

Production Assistance for Cellular Therapies

Welcome to the



Educational Web Seminar

June 25, 2008

12:00 Noon - 1:00 PM ET

Faculty Disclosure Information

The Accreditation Council for Continuing Medical Education (ACCME) is the governing body that accredits AABP to provide continuing medical education credits for physicians. In accordance with the ACCME *Standards for Commercial Support*, all faculty for this event have signed a conflict of interest form in which they have disclosed any significant financial interests or other relationships with the industry relative to the topics they will discuss during this program.



Faculty Disclosure Information

Faculty	Disclosure	Nature of Relationship	Manufacturer/Provider
Carol Blaisdell	None	non-PACT member	NHLBI/NIH
Traci Mordbro	None	PACT member	NHLBI/NIH
Lisa Davis	None	PACT member	The EMMES Corporation
David Styers	None	PACT member	The EMMES Corporation



About PACT

- An NHLBI-funded initiative committed to the advancement of effective cell therapies
- PACT supports the development of novel somatic cell therapy products by providing production assistance to the cell therapy community, as well as educational training via web seminars and on-site workshops
- PACT manufactures quality cell therapy products on behalf of investigators with funded clinical trials requiring support in product development and approval
- PACT's educational training focuses on three general areas: translational development/scale-up and manufacture of cell therapy products; and quality assurance and regulatory issues



PACT Members

The PACT Group provides education, leadership and production assistance to the cell therapy community through federally-funded contract manufacturing of therapeutic cell products.

Today's Education Web Seminar Speakers

Traci Mondoro, PhD
NHLBI/NIH

Carol Blaisdell, MD
NHLBI/NIH

Q & A Session

Web Seminar Description

A brief overview of the history and scope of the NHLBI and will focus on the funding and training opportunities offered by NHLBI will be provided along with an overview of cell therapy applications in lung disease indications

Web Seminar Objectives

- ✦ Learn the steps to follow when applying for training and funding opportunities within NHLBI
- ✦ List challenges of classical stem cell hierarchical models in the biology of lung stem cells
- ✦ Recognize the potential role of endogenous stem/progenitor cells in the lung for repair/regeneration

Presentation Slides

The presentation slides for this web seminar are available publicly on the main page at:

www.pactgroup.net

For prior web seminar presentations select

“Education→PACT Web Seminars”



PACT Updates

**PACT Web Seminar #11
“Validation Processes”**

**Dr. Caroline Keever-Taylor
(Medical College of Wisconsin)
July 31, 2008 12:00-1:00pmET**

Visit www.pactgroup.net
for further details



PACT is supported with Federal funds from:

National Heart, Lung, and Blood Institute, National Institutes of Health, Department of Health and Human Services

Baylor College of Medicine Contract Number: N01-HB-37163

The University of Minnesota Contract Number: N01-HB-37164

The University of Pittsburgh Contract Number: N01-HB-37165

Administrative Center-The EMMES Corporation Contract Number: N01-HB-37166



Training and Career Development Grant Opportunities at NIH

Traci Heath Mondoro, Ph.D.
Division of Blood Diseases and Resources
National Heart, Lung, and Blood Institute



What are the duties of program staff?

- Advocacy - for you and your scientific community
- Maintaining our portfolios - monitoring your progress
- Helping you through the application, review, and funding process
- Being a resource for any NIH questions

Awards For New Researchers

- Mentored Clinical Scientist Development Award (K08)
- Independent Scientist Award (K02)
- Pathway to Independence Award (K99/R00)
- Mentored Patient-Oriented Research Career Development Award (K23)
- Mentored Quantitative Research Career Development Award (K25)

Mentored Clinical Scientist Development Award (K08)

- **Applicants:** Clinicians who are interested in developing independent research careers.
- **Application deadlines:** February 12, June 12, and October 12.
- **Salary:** Up to \$75,000 per year plus benefits and up to \$25,000 per year for research development support.
- **NHLBI contact:**
Ms. Lorraine Silsbee
Phone: 301-435-0709, Email: Silsbeel@nhlbi.nih.gov

Independent Scientist Award (K02)

