;
- Aida Erendira Ulloa**, Colorado

State Univ.

**Clintoria Latrice Williams**, Univ. of Alabama at Birmingham.

The Porter Physiology Fellowships for minorities are one-year fellowships that provide a stipend of \$18,000. The fellowships are open to underrepresented ethnic minority applicants (African Americans, Hispanics, Native Americans, Native Alaskans, or Pacific Islanders) who are citizens or permanent residents of the United States or its territories. Applicants must have

been accepted into or currently be enrolled in a graduate program pursuing an advanced degree in the physiological sciences. For more information, see the APS website at [http://www.the-aps.org/education/minority\\_prog/porterfell.htm](http://www.the-aps.org/education/minority_prog/porterfell.htm) or contact Melinda Lowy in the APS Education Office at [education@the-aps.org](mailto:education@the-aps.org) or 301-634-7132. There will only be one deadline for 2005-2006 applications, which will be **January 15, 2006**. ❖

## APS Supports 13 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. Up to 12 fellowships are funded each summer. The program was established in 2000, making this the sixth year of the program.

In addition, this year there is an additional UGSRF student, sponsored by the "Explorations in Biomedicine"

grant for Native American students from the National Institute of General Medical Sciences at the National Institutes of Health.

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.

This year 42 applicants vied for the 13 fellowships. ❖

### The American Physiological Society 2005 UGSRF Awardees

#### Student/Student Institution

(\*Explorations UGSRF student)

**Manasi P. Bhate**

Oberlin College

**Jenna E. Coalson**

Stanford Univ.

**Carol Ann Duke\***

Univ. of Alabama at Birmingham

**Jennifer M. Edwards**

Michigan State Univ.

**Aaron D. Fain**

Univ. of Kentucky

**Adrian A. Feijo**

Univ. of Maryland, Baltimore Co.

**Jarem B. Lloyd**

Weber State Univ.

**Robert A. Overton, Jr.**

Univ. of North Carolina, Charlotte

**Nirmala Ramalingam**

Rutgers Univ.

**Bryan J. Tokarchic**

Juniata College

**Kathryn V. Tormos**

Benedictine Univ.

**Jared M. Winikor**

Univ. of Florida

**Erin A. Wyatt**

Univ. of Kentucky

#### Research Host/Host Institution

**Kevin Strange**

Vanderbilt Univ.

**Kaushik P. Patel**

Univ. of Nebraska

**Michael McCracken and Dale J. Benos**

Univ. of Alabama, Birmingham

**J.R. Haywood**

Michigan State Univ.

**Jeffrey L. Osborn**

Univ. of Kentucky

**Catherine F.T. Uyehara**

Tripler Army Medical Center

**J. David Symons**

Univ. of Utah

**Inna Sokolova**

Univ. of North Carolina, Charlotte

**Ralph M. Siegel**

Rutgers Univ.

**Gregory L. Stahl**

Brigham and Women's Hospital

**Alison K. Wilson**

Benedictine Univ.

**Charles E. Wood**

Univ. of Florida

**Jeffrey L. Osborn**

Univ. of Kentucky

## 2005 Teacher and Research Host Awards

APS is pleased to announce the recipients of the 2005 "Frontiers in Physiology" and "Explorations in Biomedicine" Professional Development Fellowship awards. These nationwide fellowship programs pair a middle or high school teacher with an APS member to conduct biomedical research during the summer. Other fellowship components include a weeklong teaching forum during which the teachers explore inquiry-based teaching, physiology lessons, effectively using the Internet in the classroom and equity issues in science education. The fellowship continues after the summer as the teachers participate in online professional development units and field-test their own inquiry-based classroom activity and concludes when the teachers attend EB 2006.

The "Frontiers in Physiology" grant also provides funding for local sites to select teacher/research host teams. The Local Site Teams, one at Indiana University School of Medicine lead by **C. Subah Packer** and one at the University of South Dakota lead by **Barbara E. Goodman**, each selected a teacher/researcher team. In addition to funding from the APS, a grant from the National Institute of General Medical Sciences at the National Institutes of Health supports the "Explorations in Biomedicine" program. The "Frontiers in Physiology" program receives funding from the National Center for Research Resources Science Education Partnership Awards (SEPA) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health.

In total, the APS will have 20 Professional Development Fellows this year. Please join us in congratulating and welcoming the 2005 teacher and research host teams. More information about these fellowship programs is available at the Frontiers in Physiology (<http://www.the-aps.org/education/frontiers/index.htm>) and the Explorations in Biomedicine (<http://www.the-aps.org/education/expl/index.htm>) websites.

### 2005 Explorations in Biomedicine Professional Development Fellow & Research Host

#### Silas Counts

Lodge Grass High School, Lodge Grass, MT  
**Robert W. Grange**, Virginia Polytechnic Inst. and State Univ.

### 2005 Frontiers in Physiology Professional Development Fellows & Research Hosts National Awards

#### Michael Aprill

Random Lake High School, Random Lake, WI  
**Michael B. Dwinell**, Medical College of Wisconsin

#### Ginna G. Barreda

Norwood Junior High School, Sacramento, CA  
**Anne A. Knowlton**, Univ. of California, Davis

#### Peggy Dabel

Adams Middle School, Richmond, CA  
**John G. Forte**, Univ. of California, Berkeley

#### Fanette H. Entzminger

Farmville Central High School, Greenville, NC  
**Christopher J. Wingard**, Brody School of Medicine,  
Eastern Carolina Univ.

#### Tara Goetschkes

Walter Panas High School, Cortlandt Manor, NY  
**Akos Koller**, New York Medical College

#### Katrenia Hosea-Flanigan

Frank Cody High School, Detroit, MI  
**Benedict R. Lucchesi**, Univ. of Michigan Medical School

#### Elleen Hutcheson

Rogers High School, Rogers, AR  
**Charles E. Riggs, Jr.**, Univ. of Arkansas

#### Toni Lafferty

C.H. Yoe High School, Cameron, TX  
**David C. Zawieja**, Texas A&M Univ. HSC

#### Brian McClain

Amos P. Godby High School, Tallahassee, FL  
**Timothy S. Moerland**, Florida State Univ.

#### Yvette McCulley

King Science and Technology Magnet School, Omaha, NE  
**David H. Petzel**, Creighton Univ. School of Medicine

#### Gregory W. McCurdy

Salem High School, Salem, IN  
**Jeff C. Falcone**, Univ. of Louisville HSC

#### Rebecca McGehee

Harwood Junior High School, Bedford, TX  
**Tony G. Babb**, Presbyterian Hospital of Dallas/  
UT Southwestern Medical Center

#### Laura Noonan

Coronado Middle School, Coronado, CA  
**Jason X.-J. Yuan**, Univ. of California, San Diego

#### Kenneth A. O'Konis

South Windsor High School, South Windsor, CT  
**Edward Bilsky**, Univ. of New England College of Medicine

#### Cecilia Stingley

Academy of Learning-West, West Allis, WI  
**Diane H. Munzenmaier**, Medical College of Wisconsin

#### Jessica Tiatia

Westmoor High School, Daly City, CA  
**Robert S. Turner**, Univ. of California, San Francisco

## Greenleafs' Gift to Endow an Environmental and Exercise Physiology Award

**Dr. John and Carol Greenleaf** of Saratoga, CA have made a bequest in the amount of \$500,000 to the Society. The gift will allow the APS to create the John and Carol Greenleaf Award in Environmental and Exercise Physiology. The Award will recognize an individual who has conducted research designed to solve significant human health and performance problems. The applicant must have at least 50 publications, 25 of which utilized humans as test subjects. Because of the importance of the *Journal of Applied Physiology* in John Greenleaf's career, the Greenleaf Award recipient must also be first author on at least 20 research papers published in the *Journal of Applied Physiology*.

John Greenleaf holds three degrees from the University of Illinois. He earned a bachelor's degree in physical education in 1955 and earned his master's and doctoral degrees, both in physiology, in 1962 and 1963, respectively. He also holds a master's degree from New Mexico Highlands University in Las Vegas.

Immediately upon earning his PhD, he took a position as research physiologist at the NASA Ames Research



**Dr. John and Carol Greenleaf**

Center near Stanford University, where he established and directed the Laboratory for Human Environmental Physiology in the Life Sciences Division. He was a prolific contributor to scientific journals, especially in the areas of thirst and drinking, heat acclimatization, bed rest, deconditioning, dehydration and space physiology. He has received awards from the Aerospace Medicine Association, NASA, the American College of Sports Medicine, and in 1998 was honored with the distinguished Alumnus Award by the University of Illinois

Department of Molecular and Integrative Physiology. Greenleaf retired from NASA in 2002.

Greenleaf has been a member of the American Physiological Society since 1970 and has been active participant in the activities and programs of the Environmental and Exercise Physiology Section. He has also been an active contributor to the Society's journals, both as an author and a member of editorial boards.

John met his wife Carol at the University of Illinois, Urbana-Champaign. They have been married since 1960.

"The APS is extremely pleased and grateful to John and Carol Greenleaf for their generous gift. It will allow the Society to recognize the importance of research in the areas of human health and performance and the role of the *Journal of Applied Physiology* in the dissemination of this research. The bequest will assist the Society in its efforts to expand the APS Award Program and will serve to encourage the APS membership to consider making their own bequests in order to leave a legacy to physiology," said **Martin Frank**, APS Executive Director. ❖

### Leslie Van

Montgomery Blair High School, Silver Spring, MD  
**Margery Anderson/Rina Das**, Walter Reed  
Army Institute of Research

### 2005 Frontiers in Physiology Professional Development Fellows & Research Hosts South Dakota Local Site Team Awards

#### Sally Stoll

Vermillion Middle School, Vermillion, SD  
**Barbara E. Goodman**, Univ. of South Dakota

### 2005 Frontiers in Physiology Professional Development Fellows & Research Hosts Indianapolis Local Site Team Awards

#### George Potter

Seymour High School, Seymour, IN  
**C. Subah Packer**, Indiana Univ. School of Medicine

## Gift Planning Opportunities

APS is pleased to invite the membership to consider including APS in their gift giving plans. In the past, the Society has received donations of land and securities, all of which have been used to launch the Society's young investigator award programs.

Many options exist if you are interested in including the APS and its Endowment Fund in your financial or estate planning. Some options include:

**Immediate Gifts:** Cash, gifts of appreciated securities, gifts of closely held stock, gifts of tangible personal property, retirement assets, charitable lead trusts and gifts of real estate.

**Life Income Gifts:** Gift annuities, deferred payment gift annuities, charitable remainder trusts, charitable remainder unitrusts, and charitable annuity trusts.

**Gifts of Insurance:** Ownership of life insurance policies can be donated, or the APS can become the beneficiary of policies owned by others.

**Designated Gifts:** Gifts given to honor or memorialize an individual or an organization; can include scholarships, programs, etc, which are specified for support and named for individuals.

**Gifts by Will:** Bequests of a percentage of estate, stated dollar amount or specific property or assets.

For more information on gift giving to APS, please contact Martin Frank, Executive Director (301-634-7118; mfrank@the-aps.org), or Robert Price, Director of Finance (301-634-7173; rprice@the-aps.org).

