Introduction . . .

The PASPCR Newsletter is published quarterly and is intended to serve as a means of communication for the members of our Society. As such, we invite our membership to actively contribute to it. If you attend a scientific meeting and heard results which you think will be of interest to the membership of the PASPCR, please write a few paragraphs summarizing what was presented and share it with us. Any information on up-coming meetings of interest will also be included. We also want to note any change of affiliation or address that you may have had to help us keep our membership list up-to-date. This is your Newsletter, and we depend upon you to help us make it best serves the Society's needs. Contributions and comments can be sent to Bill Oetting, preferably by Email, to bill@lenti.med.umn.edu.

The PASPCR Web page is the major, up-to-date source of current information for the PASPCR membership. The URL address to our home page is http://www.cbc.umn.edu/paspcr. The PASPCR Web page contains information about the PASPCR including the goals, ByLaws and Rules of the Society, future meetings, past issues of the PASPCR Newsletter as well as links to other related sites including the InterPig DataBase, the International Federation of Pigment Cell Societies (IFPCS) and the regional Pigment Cell Societies from Europe and Japan. In addition, an updated PASPCR membership directory is available on the PASPCR Web page; please notify us if you wish any or all of your information to be modified or deleted on that site. The PASPCR home page also includes positions available and positions wanted. Postings for Positions Available are open to all individuals so long as the position is related to pigment cell research. Postings for Positions Wanted will be open only to members of the PASPCR or its sister societies (JSPCR and ESPCR). Please provide an expiration data for any submitted postings. If there is additional information that you wish to have added to this web page, please let us know. Send any comments and/or suggestions to the PASPCR WebMaster, Bill Oetting at bill@lenti.med.umn.edu.

Note: The IFPCS webpage can be found at www.cbc.umn.edu/ifpcs.
**Calendar of Events:**

**Jun 14 - 17, 2001**  Xth Annual Meeting of the PanAmerican Society for Pigment Cell Research, to be held in Minneapolis, MN  
**Contact:** Dr. Richard A. King, Department of Medicine, Box 485 Mayo, 420 Delaware St. S.E., Minneapolis, MN 55455;  
Phone: (612) 624-0144  
Fax: (612) 624-6645  
Email: king@mail.ahc.umn.edu.

**Sept 27 - 29, 2001**  10th Annual Meeting of the European Society for Pigment Cell Research, to be held in Rome, Italy  
**Contact:** Meeting Secretariat, Triumph P.R. S.r.l.  
Via Proba Petronia 3 00136 ROME - ITALY  
Phone ++39.06.399631  
Fax ++39.06.39735195  
e-mail: espcr2001@triumphpr.it

**Dec 1-2, 2001**  15th Japanese Society for Pigment Cell Research Meeting (JSPCR) Sendai, Japan  
**Contact:** Prof. S. Shibahara  
E-Mail : shibahar@mail.cc.tohoku.ac.jp

**2002** The XVIIIth International Pigment Cell Conference, to be held in The Hague, Holland.  
**Contact:** Dr. Stan Pavel, President ESPCR, University Hospital Leiden, Dept of Dermatology, PO Box 9600, NL - 2300 RC LEIDEN  
Phone: 31-(71) 526 1952  
Fax: 31-(71) 524 8106;  
E-mail: SPavel@algemeen.azl.nl

**Sept 3-7, 2003**  XIth Annual Meeting of the PanAmerican Society for Pigment Cell Research, to be held in Wood’s Hole, MA.
Congradulations to the New Members of the PASPCR Council

Thomas J. Hornyak
Glynis Scott
Miri Seiberg

We wish to thank out-going council members, Jean L. Bolognia, Estela E. Medrano, and William J. Pavan, for their contribution to our society during the last 3 years.

Welcome to New Members

by James J Nordlund

We welcome the following new member to the PASPCR . . .

David A. Brown
Cloris D. Faraco
Marjan Huizing
Ana Luisa Kadekarо
Bonnie L. Richmond
Myung K. Shin

If anyone is interested in joining our Society or wishes to sponsor a member, application forms can be obtained from Dr. James J. Nordlund at the PASPCR Secretary/Treasurer’s office.