- **Applicants:** Investigators at non-federal public or profit U.S. institutions engaged in health-related research.
- **Application deadlines:** February 12, June 12, and October 12.
- **Salary:** Up to \$75,000 per year plus benefits.
- **NHLBI contact:**
Dr. Traci Mondoro
Phone: 301-435-0052, Email: mondorot@nhlbi.nih.gov

Mentored Patient-Oriented Research Career Development Award (K23)

- Applicants: Scientists who are committed to developing careers in patient-oriented research.
- Application deadlines: February 12, June 12, and October 12.
- Salary: Up to \$75,000 per year plus benefits and up to \$25,000 per year for research development support.
- NHLBI contact:
Ms. Ann Rothgeb
Phone: 301-435-0202, Email: rothgeba@nhlbi.nih.gov

Mentored Quantitative Research Career Development Award (K25)

- Applicants: Individuals with an advanced degree in a quantitative area of science or engineering who are committed to careers as independent biomedical or behavioral investigators.
- Salary: Up to \$75,000 per year plus benefits and up to \$40,000 per year for research development support.
- Application deadlines: February 12, June 12, and October 12.
- NHLBI contact:
Dr. Michael Commarato
Phone: 301-435-0535, Email: CommaraM@nhlbi.nih.gov

NHLBI Mentored Minority Faculty Development Award (K01)

- Applicants: Underrepresented minority faculty members interested in cardiovascular, pulmonary, hematologic, or sleep disorders research.
- Application deadline: Announced annually, usually late August.
- Salary: Up to \$75,000 per year plus benefits, and up to \$30,000 per year for research support.
- NHLBI contact:
Ms. Lorraine Silsbee
Phone: 301-435-0709, Email: silsbeeL@nih.gov

Pathway to Independence Award (K99/R00)

- Five years of support in two phases
- Initial phase of 1-2 years of mentored support
- Second phase of 3 years of independent support contingent upon securing a research position
- NHLBI contact:
Dr. Helena Mishoe
Phone: 301-451-5081, Email: mishoeh@nhlbi.nih.gov

Review Distinctions

- Center for Scientific Review—NIH-wide, home to generic study sections
- Institutes have their own review branches to review all K applications and special opportunities presented in RFAs

Career Development Plan

- Counterintuitive to scientific training
- K reviews are based on applicant's proposed training experience
- Didactic plan should be specific-use NIH K30 program if you have access
- Use NHLBI Model Applications

Advisory Committee

- Mentoring and monitoring
- Add any experts that your project needs
- Biostatistician
- Epidemiologist
- Ethicist
- Technology-related expert

How do I prepare to submit my grant application?

- Call program staff
- Read info on website and use model applications
- Talk to other grant recipients in your department
- Use institutional resources
- Talk to faculty who serve on study sections

What happens after I submit my grant application?

- K series goes electronic in 2009
- Receive confirmation from review branch
- Scores available 1 week post-review
- Scientific review officer is your primary contact between receipt and review

How can we persuade NHLBI to set aside funds for our scientific issues?

- Give us documentation of the issues
- Collaborate on workshops and working groups
- Program staff write up proposed initiatives
- Initiatives undergo 2 levels of review
- Director and budget office have final say

Sites for Grant Writing Tips

- <http://www.nci.nih.gov/researchandfunding/grantprocess>
- <http://www.niaid.nih.gov/ncn/qa/newpi.htm>
- <http://www.nigms.nih.gov/Research/Application/Tips.htm>



Overview of Cell Therapy in Lung Biology and Disease

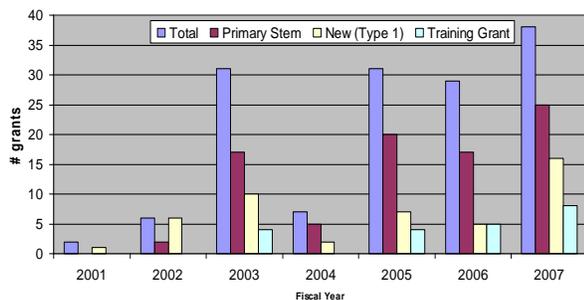
Carol J. Blaisdell M.D.
 Medical Officer
 Developmental Biology and Pediatrics
 Division of Lung Diseases, NHLBI

FY08 DLD Program in Stem Cell Research

- Major areas of investigation
 - Identification of putative stem cell populations
 - Mechanisms of recruitment of stem cells to lung
 - Reparative mechanisms by stem cell populations