## APS Testimony on Funding for Federal Science Agencies

On April 28, 2005, Congress passed an FY 2006 budget resolution that will hold domestic discretionary spending to \$843 billion. The blueprint for spending also assumes an overall 1% cut in funding available for non-defense, non-homeland security programs, including federally funded scientific research. Consequently, there are great concerns about funding prospects for the fiscal year that will begin this October 1.

Once the budget is in place, the next step in the process is for the House and Senate Appropriations Committees to draft spending legislation for the federal agencies and programs within their purview. A new wrinkle this year is the fact that while both the House and the Senate reorganized the Appropriations Subcommittees, the House ended up with 10 subcommittees, while the Senate ended up with 12. This is expected to create further complications when it is necessary to produce final versions of the spending legislation.

Each year, APS submits to the Appropriations Subcommittees the Society's recommendations concerning funding levels for biomedical research programs at the National Institutes of Health (NIH), National Science Foundation (NSF), National Aeronautics and Space Administration (NASA) and Department of Veterans Affairs (VA). These recommendations are developed in conjunction with FASEB, the Ad Hoc Group for Medical Research Funding, and other advocacy organizations. The testimony itself includes justification based on examples of successful research endeavors.

### NIH

*The following is an excerpt from testimony submitted to the House Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies. See link to full testimony below.*

"The recently completed doubling of the NIH budget has allowed the agency to expand and take on a variety of existing and emerging chal-

lenges in biomedical science. Investment in the basic and applied sciences plays an important role in the continued health and prosperity of our nation, and increased NIH funding has allowed researchers to explore science on a new scale. In order to build on existing knowledge and develop new technologies, NIH funding must continue to support the biomedical research enterprise. Faltering levels of funding, such as the 0.7% increase recommended by the administration, will discourage the best and brightest minds from pursuing careers in the sciences, and will hamper the efforts of researchers already at work.

"The NIH operates on a scale that permits it to look broadly at areas of biomedical research that need attention. The NIH maintains a diverse portfolio of research activities ranging from research on common diseases with obvious public health implications to basic science studies that contribute to a body of knowledge whose application can only be determined over time. Physiology provides the foundation upon which translational research builds, ultimately working towards therapies and prevention strategies.

"The NIH plays many critical roles in advancing biomedical research. The NIH provides opportunities for individual researchers at universities and medical schools throughout the country to compete for research funds based upon the scientific merit of their ideas. NIH also carries out other functions including:

- sponsoring research training opportunities for young scientists and physicians;

- funding major collaborative initiatives that bring together multiple institutions with diverse resources;

- providing the public with up-to-date information about the latest research on various diseases and health conditions through individual institutes and online resources such as MedLine Plus and [ClinicalTrials.gov](http://ClinicalTrials.gov);

- supporting unique science education programs, particularly for underserved minority students; and

- funding innovative research through the NIH Roadmap initiative.

"The APS joins the Federation of American Societies for Experimental

Biology (FASEB) and the Ad Hoc Group for Medical Research Funding in urging that NIH be provided with a 6% funding increase in FY 2006 to permit the agency to maintain its current wide-ranging and important research efforts. This forward-looking approach to our nation's biomedical research efforts is much to be preferred over the administration's proposed increase of 0.7%, which would force the NIH to contract its research portfolio, thus leaving many important projects unfunded." (<http://www.the-aps.org/pa/action/news/fy06-nih.htm>)

### NSF and NASA

Testimony for the NSF and NASA was submitted in the form of a letter to all members of the House Appropriations Subcommittee on Science, State, Justice and Commerce and the Senate Appropriations Subcommittee on Commerce, Justice and Science.

In support of NSF funding, APS stated that "the basic science initiatives funded by the NSF are driven by the most fundamental principles of scientific inquiry, exploring questions that might seem to lack immediate practical application. In fact, the relevance of the knowledge gained will only become apparent over time." The APS also expressed support for education initiatives at NSF, drawing attention to recent budget cuts and pointing out that NSF as a science agency is uniquely qualified to foster excellence in science and math education. The APS joined FASEB and the Coalition for National Science Funding in recommending the NSF budget be increased to at least \$6 billion in FY 2006, and pointed out that the administration recommendation of a \$5.61 billion budget falls short of 2004 funding levels.

In support of funding for NASA, APS pointed to the profound physiological stress caused by long-term space flight and the need to conduct more research into the biomedical challenges of manned space exploration. The APS expressed concern that while the overall budget for NASA is slated to increase, the proposed allocation for Human Systems Research and Technology theme of

*(continued on page 107)*



Experimental  
Biology

2006<sup>®</sup>

Advancing the  
Biomedical Frontier

**The Moscone Convention Center  
San Francisco, CA  
April 1-5**

**Participating Societies:**

American Association of Anatomists (AAA)  
The American Physiological Society (APS)  
American Society for Biochemistry and Molecular Biology (ASBMB)  
American Society for Investigative Pathology (ASIP)  
American Society for Nutritional Sciences (ASNS)  
American Society for Pharmacology and Experimental

## The ASCB 45th Annual Meet December 10-14, 2005, San Francisco

Zena Werb, President ■ Linda Hicke, Program Chair ■ Aaron Straight, Local Arrangements Chair

### KEYNOTE SYMPOSIUM

**Saturday, December 10**  
Big Science, Little Science

*Linda Buck*, Fred Hutchinson Cancer Research Organization/HHMI  
*Clare Fraser*, The Institute for Genomic Research

### SYMPOSIUM

**Sunday, December 11**

**Quantitative Studies of Cell Signaling Networks—8:00 am**  
*Marc Kirschner*, Harvard Medical School  
*Garry Nolan*, Stanford University  
*Peter Sorger*, Massachusetts Institute of Technology

**Prokaryotic Origins of the Cytoskeleton—10:30 am**  
*Harold Erickson*, Duke University Medical Center  
*Christine Jacobs-Wagner*, Yale University  
*Dyche Mullins*, University of California, San Francisco

**Monday, December 12**  
**Wiring the Nervous System—8:00 am**  
*Hollis Cline*, Cold Spring Harbor Laboratory  
*Anirvan Ghosh*, University of California, San Diego  
*Yishi Jin*, University of California, Santa Cruz/HHMI

**Adapting to Stress: Spotlight on Organelles—10:30 am**  
*Tom Rapoport*, Harvard Medical School/HHMI  
*David Ron*, New York University School of Medicine  
*Richard Youle*, National Institute of Neurological Disorders & Stroke/NIH

**Tuesday, December 13**  
**Reprogramming Cell Fate—8:00 am**  
*Helen Blau*, Stanford University  
*John Gurdon*, Wellcome Trust/Cancer Research UK  
*Markus Grompe*, Oregon Health & Science University

### MINISYMPOSIA

**Building Sensory Networks**  
*Herwig Baier*, University of California, San Francisco  
*Gero Miesenboeck*, Yale University School of Medicine

**Cargo Sorting & Vesicular Transport**  
*Robert Piper*, University of Iowa  
*Anne Spang*, Max Planck Institute, Tuebingen

**Cell Biology of the Synapses**  
*David Colman*, McGill University  
*Janet Richmond*, University of Illinois

**Cell Migration/Motility**  
*Peter Friedl*, University of Würzburg  
*Carole Parent*, National Cancer Institute/NIH

**Chromatin Dynamics**  
*Terumi Kohwi-Shigematsu*, Lawrence Berkeley National Laboratory  
*Danesh Moazed*, Harvard Medical School

**Coordinating Adhesion & Signaling**  
*Avri Ben-Ze'ev*, Weizmann Institute of Science  
*Vania Braga*, Imperial College London

**Coordination of Cytoskeletal Networks**  
*William Bement*, University of Wisconsin, Madison  
*Talila Volk*, Weizmann Institute of Science

**Cytoskeletal Dynamics in Living Cells**  
*Velia Fowler*, The Scripps Research Institute  
*Steven Gross*, University of California, Irvine

**Cytoskeletal Molecular Motors**  
*Susan Gilbert*, University of Pittsburgh  
*Margaret A. Titus*, University of Minnesota

**Differentiation & Cancer**  
*John Cleveland*, St. Jude Children's Research Hospital  
*Xi He*, Children's Hospital, Boston

**Epithelial Morphogenesis & Polarity**  
*David Bilder*, University of California, Berkeley  
*Heike Fölsch*, Northwestern University

**Extracellular Matrix & Signaling**  
*Josephine Adams*, The Cleveland Clinic Foundation  
*Joanne Murphy-Ullrich*, University of Alabama at Birmingham

**Formins & Arp2/3: Regulators of Actin**  
*Henry Higgs*, Dartmouth Medical School  
*Matthew Welch*, University of California, Berkeley

**Intermediate Filaments**  
*Ueli Aebi*, University of Basel

**The Membrane Cytoskeleton**  
*Vann Bennett*, Duke University Medical Center  
*Elizabeth McNally*, University of Chicago

**Mitosis & Meiosis**  
*Dean Dawson*, Tufts University  
*William Earnshaw*, University of Edinburgh

**Neuronal Polarity & Axo-Dendritic Cytoskeleton**  
*Lorene Lanier*, University of Minnesota  
*Liqun Luo*, Stanford University

**Nuclear Compartments**  
*Joseph Gall*, The Carnegie Institution of Washington  
*Angus Lamond*, University of Dundee

**Nuclear Envelope Functions**  
*Valérie Doye*, Institut Curie, Paris  
*Howard Worman*, Columbia University College of Physicians and Surgeons

**Organelle Dynamics**  
*David Chan*, California Institute of Technology  
*Andreas Mayer*, University of Lausanne

**Pathogens Co-opting Host Cell Functions**  
*Marcia Goldberg*, Massachusetts General Hospital  
*Michael Way*, Cancer Research UK

**Protein Folding & Quality Control**  
*Judith Frydman*, Stanford University  
*Jonathan Weissman*, University of California, San Diego

**Protein Misfolding & Disease**  
*William Balch*, The Scripps Research Institute  
*Harry Orr*, University of Minnesota

**Regulating Intercellular Junctions**  
*Andrew Kowalczyk*, Emory University School of Medicine  
*Yoshimi Takai*, Osaka University

**Regulation of the Cell Cycle**  
*Alison Lloyd*, University College London  
*Peter Sicinski*, Dana Farber Cancer Institute

**RNA Silencing Mechanisms**  
*Bonnie Bartel*, Rice University  
*Greg Hannon*, Cold Spring Harbor Laboratory

**Signaling in the Immune System**  
*Jason Cyster*, University of California, San Diego  
*Michael Dustin*, New York University School of Medicine

**Signaling in 3D Environments**  
*Jeffrey Hubbell*, Swiss Federal Institute of Technology  
*Sebastian Muthuswamy*, Cold Spring Harbor Laboratory

(continued from page 104)

\$806.5 million represents a decrease of nearly 20% from the previous year. The APS joined FASEB in urging increased support for peer-reviewed research into the health risks of long-term space flight and development of appropriate countermeasures.