Corporate Sponsors

by James J Nordlund

The PASPCR would like to acknowledge and thank our Corporate Sponsors; the list below reflects contributions over the past 2 years. Financial gifts from these sponsors have allowed our Society to increase benefits to the membership far out of proportion to the actual dues collected from members. Monies contributed by these sponsors have been used over the years to support various PASPCR functions including our Young Investigator Award program, meeting travel stipends, annual meeting expenses and this Newsletter.

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From the Editor - *Pigment Cell Research*  
Vince Hearing, Editor

**Announcement** - Anyone interested in obtaining a limited number of back issues of the journal *Pigment Cell Research*, please take note. The former Editors of the journal, Profs. Joseph Bagnara and Jiro Matsumoto, have forwarded all their extra copies of past issues of *Pigment Cell Research* to the current Editorial Office. Anyone who is missing a back issue or two of the journal from their collection can contact the office to request those. Not all back issues are available and they will be provided when available on a first-come, first-served basis. Contact the Editorial Office by Email (editor@pigment.org) and state the issue(s) needed; be sure to provide your full shipping address.

**Notice from the Organizers of the 17th IPCC in Nagoya**

IPCC-Nagoya Organizers are purchasing a limited number of extra copies of the IPCC Supplement to sell to those who are interested. These issues will cost 5,000 yen (about $50), and if you would like to reserve and order a copy, please contact Dr. Kazumasa Wakamatsu at kwaka@fujita-hu.ac.jp, and he will send you the information you need.

**And now for the rest of the story.**

In this issue, we look at the scientific journey Dr. John Brumbaugh, from his 4-H projects on chicken crosses and his discovery of the Punnett square, to gene transfer and mutational analysis of the C-locus in the chicken.

If you wish to know how a particular line of investigation got started, or know of a story that would be interesting to readers of the PASPCR Newsletter, please email me at bill@lenti.med.umn.edu, and I will try to get the rest of the story.

**Poultry, Pigment, and Plasmids**

I never dreamed when I was 6 years old that the color of chicken feathers would form the basis for my entire professional life. It was then I stayed overnight on the broiler farm of some close friends of my parents. Three years later I stayed there the whole summer. My experience developed into a 4-H broiler project. The birds were males of a cross between Barred Plymouth Rock hens and New Hampshire (red) roosters. The birds could be sexed at hatching by noting the light spot on the males’ heads.

It wasn’t until much later in college that I clearly grasped the Punnett square and became fascinated by genetics. R. C. Punnett, by the way, was a poultry geneticist who published a book in 1923 entitled “Heredity in Poultry” (1) which is dedicated to his mentor” William Bateson whose experiments with poultry offered the first demonstration of Mendelian heredity in the animal kingdom.” There was plenty of feather pigment genetics around by the time I received my B.S. in 1958.

When I began graduate school at Iowa State University in the Genetics Department, my advisor was Dr. Willard Hollander. He had 4 ongoing projects: Drosophila, mice, pigeons, and chickens. It was an obvious decision. We began the painstaking genetic dissection of the E
locus and some of the buff breeds. Interestingly, the chair of the Zoology Department at ISU at that time was Dr. Howard Hamilton, the author of the chick embryo classic “Lillie’s Development of the Chick”. Needless to say, he became a member of my Ph. D. committee and helpful mentor. It was early on, that development and genetics came together for me and mechanistic questions arose on several genetic fronts, “Why this and why that??” It was while at ISU that I was introduced to the exciting field of tissue and cell culture.

The Zoology Department at the University of Nebraska became our home in the Fall of 1964. It was not well received to have chickens other than in the Poultry Science Department which was 2 miles away. Rats, mice, opossum, gerbils, guinea pigs, snakes, frogs etc. were OK but not chickens. Reason prevailed and several specific pigment gene stocks were developed with the help of my ever patient graduate students throughout my time at Nebraska.