- No studies in preclinical/clinical testing
- Few using human models (3 non embryonic, 2 embryonic)

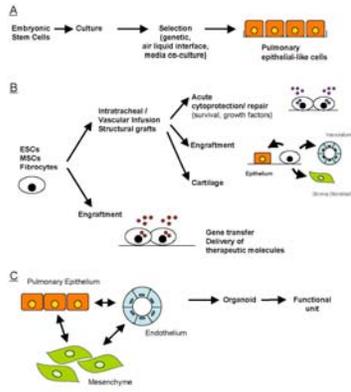
DLD funded Stem Cell Grants



RFA “Collaborative Studies on Lung Stem Cell Biology and Cell Based Therapy” (R01) (HL-07-003)

- 7 investigators funded 9/07 (32 applications), met 12/07
- Characterization and identification of endogenous lung stem cells
 - Role of bone marrow stromal cells in mediating lung repair
 - Innovative strategies in delivery of regenerative cells
 - Strategies to enhance epithelial reparative capacity
 - Use of support matrices to augment lung tissue repair

Origin of Lung Reparative Cells



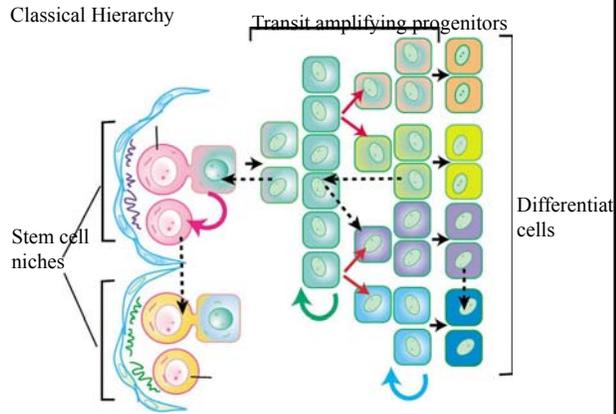
Jeff Whitsett

Glossary of Terms

- **Dedicated stem cell** A relatively undifferentiated cell present in the adult organ, usually in localized niches. It normally divides infrequently; is capable of both long-term ('lifetime') self-renewal and of giving rise to daughter cells that differentiate into one or more specialized cell type; and it functions in both tissue homeostasis and repair.
- **Facultative stem cell** Differentiated cell that is normally quiescent but responds to injury by dividing and self-renewing, and giving rise to progeny that differentiate into one or more cell types.
- **Metaplasia** Strictly, the process by which a stem or progenitor cell of one tissue switches to become a progenitor of cells of another tissue type.
- **Post-mitotic differentiated cell** A cell that can no longer divide and must be replenished during normal turnover or injury.
- **Progenitor cell** Either a cell in the developing organ, usually multipotent, that is the source of an initial population of adult cells before turnover begins, or, more loosely, a cell that gives rise to another cell. Cell lineage relationships during development may not necessarily reflect those that occur during repair.
- **Self-renewing differentiated cell** Differentiated cell that divides and self-renews over the long term. Functions in both normal tissue homeostasis and in response to injury.
- **Transit amplifying (TA) cell** An intermediate between a dedicated stem cell and its final differentiated progeny. Can proliferate, self-renew over the short term and give rise to one or more differentiated cell type.