For full text of the letter on NSF and NASA appropriations, go to: <http://www.the-aps.org/pa/action/news/nsf-nasa06.htm>.

## VA

Testimony for the VA was submitted in the form of a letter to all members of the House Appropriations Subcommittee on Military Quality of Life and Veterans Affairs and the Senate Appropriations Subcommittee on Military Construction and Veterans Affairs.

The American Physiological Society thanked the members for their ongoing support of Medical and Prosthetic Research at the VA, and pointed out that “research that specifically addresses the medical needs of veterans is an important component of VA health care.” The APS further stated that the “VA medical research facilities across the country provide veterans access to state-of-the-art medical care” and that “in addition to focusing on research and patient care, VA medical researchers also spend time educating the next generations of physi-

cian-scientists.” The APS joined FASEB and the Friends of VA Medical Care and Health Research in calling for an increase in the VA medical and prosthetic research to \$460 million for FY 2006, with an additional \$45 million to be spent on facilities and major equipment.

To read the full letter submitted in support of VA funding, go to: <http://www.the-aps.org/pa/action/news/va06funding.htm>.

## USDA to Post E-FOIA Annual Reports

Earlier this year, the US Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) announced that it would resume electronic posting of inspection reports in March in order to comply with the electronic Freedom of Information Act amendments (e-FOIA). While inspection reports have always been subject to FOIA request, the practice of posting electronic versions to the USDA website was only begun in late 2001. It was then halted in 2002 due to security concerns raised by research institutions. However, subsequent animal rights lawsuits brought against the USDA necessitated resumption of electronic records posting. Consequently, USDA

must now abide by the requirement that any records that meet the FOIA definition of being “frequently requested” must be made available to the public through a website or electronic reading room.

In a “stakeholder update” distributed via email on May 5, 2005, USDA Deputy Administrator Chester Gipson, announced that the agency has determined that annual reports from registered research facilities also qualify as frequently requested. Consequently, annual reports were to be posted to the USDA website beginning May 10. Reports from 1999-2003 will be posted for a limited time in accordance with USDA’s records retention policies, and future reports will be posted annually. As is the case with inspection reports, USDA said it would examine each annual report and redact it to remove personal and confidential proprietary information. “We... take very seriously our responsibility under the law to protect sensitive information submitted to us in the course of our regulatory work,” said Gipson in his message.

Records can be found online at <http://www.aphis.usda.gov/ac> and institutions are encouraged to access their own records to check for accuracy and removal of appropriate identifying information. ❖

## FASEB Summer Research Conference New Insights in Polycystic Kidney Diseases: Molecular Pathways, Pathogenic Mechanisms, and Translational Applications

### Conference Topics:

- The Functional Role of Cystoproteins in Epithelial Differentiation
- Epithelial Polarity, Transport, and Cell Signaling: The Role of Cystoproteins
- Cilia/Centrosomal Dysfunction and PKD Pathogenesis
- PKD Pathways: Lessons from Comparative Genomics
- PKD as a Complex Trait
- Other Cystic Diseases and Convergent Pathways
- PKD: Extra-Renal Disease
- Biomarkers for Disease Progression
- Innovative Targeting in PKD Therapeutics.

**Dates:** August 6-11, 2005 in Saxtons River, VT  
**Information:** <http://src.faseb.org>

## Developing and Implementing a Communications Strategy: IUPS 2005 Symposium Summary

**Hannah Carey, Univ. of  
Wisconsin, Veterinary School**

Hannah Carey, chair of the APS Communications Committee, began the discussion by addressing why physiologist scientists need to communicate science to the public.

Scientists have learned how to communicate through scientific means. But there is an underlying responsibility—to explain research to taxpayers, to educate young people and the general public, to be proactive in order to increase funding for science. It can also be fun to communicate the interesting things that you do.

Scientists can learn how to communicate effectively from professionals who promote biomedical research issues on a regular basis. The APS Communications Committee invited a panel that included a print journalist and representatives from a state biomedical research organization, an institutional PR department, and a professional scientific society. They discussed how news is made and how to best communicate with the general public.

**Rosie Mestel, Los Angeles Times**

Rosie Mestel is a science and medical reporter at the *Los Angeles Times*. She became a science writer after receiving her PhD in genetics. She now writes on everything from Alfred Kinsey to Terri Schiavo to science briefs that come across the newswire. Mestel is one of eight science writers at her paper.

To decide what issues to cover, newspapers sift through all the emails, news nuggets and press releases that they receive daily. The *L.A. Times* has no science page, so they tend to look first at widely applicable science stories that are obviously breaking news (new drugs in clinical trials, immediate health threats, newly discovered remedies for common medical problems, etc.). Research either gets written up as a daily news

story or is pitched to 'Page 1' as a larger news piece. While they consider some basic research stories, items that are too incremental can be rejected. But if the research is very interesting, it is held over to be included in a feature piece. The *Times* also likes interesting and "cool" stories as well as those based on "weird phenomena."

Some stories grow to encompass much more than the original headline. For example, a story about hormone replacement therapy began as the result of a study that linked its use to heart disease. The final article addressed other issues including why so many women had been prescribed this therapy, and the specifics of how hormone replacement works in the body.

So what should you do if you think your research is of interest to the media/general public?

Let your press office know beforehand. Science news must be current and these media professionals can help get your research media-ready before the article is published.

Make yourself available as a source. Press releases are intended to provide the basics of your study, but the fundamentals need to be explained and you should be available to tell the story. Your availability can make or break an article.

Be prepared to talk to the reporter for a while. Even if it ends up being a short piece, the journalist wants to understand it. Reporters also go back to scientists who can explain things clearly.

Avoid jargon, but don't dumb it down.

Speak expressively to add color to the piece. Additionally, keep the visual aspects of your work in mind. If there is something particularly interesting to look at, consider inviting the reporter to your lab to see science for him/herself, or offer a photo.

**Gale Davy, Wisconsin Association  
for Biomedical Research  
Education (WABRE)**

Gale Davy is the Executive Director of WABRE, one of the 15 state biomedical research organizations that comprise SUBR (States United for Biomedical Research). WABRE was first established in response to the

animal rights movement in Wisconsin. WABRE's mission is to educate the public about the role that biomedical research plays in their lives; represent the biomedical research community in Wisconsin; and promote excellence in science education.

Davy emphasized the vital role communication plays in scientific research. Ineffective communication of science comes at a great cost—measured in loss of actual dollars devoted to research and in fewer scientific and medical advances that benefit the public. There is also a psychological cost and a loss of pride for scientists. Scientists have to communicate to build public support, political support, and create a productive regulatory environment.

Communicating is fundamentally an exercise in storytelling. It is telling the story of you, your work, your field and its impact. We need to humanize scientists because opponents dehumanize science based on a "higher morality." Our greatest defense is good science and good people.

When talking about your research, think about to whom you are speaking. Oftentimes, your audience dictates how you relate your message. What do they know? What do they care about? Relate your research to them in terms they understand.

In communications, it's far more important that people like you than understand you (think: politicians). Public relations is less about knowledge and more about likeability.

Protect yourself, your colleagues and science, by communicating face to face. Join a political party and support it. Meet candidates and other politicians and get face time with them. Go to political fundraisers. The public and the policymakers want to know about your work.

WABRE and other SUBR organizations can help you understand how to form your message, find your audience, outreach to people, and follow-up. Scientists should support the SUBR organization in their state and consider becoming active in its leadership. If none currently exists in your area, you can contact Davy or visit the SUBR website (<http://www.statesforbiomed.org/>) about setting up a SUBR organization near you.

## Robert Nellis, Mayo Clinic Communications

Very few papers have science pages anymore. Many publications do not see the interest in a full spread devoted to basic science. The focus today is on issues like healthcare (exercise, diet), technology, space, dinosaurs, etc. Media is now “narrowcasting” instead of “broadcasting.” Stories are more specialized, but this may provide you with a better chance of getting your story into print.

When preparing to put your research out to the public, consider the following:

**Questions to Ask:** Is my research newsworthy? Does it have widespread implications to the general public? Am I being sufficiently clear? Am I alerting people that can help with dissemination soon enough? Will I be around to respond?

**Newsworthiness:** Avoid preliminary or incremental findings. Your research must be seen as having an impact on the public. Will the general population be impacted directly? Will your science affect their pocketbook, cure their children, or go into clinical trials within the next two to three years? Is it of interest to specialty media?

**Clarity:** Avoid jargon; speak in clear and common terms. Explain the “so what?” Use analogies to explain a concept or your research if possible. Develop key messages and repeat them.

Find your own 30-second sound byte by imagining that you are in an elevator with a reporter. If you could say three things during the ride that you wouldn't want them to forget, what would they be? These points should be the basis of your message and should go into your 30-second research summary.

**Timing:** Public relations people often work with a number of research papers simultaneously, so it is important that you give them enough time to adequately help you develop your press release. Inform communications

staff in time for them to prepare. Ideally, this is as soon as your paper is accepted, but it should be at least two weeks before embargo lifts.

**Availability:** Remember that the press release is not meant to tell the whole research story. It's a teaser to get journalists interested and to encourage them to interview you. Therefore, you must be available to speak with them once the release is distributed. Be around to answer questions. Work with media staff in your institution for easy access. Free your schedule for one news cycle. Respond promptly to reporters. If a journalist can't get in touch with you before their deadline, they will likely opt not to write your story at all.

**Limited Resources:** If you don't have access to an institutional press office, that doesn't mean you should give up trying to get the word out about your research. Start even earlier, write your own lay summary and talking points, keep visuals in mind, and get outside help. You can contact your local society for biomedical research, your professional membership organization, or you can hire a freelancer.

**Realistic Expectations:** Don't expect the *L.A. Times* or *N.Y. Times* every time. Sometimes, reporters (especially at the bigger papers) just won't care. It's a crowded marketplace and not every story can be written up. But regardless, just keep trying! That is the most important thing.

Bottom line: It is in both the reporter's and your best interests to communicate science effectively. Meet them halfway!

## Mayer Resnick, APS Communications

APS was founded in 1887 to foster education, facilitate research, and promote physiology. The Society initiated the Communications Office to help reach these goals. Along with publicizing the research, APS also performs media outreach for issues like public access, the use of animals in research,

outstanding scientists who have been honored for their research, and educational programs for students and teachers.

The public focuses on the media as a source for information, which is why it is a good vehicle for disseminating research. But there is stiff competition for content. For example, United Press International (UPI) receives 250 press releases a day. APS distributes about five releases per month. Science has to be both timely and interesting to get attention.

The Communications Office gets most of its highlighted research from articles published in its journals and scientific meetings. Individual scientists can also contribute research to be publicized. Scientists should notify APS of their fascinating research early. Since APS represents many areas of physiological research, the sooner you contact the Society, the easier it is to get your science considered. This also provides APS extra time to contact your institution and get any necessary clearances out of the way before time to release your research.