In the spring of 1966, an important seminar speaker was Dr. Keith Porter, the electron microscope expert, who was then at Harvard. He invited me to spend the summer there learning how to use the TEM. I think he was intrigued by the ultrastructure of premelanosomes. Some preliminary micrographs were obtained that summer which led to some serious investigations for at least a decade. TEM coupled with ultrastructural autoradiography and DOPA incubation led to some interesting ideas about the effects of several mutations. Some mysteries were revealed but some “Whys?” definitely remained!

Some time in the early 1970’s our department was given a grant to bring in special speakers for several days. I invited Dr. Howard Holtzer of the U. of Pennsylvania who was looking at substances that controlled differentiation. As a result, I was invited to his laboratory to learn how to grow cell cultures of chick melanocytes. My early interests in tissue and cell culture now became a reality! As a result of this collaboration we were able to do heterokaryon studies, similar in principle to those used with Neurospora, using cell fusion techniques. Not only did we find complementation or noncomplementation using various mutations, but saw some “reprogramming” of differentiation using red blood cells (they are nucleated in birds) and fibroblasts. We were getting closer to defining some of the mutations, but some “Why’s “ remained.

In the 1980’s I began to collaborate with Dr. Gary Smith in our department. He was a first rate cell culturist and virologist. He introduced us to the use of conditioned medium from the BRL-3A cell line to increase our yield. We coupled this with the mitotic stimulatory effects of the phorbol ester, TPA. We now could grow large enough quantities of pure melanocytes to do protein studies.

At that same time Dr. Hiroaki Yamamoto joined our lab group and showed us how to do enzyme isolations and electrophoresis. This enabled us to do some neat experiments. We isolated undifferentiated cells under the influence of TPA and using 2-D electrophoresis mapped the proteins present. Similar cultures were released from the TPA and subsequently differentiated. Many new proteins appeared and the putative tyrosinase isozymes were identified. Several mutations were compared. The tentative conclusion was that the autosomal albino mutation was a structural mutation. We were getting closer!

In the mid 1980’s I met Dr. Steve Hughes of the NCI in Frederick, MD. As a retrovirologist he had developed a plasmid that allowed cDNA’s to be spliced into the Avian Leukosis Virus. He agreed to collaborate as did Dr. Yamamoto (now back in Japan) and the late Dr. Takeuchi. Dr. Hughes supplied the plasmid and Drs. Yamamoto and Takeuchi the cDNA for mouse tyrosinase. We spliced in the mouse tyrosinase cDNA and subsequently infected cultured albino chick melanocytes and “cured” the albinism!
Several selective promoters, other than the native, constitutive ALV promoter, were tested by Dr. Toyoko Akiyama who was visiting our lab in the early 1990’s from Keio Univ. of Japan. Finally, the viruses were placed into early chick embryos with some success. This was done with the additional collaboration of Dr. Don Salter then of Michigan State U. If the mouse tyrosinase gene “cured” chick albinism with an appropriate promoter, then the “odds” were that it was the structural gene, but absolute proof was still lacking!

Dr. Akiyama supplied the final proof last year by showing that the autosomal albino mutation was the result of a 6 base pair deletion. The road has ended for this mutation. The journey begun so long ago has been driven to the DNA level. There are other mutations and other questions, so I wish “good hunting” to those who follow behind me. It will be an exciting and marvelous journey as mine has been!

N.B. In this essay, I have only mentioned by name mentors and collaborators. During my tenure, I had a host of graduate students and technicians. They were immeasurably important! To them I say, “You are not and will not be forgotten!”

REFERENCES


Positions - Wanted and Available:

Research Associate/Post Doctoral Fellow Position Available

Position available for either an entry level postdoctoral fellow or a more senior research associate to study the molecular and cellular biology of the melanocyte in general and the pathophysiology of vitiligo in specific. The research project will focus globally on the role of survival factors and apoptotic regulators on the viability of melanocytes in the skin and in culture. In addition, the project will focus on the genetic and cellular susceptibility of melanocytes from patients with vitiligo to under apoptosis in response to various stimuli. Postdoctoral fellow candidate should have experience with routine molecular and cellular techniques including cell culturing, site directed mutagenesis, and protein biochemistry. Research Associate candidate should have similar experiences utilizing the melanocyte system. Candidate will become part of an interactive research group focusing of various aspects of pigmentation in the Department of Dermatology and on skin physiology in the Skin Sciences Institute within the University of Cincinnati College of Medicine. Send curriculum vitae and list of three references to:

