

Production Assistance for Cellular Therapies



Educational Web Seminar

Accelerating Your Cell Therapy:

A PACT Program Update

Monday, 11 February 2019

12:00 noon - 1:00 PM ET

Speakers

Lis Welniak, PhD
Director
PACT Program
National Heart, Lung, and Blood Institute, NIH

Robert Lindblad, MD
Principal Investigator and Chief Medical Officer
PACT Program Coordinating Center
The Emmes Corporation

Ann M. Leen, PhD
Associate Professor
Department of Pediatrics
Baylor College of Medicine

David H. McKenna, Jr., MD
Director
Molecular and Cellular Therapeutics Facility
University of Minnesota

Overview

- Collaboration with NHLBI/NIH programs
- PACT program updates– clinical scope, regulatory services, and information on application process
- Examples of 2 previous PACT clinical projects
- Q&A

Production Assistance for
Cellular Therapies



Educational Web Seminar

Accelerating Your Cell Therapy:

A PACT Program Update

Monday, 11 February 2019

12:00 noon - 1:00 PM ET

PACT - Collaboration

Lis Welniak, PhD
Program Director, PACT
Division of Blood Diseases and Resources
National Heart, Lung, and Blood Institute



Collaboration

- NIH Regenerative Medicine Innovation Project (RMIP)
- NHLBI Cure Sickle Cell Initiative
- And with other NIH and NHLBI Programs

CURE SICKLE CELL.

NIH Regenerative Medicine Innovation Project (RMIP)

- 21st Century Cures Act passed in December 2016
- Support for clinical research on adult stem cells
- NIH released 4 funding opportunities, applications were due October 19, 2018
- PACT to offer RMIP awardees:
 - technical and administrative services to assist with FDA regulatory requirements
 - Phase-appropriate manufacturing assistance for the development of their clinical-grade product



NIH Regenerative Medicine Innovation Project (RMIP)- PACT's role in the NIH RMIP activities

Announcements NIH Regenerative Medicine Innovation Project (RMIP) PACT's role in the NIH RMIP activities

Under the scope of the [NIH Regenerative Medicine Innovation Project \(RMIP\)](#), NIH is establishing a Regenerative Medicine Innovation Catalyst (RMIC) to evaluate the efficient development of safe and effective adult stem cell-based therapies and to further the field of regenerative medicine. PACT will be supporting RMIC operations by offering regulatory support services and phase-appropriate manufacturing assistance to RMIP awardees.

In keeping with the [21st Century Cures Act](#) passed in December 2016, NIH established in coordination with FDA the [Regenerative Medicine Innovation Project](#) to accelerate the field by supporting clinical research on adult stem cells while providing the highest standards for safety and scientific, research and regulatory patient safety. The Cures Act authorized \$2 billion in federal awards over four years (2017-2020) for the RMIP, which has a goal of making awards for the most promising research proposals. [Cures Act Scientific Advancements \(CSAs\)](#) for new awards were issued in August 2018, and it is anticipated that these CSAs will support projects that include both late stage pre-clinical (IND/IDE) studies and carefully selected early phase clinical trials. To accelerate advances in the field of regenerative medicine and to address challenges identified by the research community, the NIH is establishing a Regenerative Medicine Innovation Catalyst (RMIC). The RMIC is a resource that aims to optimize the efficient development of safe and effective adult stem cell-based therapies and to further the field of regenerative medicine. The RMIC will provide much-needed clinical services to support RMIP awardees with manufacturing assistance for preparation of clinical grade stem cell products and to address regulatory requirements. Toward that end, PACT will be supporting the RMIC operations as described below:

- As needed, PACT will offer free of charge to RMIP awardees technical and administrative services to assist them in understanding and addressing FDA regulatory requirements. These include assistance with preparing regulatory guidance documents during the IND application process and providing consultation regarding optimal preparation for FDA meetings. Of note, PACT will not carry out required regulatory activities on behalf of the RMIP awardee such as filing IND or IDE applications and associated information or conducting other regulatory representational activities.
- Under certain circumstances, PACT will provide RMIP awardees phase-appropriate manufacturing assistance for the development of their clinical-grade product.

RMIP FDA awardees are strongly encouraged to enroll early in the application process with the relevant Scientific/Research contract listed in the FDA and read the [RMIP FAQs](#) for further information to determine the suitability of the above services for their project development process.