Remember that sometimes, no matter how much time you spend working with a reporter, the story won't always come out the way you had intended, but it's still important to try to get the information out and to educate the public about physiology and science in general. You have gotten some experience and have hopefully established yourself as a good source.

## Hannah Carey, Univ. of Wisconsin, Veterinary School

In conclusion, physiologists should spend the time and effort needed to communicate interesting aspects of their research to the public. Talk it up. Making the effort, even if nothing comes from it, is worth it and it's easy if you love what you do.

\*The complete summary (including Q&A recap and handouts) is available at <http://www.the-aps.org/press/conference/eb05/symposium05.htm>. ❖

## The G-Connection: Harness Gravity and Reverse Aging

Joan Vernikos with Robin Hsieh  
Lincoln, NE iUniverse Inc., 2004, 282  
pp., bibliography, \$21.95 pbk  
ISBN: 0-595-32931-4 (pbk)

What a delightful book! Clearly and lucidly written with many personal anecdotes and reports from a number of astronauts that embellish the points that Vernikos is making to clearly emphasize the similarities between aging here on Earth and the changes that occur in astronauts while they are in the microgravity environment of space. Her hypothesis on gravity's role in the aging process is well-documented and well-presented. There is no question; this book will be equally beneficial to professionals and to lay audiences.

That, in fact, is one of the book's great strengths. It covers all of the topics in simple terms yet comes to grips with the most important issues dealing with aging and presents them in a way that gerontologists will appreciate and their patients understand.

The book starts with a fascinating story of early spaceflight and the efforts by the scientific community to not just understand, but to anticipate biomedical problems and provide solutions. Vernikos presents new insight into the interactions of activity and aging using easily understandable but scientifically sound descriptions. It is clear from her book that "making use of gravity" is a mainstay or necessity for a long and fruitful life.

The chapters on the supportive structures that are minimally used in space, bone and muscle, flow smoothly into the next section "Keeping the Engine Tuned" which broadly covers the control

systems of the body and points out appropriate behaviors to keep one's body healthy. The final section of the book "Preventing Damage" describes how we can eat well, avoid stress, perhaps extend our lifespan and practice "healthy aging."

One of the most helpful and interesting components of the book is that after explaining the "problems" in each chapter there is an intriguing section entitled "What You Can Do About It" which provides a practical guide for healthy living and a long and active life.

I would strongly recommend this book not just for more mature audiences but for younger individuals both hope to live a long and satisfying life by growing old gracefully. It presents new approaches in a convincing, understandable way to help all of us enjoy a prolonged and useful life. ❖

Robert W. Phillips  
Colorado State University

## Hypoxic Pulmonary Vasoconstriction: Cellular and Molecular Mechanisms

Jason X.J. Yuan MD, PhD (Editor),  
Boston, MA: Kluwer Academic  
Publishers, in 2004, 509 pp. \$139  
ISBN:1-4020-7857-9.

Hypoxic Pulmonary Vasoconstriction (HPV): Acute exposure to moderate alveolar hypoxia results in pulmonary vasoconstriction that onsets within seconds and is sustained for hours. HPV matches ventilation to perfusion and optimizes systemic oxygenation in the adult. In the fetus, HPV minimizes flow to the unexpanded lung whilst, in the newborn, reversal of HPV contributes to the fall in pulmonary vascular resistance that characterizes the transitional pulmonary circulation. HPV largely reflects the constriction of small, resistance pulmonary arteries. This homeostatic response is conserved and "HPV equivalents" are found in the gills of fish and the skin of amphibians. Chronic hypoxia, as occurs at altitude or with chronic lung disease, results in pulmonary hypertension.

In eight sections, 33 Chapters and 590 pages, Yuan's multiauthored text

provides a well-referenced account of virtually every aspect of HPV. The book introduces the reader to the study of the effects of acute and sustained hypoxia on the pulmonary circulation and the information is relevant to medicine, physiology and cell biology. The chapters deal with pulmonary vascular physiology and the many hypoxic responses, both acute (altered production of reactive O<sub>2</sub> species, ion channel modulation, elevation of cytosolic calcium, activation of the contractile apparatus) and chronic (activation of hypoxia inducible factor, altered gene transcription, enhanced cell proliferation and impaired apoptosis). The text includes discussion of both HPV and certain forms of pulmonary hypertension, reflecting the intersection of these phenomena. The book is aimed at physiologists and basic scientists, rather than physicians. It is an ideal reference text for trainees or faculty interested in oxygen sensing, high altitude physiology or pulmonary hypertension.

The contributing authors are acknowledged leaders in the field and, in an ecumenical gesture, labs with diametrically opposing views have chapters in the text. This is a strength of the book, ensuring the details of a particular theory are fully aired; however, it does require the reader to be discerning

and to use information from multiple chapters to weigh opposing theories and define probable truths. Being a multi-authored text it reflects the many differences of opinion regarding the mechanism of HPV and chronic hypoxic pulmonary hypertension extant today.

The reader will encounter diametrically opposed views on the mechanism of HPV. A compilation of opposing chapters might read as follows: The pulmonary vascular O<sub>2</sub> sensor is in the smooth muscle (versus the endothelium), and is based on the production of reactive O<sub>2</sub> species in the mitochondria (versus NADPH oxidase). Hypoxia signals HPV by creating fewer reactive O<sub>2</sub> species during hypoxia (versus more) thereby inhibiting voltage gated potassium channels (versus TASK channels) and causing membrane depolarization. Cytosolic calcium is ultimately increased by activating the L-type calcium channel (versus enhancing release of calcium release from the sarcoplasmic reticulum) and this results in activation of the contractile apparatus (versus minimal changes in cytosolic calcium but enhanced calcium sensitization resulting in HPV). This conveys the Tower of Babel that is HPV research in 2005. Thus, the onus is on the reader to carefully weigh the evi-

dence. In many cases the chapters tend to pursue a single point of view rather than acting as a weighted review. Still, the chapters, with few exceptions, are well-written and present their case clearly. Consensus gradually emerges when the reader compares facts between chapters and sections. For example there is good agreement on the role of O<sub>2</sub> sensitive K<sup>+</sup> channels and HPV in most chapters and this mechanism is supported by the chapters dealing with O<sub>2</sub> sensing in other specialized tissues, such as the carotid body.

The book is organized into eight sections. It begins with chapters on the Physiology and Pathophysiology and features an elegant review of fundamental work on the basic properties of HPV by Charles Hales, who is well positioned as an author, having made major contributions to the field. The chapter on heterogeneity of HPV, written by the late Chris Dawson, is a pleasure to read and reminds the reader that HPV is not only unique to the pulmonary circulation but is preferentially manifest in specific zones of the vasculature. One is also reminded that the Pulmonary Circulation community is poorer for the untimely loss of this quiet but insightful scientist.

Section 2, "The Role of Intracellular Calcium and Calcium Sensitization," deals with the sources of calcium that elicit HPV, covering the contributions of calcium sparks, intracellular stores and calcium entry via the L-type channels. A highlight is a nice chapter by Robertson and McMurtry on the subject of calcium sensitization, a hot area in HPV research and one with therapeutic potential in chronic hypoxic pulmonary hypertension, e.g. rho kinase inhibitors.

In section 3, "The Role of Ion Channels," there is substantial concordance, although not unanimity, regarding the important role of O<sub>2</sub>-sensitive

K<sup>+</sup> channels in the pulmonary artery smooth muscle cell in initiating HPV. Chapters by Smirnov, Archer and Yuan would all suggest that one or more voltage gated K<sup>+</sup> channel plays a pivotal role in initiating HPV. A potential role for Trp channels, involved in capacitative calcium entry, is nicely summarized by Gurney.

Section 4 deals with "Endothelium-Dependent HPV." This single chapter describes endothelium dependent and independent phases of the hypoxic constriction observed in isolated PA rings.

Section 5, "Oxygen Sensing in the Pulmonary Vasculature," begins with a nice review of the role of reduction/oxidation chemistry (Lisa Palmer) and oxidant signaling (Mike Wolin) in the pulmonary circulation, reflecting a growing feeling the reactive O<sub>2</sub> species may serve as vasoactive messengers in the pulmonary circulations. Subsequent chapters deal with putative O<sub>2</sub> sensors, including redox state (Ken Weir), mitochondria (Navdeep Chandel, Evangelos Michelakis) and cADP ribose (Mark Evans).

Section 6 discusses "Oxygen Sensing in Other Tissues." This section is helpful in weighing the sometimes-confusing information about the mechanism of HPV. These well-written chapters indicate a conserved role for O<sub>2</sub> sensitive K<sup>+</sup> channels in these nonvascular components of the body's specialized O<sub>2</sub> sensing system, including the carotid body, adrenomedullary cells and PC-12 cells. They put section 5 into perspective, acting as an "independent vote" for a conserved mechanisms of O<sub>2</sub> sensing.

Section 7 deals with the "Pathophysiology of Chronic Hypoxic Pulmonary Hypertension." This section is less thematically consistent than others and covers an eclectic mix of vascular remodeling in response to chronic hypoxia, hypoxic modulation of transcription factors and gene expression,

diversity in the propensity of smooth muscle cell types to hypoxic proliferation, polyamine biosynthesis and remodeling, and strain differences in hypoxia sensitivity amongst rats. Section 7 contains an excellent "Bench to Bedside" overview of Primary Pulmonary Hypertension of the Newborn by Abman and Steinhorn. The practical mix of clinical information, physiology and basic science makes for an informative and easy read.

The final section reviews "Experimental Models of HPV" summarizes the models and techniques used to study HPV, laying out pros and cons. Madden and Gordon do a nice job of highlighting the double edged sword of "reductionist science" as pertains to the use of isolated arteries and cells in characterizing the mechanism of HPV. There is also a section on the patch clamp technique and the making of knockout mice, although these could be better integrated into the book. A suggestion for the second edition would be to include a summary at the end of each section where areas of agreement amongst authors and controversies could be explicitly listed.

Yuan, by allowing free voice to the research community, has provided us with a worthwhile, dynamic snapshot of the "State of the Art" in understanding acute and chronic pulmonary vascular O<sub>2</sub> response, almost 60 years after the first modern description of HPV (1). ❖

Stephen L. Archer  
University of Alberta, Alberta, Canada

## References

1. von Euler, U. & Liljestrand, G. Observations on the pulmonary arterial blood pressure in the cat. *Acta Physiol Scand* 12, 301-320 (1946).

# Books Received

*A Life of Ernest Starling.*

John Henderson.

New York: Oxford Univ. Press, 2005, 227 pp., illus., index, \$59.50. ISBN: 0195177800.

*McDonald's Blood Flow in Arteries:*

*Theoretical Experimental and Clinical Principles, Fifth Edition.*

Wilmer W. Nichols and Michael F. O'Rourke.

New York, NY: Oxford Univ. Press, 2005, 607 pp., illus., index, \$225.00. ISBN: 0340809418.