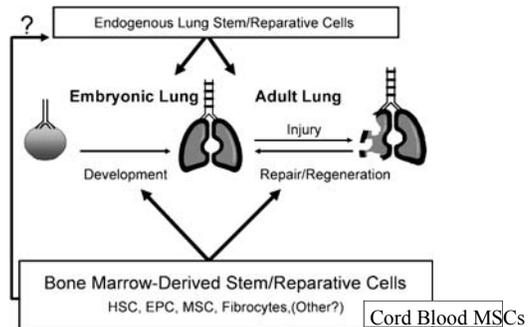
Hogan *Dev* 2006

Classical Hierarchy

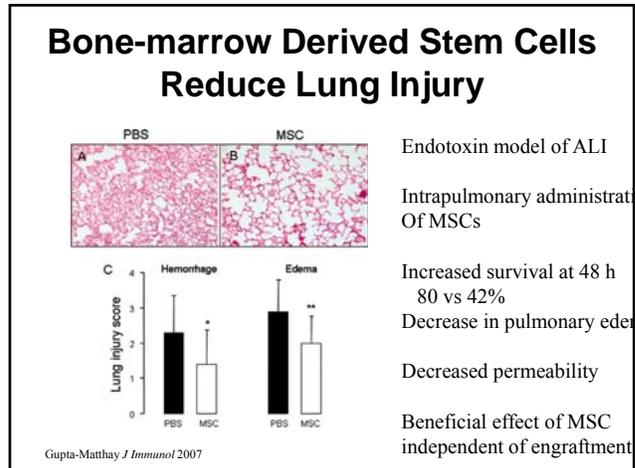
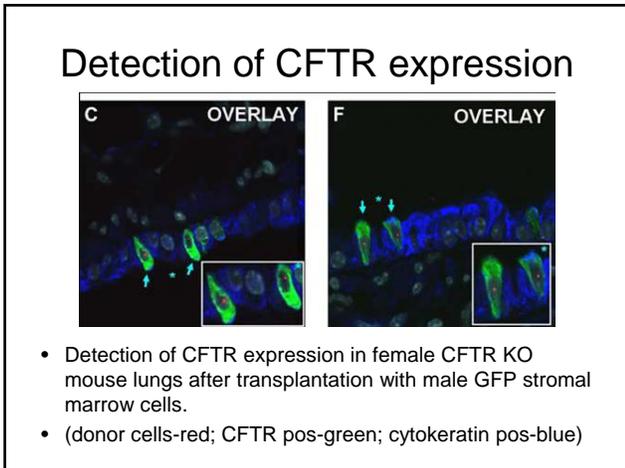
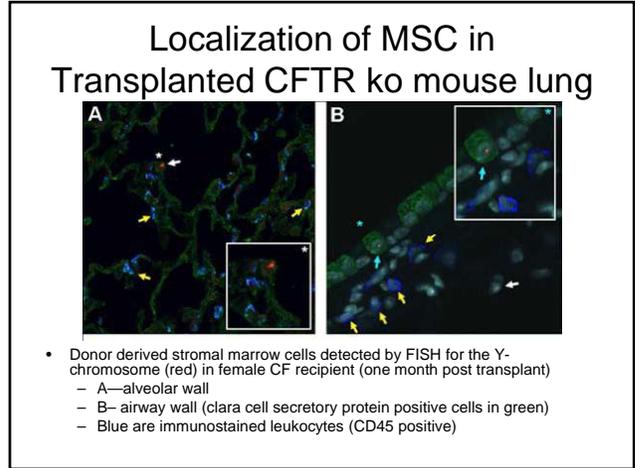
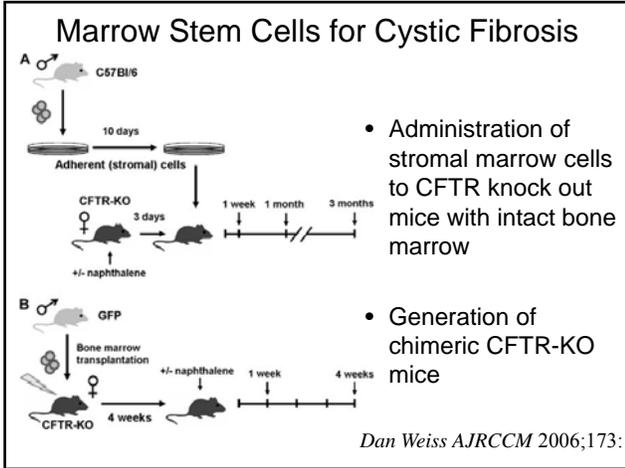