Raymond E. Boissy, Ph.D.
Professor of Dermatology and Cell Biology, Neurobiology, & Anatomy
Department of Dermatology
University of Cincinnati College of Medicine
231 Albert Sabin Way, ML-0592
Cincinnati, OH, 45267-0592
Postdoctoral Research Position

A postdoctoral position is available immediately to study the transcriptional co-repressor and co-activator activities of the oncogenic protein Ski in human melanomas (PNAS (USA) 97:5924-5929, 2000). Seeking individuals with experience in EMSA, in vitro transcription-translation, site-directed mutagenesis and yeast two-hybrid screening. Interested individuals should send inquiries and applications (including CV, a brief description of past experience and future research interests, and the name of three references) to:

Estela E. Medrano, Ph.D.
Huffington Center on Aging
Baylor College of Medicine
One Baylor Plaza N-803.01
Houston, TX 77030

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Postdoctoral Fellows - Cancer and Developmental Biology - Two NIH-funded positions are available for fellows interested in studying the Hedgehog signaling pathway in development and disease using skin as a model system. One project centers on defining the function of the Hedgehog pathway during skin appendage morphogenesis (Dev. Biol. 205: 1-9, 1999); a second project focuses on understanding how deregulated activation of this pathway gives rise to basal cell carcinomas (Nature Genet. 24: 216-7, 2000). Applicants should have a solid background in molecular and cell biology, with experience in transgenic animal models desirable but not required. Interested individuals should send a CV, letter of interest, and names of three references to: Dr. Andrzej Dlugosz, University of Michigan, Department of Dermatology and Comprehensive Cancer Center, 3310 CCGC, Box 0932, 1500 East Medical Center Drive, Ann Arbor, MI 48109-0932 Email: dlugosza@umich.edu. The University of Michigan is an Equal Opportunity Employer.
**Postdoctoral Research Associate** - Position available to study the biology of human inherited disorders of pigmentation using gene transfer technology. The successful applicant will have a Ph.D. and/or M.D. with experience in cell biology and molecular biology. Experience in gene transfer/genome manipulation is preferred. Please send curriculum vitae along with the names of three references to Dr. Richard King, Division of Genetics, Department of Medicine, Box 485 Mayo, 420 Delaware St. S.E., University of Minnesota, Minneapolis, MN 55455. Equal Opportunity Employer.

**Postdoctoral Position** - Ph.D. in molecular biology, biophysics, genetics or biochemistry. Position available to conduct research on molecular mechanisms of cellular response to oxidative stress in human melanocytes and melanoma cells and its regulation for preventive and therapeutic indications. Contact Dr. Frank L. Meyskens Jr., Director, University of California-Irvine, Chao Family Clinical Cancer Research Center, 101 The City Drive, Orange, CA 92668, USA. Fax (714) 456-5039 Email flmeyske@uci.edu
MELANINS, MELANOGENS & MELANOGENESIS

MELANOCYTES & KERATINOCYTES


Schwahn DJ, Xu WD, Herrin AB, Bales ES, Medrano EE: Tyrosine levels regulate the melanogenic response to α-melanocyte-stimulating hormone in human skin keratinocytes. MELANOMA RES 11:52-54 (2001).


**MELANOMA & METASTASIS**


Pelayo BA, Fu YM, Meadows GC: Decreased tissue plasminogen activator and increased plasminogen activator inhibitors and increased activator protein-1 and specific promoter 1 are associated with inhibition of invasion in human A375 melanoma deprived of tyrosine and phenylalanine. INT J ONCOL 18:877-883 (2001).


**MSH, POMC, GROWTH FACTORS & RECEPTORS**


- Frändberg PA, Doufexis M, Kapas S, Chhablani V: Cysteine residues are involved in structure and function of melanocortin 1 receptor: Substitution of a cysteine residue in transmembrane segment two converts an agonist to antagonist. BIOCHEM BIOPHYS RES COMMUN 281:851-857 (2001).


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