## Postdoctoral Positions

**Postdoctoral Position:** A Postdoctoral Fellowship is available in the Cardiovascular-Renal Research Group within the Faculty of Medicine, Memorial University of Newfoundland, St. John's, Newfoundland, Canada. The position is sponsored by the laboratories of Drs. B.N. Van Vliet and J.J. McGuire. Current research projects include investigation of 1) the mechanisms underlying salt-sensitivity in knockout mice and salt-sensitive rat strains and 2) the cardiovascular consequences of activating proteinase-activated-receptor-2 (PAR2). Experimental preparations range from *in vitro* electrophysiology and function of vascular smooth muscle to telemetry of blood pressure in conscious mice. Check online for further descriptions of the University (<http://www.mun.ca>), The Division of Basic Medical Sciences (<http://www.med.mun.ca/basic>), and Cardiovascular Research Programs (<http://www.med.mun.ca/graduate/pages/cardio.htm>). This fellowship is for \$38,000 per year for two years. Candidates with experience in the cardiovascular sciences should send their curriculum vitae by email to: [jblundon@mun.ca](mailto:jblundon@mun.ca). Applications must include a letter summarizing your interests and experience, a curriculum vitae, and the names and contact information of three references.

**Postdoctoral Positions:** Postdoctoral Positions in molecular physiology & proteomics of the kidney are available in the Laboratory of Kidney & Electrolyte Metabolism at the National Institutes of Health, Bethesda, MD (starting July 2005 or January 2006). NIH is a component of the US Department of Health and Human Services. Applicants should have either a PhD or MD degree and less than four years of postdoctoral experience. One position is for an individual to use transgenic technology in mice to investigate regulation of the water channel aquaporin-2 in renal collecting duct. Experience in basic molecular biological techniques is required and a fundamental understanding of transport physiology is

highly desirable. NHLBI has an outstanding Transgenic Core Facility that can be exploited for these studies. A second position is for an individual to use mass spectrometry-based proteomics methodologies to investigate signaling pathways associated with the actions of vasopressin in the renal collecting duct. Experience in basic techniques of protein chemistry is required and a fundamental understanding of kidney physiology is highly desirable. NHLBI has an outstanding Proteomics Core Facility that can be exploited in these studies. For more information, see: <http://dir.nhlbi.nih.gov/labs/lkem/rm/index.asp>. Appointment and salary are dependent on experience. Applicants should submit a letter of interest, curriculum vitae, and the names of three individuals willing to provide letters of reference to: Mark A. Knepper, MD, PhD, Chief, Laboratory of Kidney and Electrolyte Metabolism, Building 10, Room 6N260, National Institutes of Health, 10 Center Drive, Bethesda, MD 20982-1603; [knepper@nhlbi.nih.gov](mailto:knepper@nhlbi.nih.gov). Applications should be submitted as soon as possible, but no later than **June 1, 2005**. [AA/EOE]

**Postdoctoral Fellowship Position:** We are recruiting a researcher interested in molecular and cellular mechanisms contributing to the pathogenesis of heart disease, with an emphasis on complications associated with diabetes. The laboratory presently focuses on links between myocardial insulin signaling and excitation-contraction coupling. Isolated cardiomyocytes are routinely used to evaluate the impact of both type 1 and type 2 diabetes, in terms of biophysical measures of excitation-contraction coupling (e.g., ionic currents, calcium transients, contractility), and intracellular signaling (e.g., glucose transport, kinase activities and protein trafficking). Rodent models of diabetes and cell culture systems are used to determine the pathogenesis of diabetic cardiomyocyte dysfunction. Prior experience in patch clamp and/or fluorescence microscopy techniques preferred but not essential if candidate has expertise in cell signaling that complements our research program (see

<http://faculty.une.edu/com/adavidoff/index.htm>). Reading and writing skills appropriate for publishing in scientific journals and applying for extramural funds are preferred. Candidates interested in gaining teaching experience at our medical school are strongly encouraged to apply, and would be eligible to transition into a research faculty position. Applications will be considered on an ongoing basis. Electronic applications are preferred. Informal inquiries are welcomed by Email or by telephone at 207-283-0170 (x2824). Electronic applications are preferred. Please provide a cover letter, CV, and contact information for two referees to the PI at: Amy J. Davidoff, PhD, Associate Professor and Associate Chair of Research, Department of Pharmacology, University of New England, College of Osteopathic Medicine, Biddeford, ME 04005 USA, [adavidoff@une.edu](mailto:adavidoff@une.edu). [AA/EOE]

**Postdoctoral Position:** A postdoctoral position in Vascular Biology is available in the laboratory of James Faber, Department of Cell and Molecular Physiology and the Carolina Cardiovascular Biology Center (CCBC), University of North Carolina. One project seeks to elucidate the importance and signaling pathways of the growth factor action of  $\alpha_1$ -adrenoceptor stimulation by catecholamines on hypertrophic disease progression and adaptive remodeling of the vascular wall, using cell culture, organ culture and *in vivo* models. A second project is to study HB-EGF signaling in vascular physiology and disease. The third project is to clarify the mechanisms that control collateral formation (arteriogenesis) in tissue ischemia. Current methods include: animal models of vascular disease, remodeling and growth (atherosclerosis, restenosis, hypertensive hypertrophy, pulmonary hypertension, flow-mediated remodeling, arteriogenesis); integration of physiological, cell and molecular methodologies, regulation of proliferation, migration, apoptosis and matrix by smooth muscle cells and fibroblasts of the vascular wall; gene targeting and array analysis; growth factor signal transduction. Opportunities exist



for collaborative research with investigators in the CCBC and nearby institutions (e.g., Duke, NC State, Wake Forest, NIEHS, Pharma and Biotech in Research Triangle Park). Support is through NIH-NHLBI funding. Highly motivated individuals with a PhD or MD and publishing record in vascular biology should send a letter or email explaining research interests and expertise, a curriculum vitae, and names of references to James E. Faber, PhD, Professor, Department of Cell and Molecular Physiology, Univ. of North Carolina, Chapel Hill, NC, 27599; jefaber@med.unc.edu. Further information is available at: <http://www.med.unc.edu/physiolo/> and at <http://ccbc.unc.edu/>. [EOE/AA]

**Postdoctoral Position:** Postdoctoral position in the genetics of hypertension is available in the laboratory of Beverly Paigen, The Jackson Laboratory, Bar Harbor, Maine. Candidate should have substantial background in hypertension. The project will use microarray technology, bioinformatics tools, and mouse crosses for finding causal disease genes. During this postdoc, the candidate will learn mouse genetics, quantitative trait loci mapping, and bioinformatics and participate in a lively, interesting group. Reply to Bev Paigen at [bjp@jax.org](mailto:bjp@jax.org); include resume and names of three references.

**Postdoctoral Position:** A postdoctoral position is available in the Department of Molecular and Integrative Physiology at the University of Michigan to study the molecular mechanisms of human muscular dystrophies and cardiomyopathies associated with mutations in the dystrophin-glycoprotein complex. Spontaneous mutant, gene targeted, and conditional knockout mouse models will be utilized for physiological, cellular, and biochemical/molecular studies of disease processes with a goal of determining possible therapeutic approaches. Highly motivated individuals with a post-graduate degree in any biological/biomedical discipline and experience with mouse model development or muscle/cardiovascular

research are encouraged to apply. Please send a CV, a one-page summary of research accomplishments and goals, and names/addresses of three references. Dr. Daniel Michele, PhD, 7771 Medical Science II, Department of Molecular and Integrative Physiology, University of Michigan, Ann Arbor, MI 48109-0622. E-mail: [dmichele@umich.edu](mailto:dmichele@umich.edu), website: <http://sitemaker.umich.edu/michele-lab>. Electronic submissions by email are preferred.

## Faculty Positions

**Assistant/Associate Faculty Positions:** The Department of Cell and Developmental Biology and Anatomy of the School of Medicine, University of South Carolina (<http://www.med.sc.edu:89>) is seeking individuals for tenure track assistant/associate faculty positions to begin in the summer of 2005. The Department is seeking individuals to complement strengths in ongoing cardiovascular research. Preference will be given to candidates with external support and/or experience in any of the following areas: 1) extracellular matrix; 2) mechanisms of gender-based cardiovascular research; and 3) intra and extra cellular regulation of cardiac growth. Applicants must have a PhD in bioengineering or biomedical science or a related science field. Excellent facilities, salary and start up packages will be made available to the successful candidates. Send CV, research statement, and the names of three potential references to: Ms. Janice Burns, Department of Cell and Developmental Biology and Anatomy, School of Medicine, University of South Carolina, Columbia, SC 29208 or respond by Email to [burns@med.sc.edu](mailto:burns@med.sc.edu). Review of applications will begin upon receipt. [AA/EOE]

**Assistant/Associate Professor:** Tenure Track Faculty Position in Vascular Biology or Cardiovascular Physiology. The Department of Physiology, University of Maryland School of Medicine, Baltimore, invites applications for a tenure track position at the Assistant Professor or

Associate Professor level. Extraordinary candidates may also be eligible for the title of School of Medicine Research Scholar. The Department is highly ranked nationally, with major strengths in cardiovascular and renal function, neuroscience and reproductive physiology (<http://physiology.umaryland.edu>). Investigators have ready access to state-of-the-art Proteomics, Biacore, Transgenic, Genomics and Imaging Core facilities. The Department is currently undergoing a major expansion and has attractive new space for recruitment of new faculty. Competitive start up packages will be offered. Individuals who use gene transfer, gene knock-down or other molecular biological strategies to develop a mechanistic understanding of cardiovascular physiology and pathophysiology are especially encouraged to apply, as are those using imaging or biophysical techniques. Interested candidates should provide a letter describing their research experience and future goals, curriculum vitae, and the names and addresses of three references to: W. Gil Wier, PhD, Chair, Department of Physiology Search Committee, at [Facultysearch@som.umaryland.edu](mailto:Facultysearch@som.umaryland.edu). Full consideration will be given to applications received before **June 1, 2005**. [AA/EOE/ADA]

**Assistant Professors-Faculty Positions:** Non-Tenure Track Assistant Professors in Exercise Science at Syracuse University to begin August 2005. Primary responsibilities include teaching undergraduate and graduate courses in a wide variety of areas including but not limited to energy metabolism, obesity & body composition, analysis of human motion, and motor learning. Excellent research opportunities also exist as the department has several state of the art research laboratories. PhD preferred. Send letter of application, CV, and three letters of recommendation to Dr. Lori Ploutz-Snyder, Exercise Science, Room 201, Women's Building, Syracuse University, Syracuse, NY 13244-5040; Email: [llploutz@syr.edu](mailto:llploutz@syr.edu); 315-443-2114; fax: 315-443-9375. [AA/EOE]