Cure Sickle Cell Initiative



- Launched in September 2018
- To accelerate the development of genetic therapies to cure sickle cell disease
- PACT will support the Cure Sickle Cell Initiative by enabling increased capacity to safely manufacture cellular therapy products through cell processing facilities capable of producing cGMP-grade genetically modified cells
- PACT currently providing regulatory support services to investigators
 - Pre-IND meeting package preparation
 - Pre-IND meeting support

7

How is the Cure Sickle Cell Initiative contributing to scientific discoveries?

The Cure Sickle Cell Initiative builds on the legacy of NHLBI-supported research that has contributed to improving clinical care for patients who have sickle cell disease. It will also complement the Institute's broader sickle cell disease research investment, which includes basic, clinical, translational, and implementation science research.

The Initiative supports the following:

- **Enhanced clinical trial recruitment and establishment of transplant standards** to quickly and safely move clinical studies forward
- **Increased capacity to safely manufacture cellular therapy products** through the NHLBI Production Assistance for Cellular Therapies (PACT program), which includes cell processing facilities to produce genetically modified cells so they can be safely used in patients



The NHLBI-led Cure Sickle Cell Initiative engages PACT to accelerate the development of promising genetic therapies. Learn more at <https://curingsicklecell.nhlbi.nih.gov>

Collaboration

- PACT mission
 - to support the production and testing of novel cell therapies, particularly in relation to the strategic goals, objectives and research priorities of NHLBI <https://www.nhlbi.nih.gov/about/strategic-vision>



CURE SICKLE CELL.

**Production Assistance for Cellular Therapies (PACT) Program
NHLBI**

*Robert Lindblad, MD
Chief Medical Officer
The Emmes Corporation
PI PACT Coordinating Center*

Objectives

- **What is PACT?**
- **Why contact PACT?**
- **How do I contact PACT?**


Email: pactgroup@emmes.com

Website: www.pactgroup.net

Outline

- **PACT PROGRAM**
 - Program, cell types, application for manufacturing assistance
 - Education
 - Technical projects
- **REGULATORY SUPPORT**
 - Gap analysis
 - FDA meeting support

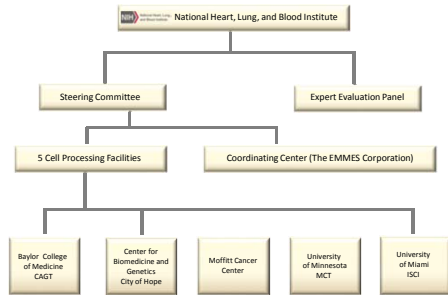
PACT Program

- NHLBI-funded initiative  National Heart, Lung, and Blood Institute
- PACT 1: Began in September 2003-2009 (1 year no cost extension)
 - 3 facilities/1 Coordinating Center. Scope - clinical product support
- PACT 2: Renewed in January 2010-2015
 - 5 facilities/1 Coordinating Center. Scope - clinical/translational
- 1 ½ year hiatus
- PACT 3: Re-awarded in July 2016
 - 5 facilities/1 Coordinating Center. Scope - preclinical/translational

Current Mission

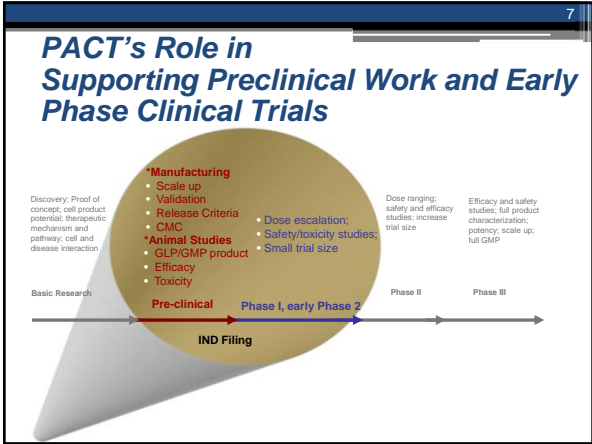
Provide assistance with cellular therapy translational research and the manufacture of cellular therapy products

PACT Organizational Structure



Scope


- Products and services of programmatic interest to the National Heart, Lung and Blood Institute
- Products that aid in the repair and regeneration of damaged/diseased tissues, organs, and biologic systems
- Cell therapy manufacturing for preclinical studies including basic and translational work
- Cell therapy manufacturing for phase 1/2 clinical trials
- Regulatory support
- Proposals possessing procedural advancements to further foster and standardize cell therapies



[About PACT](#) • [Apply to PACT](#) • [Education](#) • [Resource Center](#) • [Bibliography](#) • [Events](#) • [FAQ](#)

Partners in the development of cell therapies

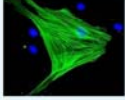
PACT Mission



Production Assistance for Cellular Therapies (PACT) is a National Heart, Lung and Blood Institute (NHLBI) funded resource center, composed of the Cell Processing Facilities and a Coordinating Center, created to provide assistance with cellular therapy translational research and the regulation of cellular therapy products. Click on About PACT and PACT Services to learn more about the PACT Mission.