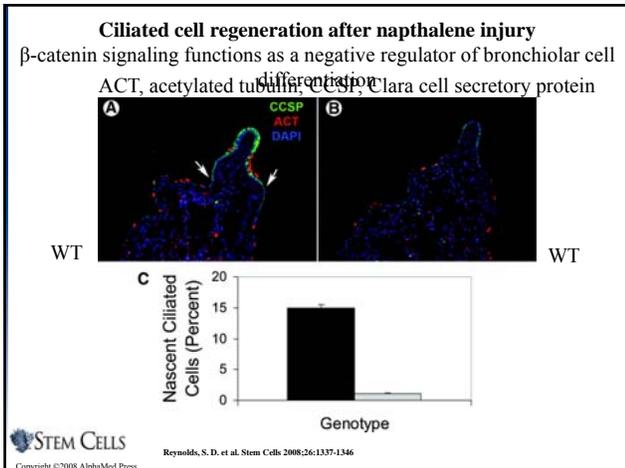
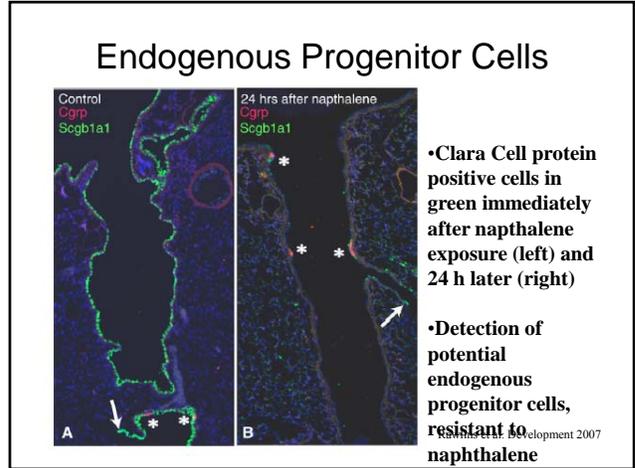
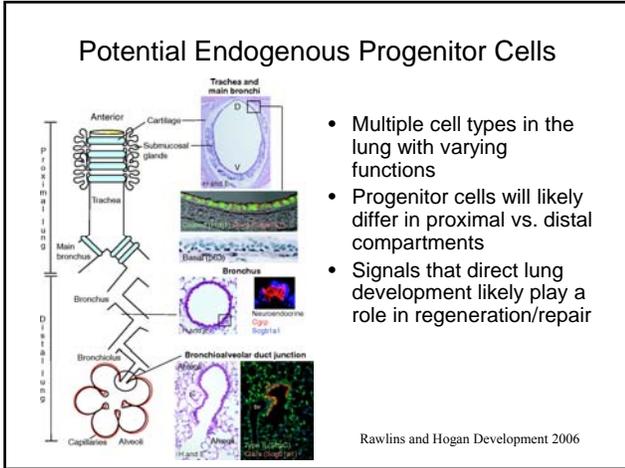
Hogan *Dev* 2006

Origin of Lung Reparative Cells



NHLBI/Cystic Fibrosis Foundation Workshop *Proc Am Thorac Soc* 2006; Weiss *AJRCCM* in press





Unresolved Questions

- What is the normal biology of lung stem cells and how are they regulated?
- Because engraftment of lung cells is rare in current models:
 - Can engraftment be enhanced with new models?
 - Can embryonic stem cells be directed to differentiate?
- What are the underlying mechanisms of repair by stem cells after lung injury in animal models, and can these results be safely and effectively translated to modulation of human lung inflammation, injury, and repair?

Lung Resources Needed

- Gene expression profiling of stem/progenitor cell populations.
- Monoclonal Ab libraries – screening, production.
- Human tissue/cells CORE for preparation and distribution of human lung tissue for in situ investigations of progenitor cell populations and for primary cell preparation.
- **PACT could be expanded for preclinical cell based therapy studies**
 - Bone marrow or cord blood MSCs
 - Lung biopsy expanded progenitor cells

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Speaker Contact E-mails



Traci Mondoro, PhD
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Carol Blaisdell, MD
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Presentation Slides

The web seminar presentation will be made available publicly at <http://www.pactgroup.net>

under Education > PACT Web Seminars

CME Accreditation Statement

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CME Credit

If you are interested in obtaining CME credit for attending this web seminar, please note that each attendee must:

➤ Sign and fax roster to 240-306-2527

➤ Complete an online survey

[http://www.surveymonkey.com/PACT Web Seminar10 Survey](http://www.surveymonkey.com/PACT%20Web%20Seminar10%20Survey)
(link above embedded in the reminder email sent Tuesday, June 24th)

Note: Please complete within 48 hrs of the program.



AABB Live Learning Center

After the rosters have been processed, you will receive an email from AABB with instructions on how to print your CME/CE certificates.



Thank you for attending!

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