**Assistant Professor:** Applications are invited for a full-time, tenure-track Assistant Professor position in the Department of Pharmacology in the School of Pharmacy, University of Mississippi (Oxford campus). We seek an individual who will establish and maintain a research program in pharmacology, teach in the core curriculum of the professional and graduate program, and participate in service-related activities. Applicants must have a PhD degree in Pharmacology, Toxicology, or a closely related field, with postdoctoral experience and a strong record of research accomplishments. High priority areas of research emphasis include molecular pharmacology, neuropharmacology, cardiovascular/autonomic pharmacology, endocrine pharmacology, and environmental toxicology. Exceptional candidates in other research areas will also be considered. Ample opportunities exist for collaborative research programs with members of the National Center for Natural Products Research and the Research Institute of Pharmaceutical Sciences. Visit our website <http://www.olemiss.edu/depts/pharmacology> for additional information about the research and training programs of faculty in the Department of Pharmacology at the School of Pharmacy. Applications must be submitted online at <https://jobs.olemiss.edu>. Applicants shall provide a letter outlining their research interests, teaching experience and qualifications, complete vitae, and names, addresses, phone numbers and emails of three references. Review of applicants will begin immediately and continue until the position is filled. The anticipated starting date is January 2006. [EEO/AA/ADA/ADEA]

**Neuroscience Faculty Position:** Applications are invited for a faculty position in the Department of Physiology of Emory University. The rank of the position is open. We seek an outstanding investigator to join a strong and established group devoted to basic sensorimotor research with an emphasis on the spinal cord. Research areas of interest include those at the developmental, molecular, cellular and systems levels and will complement

research of the existing faculty. We are particularly interested in candidates who can bridge these levels of analysis. Extensive collaborative opportunities exist within the department and the Emory neuroscience community. The successful candidate will be expected to establish an independent research program and participate in the scholarly activities of the neuroscience community. Interested candidates may submit a curriculum vitae, a statement of research and teaching interests and a list of three to five referees to Dr. T. Richard Nichols, Department of Physiology, Emory University, Atlanta, GA 30322. Women and minority candidates are encouraged to apply. The review of applications will continue until the position is filled. [EOE/AA]

**Associate Professor/Professor:** The Department of Biomedical Sciences in the College of Veterinary Medicine and Biomedical Sciences at Colorado State University (<http://www.cvmbs.colostate.edu/bms/>) is seeking a Systems and Integrative Neuroscientist (Associate Professor/Professor, Tenure Track). The Department's research strengths are currently in Molecular, Cellular and Integrative Neuroscience and Animal Reproduction. Candidates must have a vigorous, extramurally-funded research program and will be expected to teach in the undergraduate, graduate or professional veterinary programs of the department. Applicants must have a PhD, DVM, MD or equivalent and relevant postdoctoral experience. Experience in electrophysiological and/or other integrative approaches to answer innovative questions in neurobiology are highly desirable. Women and minority candidates are encouraged to apply. A letter of application, curriculum vitae and names of three references should be sent electronically or by post to: Robert J. Handa, PhD, Department of Biomedical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO 80523; Email: [robert.handa@colostate.edu](mailto:robert.handa@colostate.edu). Review of applications will begin July 1, 2005 and will continue until a suitable candidate is selected. [EOE/AA]

## Research Positions

**Research Scientist:** The Anesthesiology Department of SUNY Downstate Medical Center has a Research Scientist position for someone to examine the mechanisms by which anesthetics and other agents protect against ischemic damage to cardiac tissue. The applicant should have an MD or PhD or its equivalent and have experience with the Langendorff model of heart perfusion. She/he should be able to perform western blots and be experienced with molecular biological techniques. The ability to run and operate an HPLC is a plus. The laboratory has extensive experience with neuronal ischemia and the applicant will be responsible for the design and execution of cardiac experiments. There will also be an opportunity to interact and collaborate with scientists in the department doing neuronal ischemia studies. Please send a letter describing your research interests, your CV and three letters of reference to: Professor Ira S. Kass, Department of Anesthesiology Box 6, 450 Clarkson Ave, Brooklyn, NY 11203 or as attachments to: [ira.kass@downstate.edu](mailto:ira.kass@downstate.edu). Letters of reference must be sent independently and have a contact phone number or email.

**Assistant Research Scientist:** The University of Iowa Carver College of Medicine, Department of Internal Medicine, Division of Pulmonary, Critical Care and Occupational Medicine is seeking an Assistant Research Scientist to perform basic or applied research to: understand the molecular and structural mechanisms of CFTR function; determine the cellular and molecular mechanisms of epithelial ion transport; study the normal function of airway epithelia and the pathogenesis and pathophysiology of abnormal function in cystic fibrosis; use patch-clamp electrophysiology, molecular and recombinant DNA methodology, and biochemical methods. Identify and select the problems to be studied, the approach to them and analyze the results obtained. A person in this classification has the

academic knowledge of a discipline that is generally associated with a Doctoral degree, or an equivalent professional degree, i.e., MD or PhD. In addition, the person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. Requires completion of postdoctoral training. Requires previous experience investigating ion channel biology using techniques of molecular biology (including PCR, cloning, transfection, and mutagenesis). Requires previous experience in biochemistry (including western blots, immunoprecipitation, immunofluorescence and biotinylation). Requires previous experience in electrophysiology including excised inside-out, cell attached, and whole-cell patch-clamp technology, cellular electrophysiology including Ussing chamber studies. Highly desires evidence for success in seeking and acquiring external funding and evidence for success in publishing manuscripts in well recognized journals as first author. Desires previous research experience in the biology of epithelial ion channels and in tissue culture methodology. Please send resume and cover letter indicating # 51230 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. [AA/EOE]


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## The American Physiological Society Medical Physiology Curriculum Objectives

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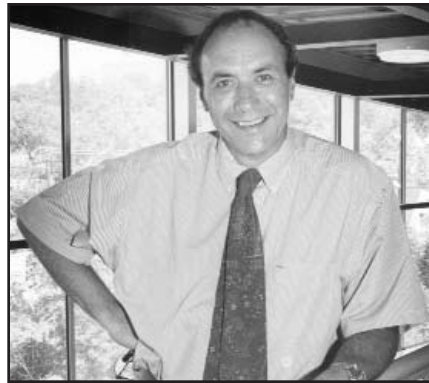
## Antonio Scarpa Named New Director of the NIH Center for Scientific Review

The Director of the National Institutes of Health (NIH), Elias A. Zerhouni, has named a new Director for the NIH Center for Scientific Review: **Antonio Scarpa**, who is currently the David and Inez Myers professor and chair of the Department of Physiology and Biophysics at Case Western Reserve University in Cleveland, OH.

“Dr. Scarpa brings an expansive intellect, distinguished research career, and extensive administrative experience to the critical task of leading CSR in managing the receipt and referral of NIH grant applications and coordinating their review in CSR peer review groups,” said Zerhouni. “He also brings an abiding commitment to the peer review process and the scientific community.” Scarpa has served as a permanent member of three NIH peer review committees between 1983 and 2003, and he has served on peer review committees for the American Heart Association.

Scarpa will replace Brent Stanfield, who became acting director of CSR in October 2003, following the departure of Ellie Ehrenfeld. Scarpa will join NIH on July 1, 2005.

“NIH peer review is world renowned for enabling NIH to fund the most promising biomedical research,” said Scarpa. “I am excited to join NIH and



**Antonio Scarpa**

work to ensure the integrity, thoroughness, and efficiency of CSR operations as it faces many challenges.” Scarpa will rely on scientific administration skills honed during his 18-year tenure at Case Western Reserve, where he oversaw the development of a small physiology and biophysics department into one now ranked among the best in the country.

Scarpa has conducted biophysical research into the cellular and molecular mechanisms of ion transport and homeostasis and the metabolic consequences induced by transport. His investigations have been supported by grants from the National Heart, Lung and Blood Institute; the National Institute on Alcohol Abuse and Alcoholism; and the National Institute

of Diabetes and Digestive and Kidney Diseases. Scarpa has more than 225 peer-reviewed publications and has edited or co-edited nine books or special journal supplements.

Scarpa has been an active member of the scientific community. He has been an officer or board member of many scientific societies, including The Biophysical Society, the Federation of American Societies for Experimental Biology, and the Association of American Medical Colleges. Over the years, Scarpa also has served on the editorial boards of 13 scientific journals and served as editor or co-editor for five journals: *News in Physiological Sciences*, *Biochemistry and Molecular Biology International*, *Cell Calcium*, *Archives of Biochemistry and Biophysics*, and *Biophysical Journal*.

Scarpa received his MD and PhD (Libera Docenza) in general pathology from the University of Padua School of Medicine, and he conducted postdoctoral studies at the Weizmann Institute of Science in Israel, the University of Utrecht in The Netherlands, and the University of Pennsylvania in Philadelphia. Scarpa continued his research and academic career for 17 years at the University of Pennsylvania before moving to Case Western Reserve in 1986. ❖

### Four APS Members Elected to the National Academy of Sciences

Four APS members were among 72 outstanding scientists elected for membership to the National Academy of Sciences (NAS). Selection to the Academy recognizes distinguished and continuing achievements in original research and is considered one of the highest honors that a US scientist or engineer can receive.

The National Academies (which include the National Research Council, the National Academy of Engineering, and the Institute of Medicine) provide a public service by working outside the framework of government to ensure independent advice on matters of science, technology, and medicine. They enlist committees of top scientists, engineers, and other experts—all of whom volunteer their time to study specific concerns. The results of their delibera-

tions have inspired some of America’s most significant and lasting efforts to improve the health, education, and welfare of the population.

#### 2005 APS NAS Electees:

**Shu Chien**, director, Whitaker Institute of Biomedical Engineering, University Professor of Bioengineering and Medicine; and chair, department of bioengineering, University of California, San Diego, La Jolla;

**Steven C. Hebert**, professor of medicine; and chair and professor, department of cellular and molecular physiology, Yale University School of Medicine, New Haven, CT;

**Andrew R. Marks**, director, Center for Molecular Cardiology; and professor and chair, department of physiology and cellular biophysics, College of

Physicians and Surgeons, Columbia University, New York City;

**Christine E. Seidman**, professor, department of genetics, Harvard Medical School, Boston, MA.

The National Academy of Sciences is a private, non-profit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Since its inception in 1863, the National Academy has acted as an official advisor to the federal government, upon request, in any matter of science or technology.

APS would like to extend sincere congratulations to its members who have received this prestigious honor. ❖

**Enrico Mario Camporesi** has accepted the position of Professor and Associate Dean with the Department of Anesthesiology and Critical Care, University of South Florida, Tampa, FL. Camporesi was formerly with the Department of Anesthesiology, SUNY Health Science Center, Syracuse, NY.

**Jian Cui** is currently an Assistant Professor, Department of Cardiology, Penn State College of Medicine, Hershey, PA. Cui, as a Postdoctoral Fellow, was formerly associated with the Institute for Exercise & Environmental Medicine, Presbyterian Hospital of Dallas, TX.

**Jeffrey Frank Dunn**, an Associate Professor, has joined the Department of Radiology, University of Calgary, Canada. Formerly, Dunn was with the Department of Radiology, Dartmouth Medical School, Hanover, NH.

**Nori Geary** recently affiliated as Professor with the Swiss Federal Institute of Technology, Institute for Animal Science, Schwerzenbach, Switzerland. Previously, Geary held the position of Research Professor, Department of Psychiatry, New York Hospital, Cornell Medical Center, White Plains, NY.

**William F. Jackson** has joined the Department of Pharmacology & Toxicology, Michigan State University, East Lansing, MI. Formerly, Jackson was affiliated with the Department of Biological Science, Western Michigan University, Kalamazoo, MI.

**Biljana Jovov** has accepted the position of Assistant Professor with the Department of Medicine-Gastroenterology, Tulane Medical School, New Orleans, LA. Jovov was formerly an Instructor, Department of Physiology & Biophysics, University of Alabama, Birmingham, AL.

**Thomas McLoughlin** is currently an Assistant Professor, Department of Kinesiology, The University of Toledo, OH. Previously, McLoughlin had been a Postdoctoral Research Associate, Department of Kinesiology, University of Illinois, Chicago, IL.

**Hansjorg Rindt** is currently a Research Assistant Professor, University of Missouri, Columbia, Life Sciences Center, Columbia, MO. Rindt was formerly a Senior Scientist, with Myogen, Inc., Westminster, CO.

**Hagit Schwimmer** has joined the Center for Narcolepsy, Stanford University, Palo Alto, CA. Schwimmer had been affiliated with the Department of Environmental Physiology, The Hebrew University, Hadassah School of Dental Medicine, Jerusalem, Israel.

**Burton E. Sobel** recently affiliated with the Department of Medicine, University of Vermont, Colchester, VT. Sobel was formerly associated with the Fletcher Allen Health Care, Department of Medicine, Burlington, VT.

**S. Randall Thomas** has affiliated with Centre National De La Recherche Scientifique, University of Evry Val d'Essonne, Evry, France as Research Director. Prior to his new position, Thomas was Research Director associated with Necker Faculty of Medicine, Paris, France.

**Tetsuro Urushidani** has joined the Department of Pathophysiology, Doshisha Women's College of Liberal Arts, Kyotanabe, Japan. Urushidani was previously Chief Scientist with Department of Cellular & Molecular Toxicology, National Institute of Health Sciences, Tokyo, Japan. ❖

## Advertise your job vacancy to over 10,000 members and subscribers!

Ads are accepted for either positions available or positions wanted under all categories. The charge is only \$75. All ads are also posted on the APS Career Opportunity Web page upon receipt for a three month period.

If you would like to have your ad listed in *The Physiologist* or on the APS Career Opportunities Web page (<http://www.the-aps.org/careers/careers1/posavail.htm>), the following items are needed: a copy of the ad, the name of a contact person, and either a purchase order number, credit card number (with expiration date and name of cardholder) or billing address. Send the information to Linda Dresser (Email: [ldresser@the-aps.org](mailto:ldresser@the-aps.org); Tel: 301-634-7165; Fax: 301-634-7241).

## 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>. ❖

## Letters to Julio C. Cruz

**Maurice Meyer** writes: "I was very pleased to get your letter and card regarding my 80th Birthday.

"It is always good to read *The Physiologist* and learn what our past mentors and scientific friends are still doing after they 'retire.' My PhD Mentor was Maurice Visscher, Professor and Chair of our Physiology Department. We not only had the same first name, but had deep interest in Cardiovascular and Pulmonary Physiology. Hence, my research focused on the microcirculation.

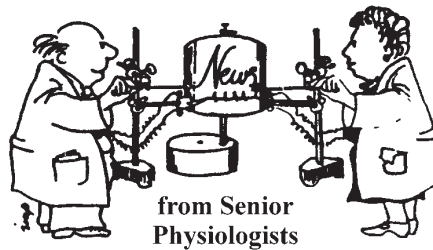
"After my initial retirement, I was able to get grant support and continue my research on endocarditis involving the role of inflammation and bacteria (in particular oral microorganisms). My current interest is the role of inflammation in atherogenesis and continue to correspond with my colleagues at the University of Minnesota. Atherogenesis became greater interest when I joined the 'by pass club' and the fact that my younger brother joined the club for a second time, namely 27 years after his first by pass. Of interest was the finding after 27 years that all the transplanted veins were not present. Perhaps this suggests that the VEGF in these vessels played an important role in revascularization of vessels in the heart.

"In view of our aging process and no longer any family in Minnesota, I decided to retire again and move to Colorado in September 2003 where our older son has his medical practice in internal medicine as a board certified physician in pulmonary medicine.

"After my first retirement, I got involved in volunteer activities as a Tax Counselor for the Elderly and as a Certified Health Insurance Counselor. I am currently doing these activities in Colorado. As a result of the Medicare Law passed in our country, we have been very busy.

"I am active with hobbies namely gardening and golf and some fishing. My garden is not as large and the soil does not appear to be as good as in Minnesota. My golfing tapered off in Minnesota since my buddies found a new (heavenly) abode. As yet I do not have a golfing buddy so it is solo.

"My spouse of 59 years and I are enjoying Colorado and don't have as far to go to visit our younger son who lives



in Scottsdale, Arizona. So we plan to hang around a few more years, have fun with our grandchildren and await our great-grandchildren."

**Jiro Nakano** writes: "Thank you very much for your kind letter. Especially, it came from my favorite country, Peru, because I had a wonderful memory when I visited there many years ago and I had a young lovely lady from Peru used to teach Spanish for my daughters in USA.

"I was born in Kobe, Japan in 1925. My brief CV is as follows: 1949, graduated from Kobe University School of Medicine with cum laude; 1950-1952, Internship in general medicine and clinical pathology at St. Francis Hospital, Honolulu, Hawaii; 1952-1956, Residency in Medicine and Cardiology, Chief Resident in Medicine at the Jersey City Medical Center, Seton Hall University School of Medicine (now New Jersey University School of Medicine); 1956-1958, Research Fellow, Laboratory of Experimental Cardiology (Prof. R. Wegria), Department of Medicine Columbia University College of Physicians and Surgeons, New York City. Main Research: Pharmacology physiology of coronary circulation and hemodynamics; 1959-1961, Assistant Professor of Medicine, and Director of Experimental Cardiology at St. Louis University School of Medicine, St. Louis, MO. Research projects: Pharmacology of thyroid hormone, vasoactive peptides (bradykinin, endothelin, vasopressin and oxytocin), beta-blocking drugs, thyroid hormones and prostaglandins; 1962-1968, Associate Professor of Pharmacology and Medicine, University of Oklahoma College of Medicine; 1968-1969, Visiting Professor at Karolinska Institutet and worked at the Laboratory of Prof. B. Samuelsson and Docent Erik Angaard. Research project; Enzymatic kinetics of various prostaglandins; 1970-1974, Professor of

Pharmacology and Medicine. Research Project: Cardiovascular effects of Prostaglandins. Member of University of Oklahoma Alcohol Research Center; 1974-1990, Associate Clinical Professor of Medicine at University of Hawaii. Practiced Cardiology in Hilo, Hawaii. Joined the Japanese Haiku and Tanka Poetry. Research project: Japanese Immigrant history in Hawaii, Translation of Haiku and Tanka poems (received Columbus Foundation American Book Award in 1985); 1992-present, Lecturer, Kobe University School of Medicine, Kobe, Japan. Kobe Kaisei Hospital and Hokusetsu General Hospital International Division and Board Director. Published 'Hawaii Mana,' 'Malpractice Archipelago,' 'Search for Best Doctors,' 'US and Japan Medical Educations,' 'Generic Drugs,' translation of 'Death by HMO.' I am still writing several books including *Memoir of Karolinska Institutet and Prof. Sunebergstrom and Bengt Samuelson, My Life in U.S.A.*, and others. The above is a summary of my crazy life. My wife kept warning that I am doing too much. I love young medical students and young doctors at hospitals in Japan. Please keep touch with me. If you happen to come to Japan, please call me up."

## Letter to Donald J. Marsh

**Oscar A. Candia** writes: "Thanks for your letter and thanks to the Society for its interest in Senior Physiologists.

"Yes, I am continuing with my scientific activities. I am a Professor of Ophthalmology and Professor of Physiology here at the Mount Sinai School of Medicine in New York where I have been since 1968. I am also Vice-chairman and Director of Research in the Department of Ophthalmology.

"I am lucky to have three active R01s from the National Eye Institute, all related to the physiology of epithelia of the eye: the ciliary epithelium, the conjunctiva and the lens. I just received communication that this last project that I had for 31 years (EY0160) is going to be funded for at least another four years and possibly five. At this moment, I am reviewing the galleys of our latest paper in the *American Journal of Physiology*. In addition I am publishing in eye Journals such as *Investigative Ophthalmology & Visual Sciences* and *Experimental Eye*

## Research.

"During the last five years, I have developed collaborations with Dr. Chih-to To of the Polytechnic University in Hong Kong, and with Dr. Rosana Gerometta of the School of Medicine of the Universidad Nacional del Nordeste (UNNE) in Corrientes, Argentina. I am originally from the Corrientes Province in Argentina, and because of it, it is very satisfying to have been able to develop basic science projects there, and interact with the excellent people that I have met at UNNE, as well as take advantage of bovine eyes, which are plentiful there, if little else.

"Our work in Hong Kong and Corrientes has been presented in international meetings and published in first rate journals. This gives my collaborators enormous pride and sense of accomplishment.

"The performance of these projects also gives me the opportunity to travel and have a direct evaluation of the state of research and medical care in those countries. I am happy to report that US scientists are regarded as among the best in the world. Unfortunately, scientists in those countries do not have the same opinion of our government.

"Because of the beauty of the city and the very favorable exchange rate, Buenos Aires has been flooded with tourists and many international organizations are holding their meetings there. In this regard, the International Society of Eye Research has asked me to organize the XVII International Congress of Eye Research (<http://www.icer2006.com/>) where we expect 800 scientists from around the world.

"As you can see I am busy. My advice to young physiologists is thus, to keep busy and look at the big picture. Modern techniques will give you more data than you can process. The role of the physiologist is to recognize and put together the important pieces of the puzzle.

"I was raised in a small town in Argentina with an Indian name: Curuzu Cuatia. I went to elementary school there, where my parents were the Principal and one of the teachers. In Argentina, High School and College were blended together and I finished College in Curuzu at age 17. From there

I went to Buenos Aires to attend medical school at the University of Buenos Aires from where I graduated in 1959. Immediately after, I got married. I also got a job at the department of Biophysics as an Assistant (my real inclination) and as a Doctor in a hospital to support my family.

"Jose Zadunaisky, a very well known physiologist, came back from fellowships with E. J. Conway and H. Ussing and organized, in the Department of Biophysics a transport group that included **Jorge Fischbarg**, Mario Parisi, Ricardo Montoreano and Felisa Fisch. We published a note in *Nature* that opened the door to offers from abroad. In January of 1964, Zadunaisky, Fischbarg, Montoreano and I moved to Louisville, KY to organize, with the renowned physiologist **Hugh Davson**, the research laboratories of the Department of Ophthalmology.

"With Davson, there was this young aggressive fellow, Laszlo Bito, who recently became a millionaire (and a book writer) because of his discovery of a derivative of prostaglandin to treat high intraocular pressure and glaucoma. Even at that time he would constantly talk about prostaglandins. Thus, another word of advice, be persistent, it may take 30 years to accomplish your goals. While in Louisville, I met two outstanding physiologists, William Brodsky and Warren Rhem. Bill, the nicest human being, and Warren an uncommonly smart and inquisitive person.

"In 1968, Zadunaisky went to Yale, Fischbarg went to Chicago, Montoreano returned to Argentina, and I moved to New York. Eventually, Zadunaisky and Fischbarg also relocated to New York."

## Letter to Alan F. Hoffman

**Donal Magee** writes: "I am not doing much of anything now, reading, walking and a little bit of traveling, but I do not do much of that now since my wife is a semi-invalid at the moment. The most memorable journey ever was up the Nile with the Oxford University travel club. We made a specialty of islands. We have spent a few weeks in every major Scottish island. The Magees originated on Islay about 600 years ago as did eight single malt distilleries, which are

still there. We have been to Madeira, Malta, the Canaries, Cyprus, and on the mainland to Tunisia and Slovenia.

"I have not done any research since retiring and indeed for a few years before. I did not tire of research, nor did I run out of ideas; rather, interest in my subject dried up. It and its methodology went out of fashion. All my work was on conscious animals: dogs, sheep, pigs and rats, but mostly on dogs. Working with animals was not glamorous. Working with genes and molecules could be. I have heard it said that the intelligence of scientists, apart from astronomers is, inversely proportional to the size of the object of their investigation. So mathematicians are at the top of the tree. I think that many modern physiologists are intimidated by chronic surgery and by anti-vivisectionists' thuggery. To set up an animal lab in retirement would be very difficult. I would be surprised to find more than one chronic animal lab on this island.

"My closest contact with physiology since coming to Ireland has been two years of teaching, filling in for faculty on sabbatical at Queens University, Belfast, and seven or eight years running a project for third year students at Trinity College, Dublin. I had small groups repeat the experiments of J.W. Hicks and H.S. Bader: *Gravity and the Circulation*. *Am. J. Physiol.* 31:725-732, 1992, and others to examine the effect of increasing dead space on respiratory exchange. These were good experiments because they always worked. It is amazing what a poor understanding there is of flow through inverted u-tubes. The bizarre explanations given for the large heart in the giraffe by eminent physiologists are a graphic example of this. The rapidity of onset and the extent of discomfort from small increases in dead space is startling and the way in which long necked birds deal with it, as deal with it they must, is mysterious.

"I gave up teaching in Dublin because the transportation either by private car or by bus became impossible. In the morning by bus it was taking me 2.5 hours for a 60 mile journey." ❖

*Additional information about Donal Magee's career can be found in the online version of The Physiologist volume 48 (3).* ❖

## Wiley Prize in Biomedical Sciences Seeks Nominations for Award

The Wiley Prize in Biomedical Sciences is intended to recognize contributions that have opened new fields of research or advanced novel concepts or their applications in a particular biomedical discipline. The award may recognize a specific contribution or a series of contributions that demonstrate the nominee's significant leadership in the development of research concepts or their clinical application.

The award will consist of a \$25,000 grant and each year's recipient will deliver a lecture at The Rockefeller University—the venue for the awards.

Wiley invites and encourages the nomination of exceptional PhD and MD scientists whose research has set the standard for excellence. More than one nomination can be made from the same organization. International nominations are eligible and the number of years in a position is not relevant to the nomination. Below is an

outline of the elements that should be included in the nomination packets.

### **Nomination Requirements for The Wiley Prize in Biomedical Sciences**

On the first page of the nomination, please provide a short summary (150 words or less);

A complete narrative (5-10 pages) addressing, in detail, these questions:

Why does the nominee's work represent a major advance in the Biomedical Sciences?

What are the unique aspects of the nominee's work that set it apart from other notable advances in the biomedical sciences?

Who in your opinion could share in this award?

Please provide the following additional information:

a brief, one-page biography—including past positions and awards or recognition given each nominee;

on an additional page, a list of six (6) peer-reviewed journal references that substantiate the statements in your nomination. DO NOT send reprints;

at least two (2) supporting letters from Colleagues familiar with the nominee's work. These can be either included with the nomination package or mailed separately;

the nominee's Curriculum Vitae.

Submit one (1) original and three (3) copies of the above requested information.

The nominations and supporting letters should be postmarked not later than **July 31, 2005** to be eligible for the current year's prize.

Nomination packets should be submitted to:

Wiley Foundation  
John Wiley & Sons, Inc.  
111 River Street  
Hoboken, NJ 07030  
Attention: Deborah E. Wiley

## Ohio Physiological Society Plans 20th Annual Meeting

The Ohio Physiological Society (OPS) became the first APS chapter during the Spring Meeting of Council in 1995. The OPS was founded in 1986 as a professional association of Ohio physiologists. It was established with the purpose of enhancing and advancing the field of physiology as a coordi-

nated discipline consisting of the many subdisciplines working at the molecular, cellular, and organ system levels of organization in both basic and applied areas. The current membership roster lists 95 regular and 30 student members from a variety of academic institutions and industry

across Ohio and western Pennsylvania.

The next meeting of the OPS will be October 27-28, 2005 at Wright State University, Dayton, OH. For more information, please see <http://www.med.wright.edu/anatphys/ops/>. ❖

### Get Involved With APS Committees!

The American Physiological Society provides its membership with opportunities to be involved with the Society through service on its various committees. Committees and committee members are appointed by the Council of APS at the recommendation

of the Committee on Committees. Members are appointed to a three-year term commencing on January 1. Committee appointments are staggered so that only a limited number of the members rotate off a committee at the end of each year.

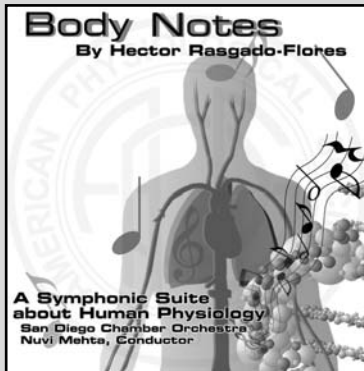
Members interested in committee service should complete the nomination form and submit it for consideration by the Committee on Committees and Council. The form is available to be downloaded at <http://www.the-aps.org/committees>. ❖



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from **IUPS 2005**

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## IUPS 2005 Bronze Medallion - \$10 (or 3 for \$25)

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## July

**4th Meeting of The Mammalian Myocardium, University of Leeds, United Kingdom.** Information: Internet: <http://www.leeds.ac.uk/mm2005/>.

## July 3-7

**Connect 2005, The 12th RACI Convention, Sydney, Australia.** Information: <http://www.pco.com.au/connect2005/>.

## July 5-23

**An Integrative and Organ Systems Pharmacology Short Course, Chapel Hill, NC.** Information: Diana Platero. Email: [dplatero@ucsd.edu](mailto:dplatero@ucsd.edu); Internet: [http://pharmacology.ucsd.edu/Other\\_Academic\\_Programs/summer.asp](http://pharmacology.ucsd.edu/Other_Academic_Programs/summer.asp).

## July 6-20

**The Michigan State University Short Course in Integrative and Organ System Pharmacology, East Lansing, MI.** Information: Ms. Faye Spencer or JR Haywood, Ph.D. Tel: 517-353-7145 or 517-353-7147; Email: [haywoo12@msu.edu](mailto:haywoo12@msu.edu); Internet: <http://www.phmtox.msu.edu>.

## July 12-16

**ISAN 2005 (fourth meeting of the International Society for Autonomic Neuroscience), Marseille, France.** Information: Internet: <http://www.atout-org.com/isan2005>.

## July 17-29

**46th Annual Short Course on Medical and Experimental Mammalian Genetics, Bar Harbor, ME.** Information: Internet: <http://www.jax.org/courses/events/coursedetails.do?id=120>.

## July 20-23

**Joint International Meeting of The Physiological Society, UK and The Federation of European Physiological Societies, Bristol, United Kingdom.** Information: Email: [meetings@physoc.org](mailto:meetings@physoc.org); Internet: <http://meetings.physoc.org/bristol/>.

## July 25-August 5

**An Integrative and Organ Systems Pharmacology Short Course, Chapel Hill, NC.** Information: Adam M. Persky, PhD. Tel: 919-966-9104; Internet: [http://pharmacology.unc.edu/pkpd/isop\\_frame.htm](http://pharmacology.unc.edu/pkpd/isop_frame.htm).

## August 7-12

**Workshop on Current Protocols in Stem Cell Biology, Bar Harbor, ME.** Information: Nancy Place, Course & Conference Coordinator, The Jackson Laboratory, 600 Main Street, Bar Harbor, ME 04609-1500. Tel: 207-288-6257; Fax: 207-288-6080; Email: [nancyp@jax.org](mailto:nancyp@jax.org); Internet: <http://www.jax.org/courses/events/coursedetails.do?id=123>.

## August 7-12

**Gordon Conference on Cellular Osmoregulation: Sensors, Transducers And Regulators, Salve Regina University, Newport, RI.** Information: <http://www.grc.org/programs/2005/cellosmo.htm>.

## August 8-12

**9th International Congress on Amino Acids and Proteins, Vienna, Austria.** Information: Prof. Dr. Gert Lubec, FRSC (UK), Medical University of Vienna, Dept. of Pediatrics, Div. of Basic Science, Währinger Gürtel 18, A 1090 Vienna, Austria. Fax: +43.1.40400 3194; Email: [gert.lubec@meduniwien.ac.at](mailto:gert.lubec@meduniwien.ac.at); Internet: <http://www.proteomics-brainprot.at/icaap/>.

## September 6-18

**Short Course on Integrative Systems Pharmacology, Bar Harbor, ME.** Information: Internet: <http://www.jax.org/courses/events/coursedetails.do?id=127>.

## September 7-11

**Prion Biology, Cambridge, United Kingdom.** Information: Internet: <http://meetings.cshl.edu/meetings/prionuk05.shtml>.

## September 10-13

**2005 International Conference on Aquaporins, Brussels, Belgium.** Information: Internet: <http://users.skynet.be/fa013024/aquaporins/index.htm>.

## September 10-13

**Microcirculation 2005 - A Transatlantic Microcirculation Conference, University of New Hampshire, Durham, NH.** Information: <http://microcirc.org/USUKMeeting05/MCSBRIT05.html>.

## September 11-14

**Ninth International Conference on Endothelin (ET-9), Park City, UT.** Information: Internet: <http://www.int.med.utah.edu/et9/>.

## September 17-21

**15th Annual Congress of the European Respiratory Society (ERS), Copenhagen, Denmark.** Information: Internet: <http://www.ersnet.org>.

## September 23-October 1

**Short Course on Genetic Approaches to Complex Heart, Lung and Blood Diseases, Bar Harbor, ME.** Information: Internet: <http://www.jax.org/courses/events/coursedetails.do?id=128>.

## September 24-25

**Molecular Anatomy and Physiology of Ribbon Synapses, Goettingen, Germany.** Information: Internet: <http://sfb406.uni-goettingen.de>.