[Read more](#)


Education



Part of the PACT mission is to promote interest in cellular therapy engineering among physicians and scientists in training and to prepare interested individuals for advanced careers in cellular therapy engineering.

[Read more](#)

Resource Center



PACT continues to achieve its objectives in contributing to the advancement in the field of cellular therapy through information exchange and research.

[Read more](#)

[About PACT](#) • [Apply to PACT](#) • [Education](#) • [Resource Center](#) • [Bibliography](#) • [Events](#) • [FAQ](#)

Apply to PACT

PACT is currently accepting online requests for clinical manufacturing, translational development and regulatory services. Registration is required to access the online application system. Once you have registered you can submit a PACT Request for Service Application (RSA) at any time.

Click here to register and apply:

[Apply Here](#)

Please contact the PACT Coordinating Center, The Enness Corporation, at pactgroup@enness.com if you need assistance with your online application or have any additional questions.

If you are interested in applying for PACT services, please review the PACT FAQs and information materials in the tabs below to get started.

PACT Information Materials	The following documents provide information on the PACT services offered, a listing of major cell product manufacturing capabilities at PACT facilities.	View
PACT Application Materials		
Translational Development or Clinical Services Requests	<ul style="list-style-type: none"> • Overview of PACT Services and Capabilities • Clinical Manufacturing and Regulatory Services Support - NEW • Cell Product Manufacturing Capabilities at the PACT Facilities 	
Regulatory Service Requests		
Combination Service Requests		

PACT Production Assistance for Cellular Therapies
www.pactprogram.com
 National Heart Lung and Blood Program

Login Connect with Us Search

Home About PACT Apply to PACT Education Resource Center Bibliography Events FAQ

Apply to PACT

PACT is currently accepting online requests for clinical manufacturing, translational development and regulatory services. Registration is required to access the online application system. Once you have registered you can submit a PACT Request for Service Application (RSA) at any time.

Click here to register and apply:
[Apply Here](#)

Please contact the PACT Coordinating Center, The Emmes Corporation, at pactprog@emmes.com if you need assistance with your online application to have any additional questions.

If you are interested in applying for PACT services, please review the PACT FAQs and information and materials in the tabs below to get started.

PACT Information Materials View

PACT Application Materials

Translational Development or Clinical Services Requests

Regulatory Services Requests

Combination Services Requests

The following documents provide information on the criteria that NHLBI will take into consideration when performing the initial scope review as well as evaluating the full RSA review (full review for Translational or Clinical RSAs only):

- PACT Application: Scope Criteria
- PACT Evaluation Criteria

You can reference the **PACT Application System Users Guide** for questions on how to complete initial registration and how to navigate within the application system. You may contact pactprog@emmes.com for technical assistance with submitting your application.

Apply to PACT

PACT is currently accepting online requests for clinical manufacturing, translational development and regulatory services. Registration is required to access the online application system. Once you have registered you can submit a PACT Request for Service Application (RSA) at any time.

Click here to register and apply:
[Apply Here](#)

Please contact the PACT Coordinating Center, The Emmes Corporation, at pactprog@emmes.com if you need assistance with your online application to have any additional questions.

If you are interested in applying for PACT services, please review the PACT FAQs and information and materials in the tabs below to get started.

PACT Information Materials View

PACT Application Materials

Translational Development or Clinical Services Requests

Regulatory Services Requests

Combination Services Requests

The following documents provide information on the criteria that NHLBI will take into consideration when performing the initial scope review as well as evaluating the full RSA review (full review for Translational or Clinical RSAs only):

- PACT Application: Scope Criteria
- PACT Evaluation Criteria

You can reference the **PACT Application System Users Guide** for questions on how to complete initial registration and how to navigate within the application system. You may contact pactprog@emmes.com for technical assistance with submitting your application.

Education

Part of the PACT mission is to provide informal cellular therapy training among physicians and scientists on-training and to prepare interested individuals for academic careers in cellular therapy engineering.

PACT News Summaries View

PACT Workshops

Conferences/Seminars

Year	Event
2019	November 8, 2019 - Issues Involved in Starting CAR T Cell Manufacturing
2017	<ul style="list-style-type: none"> • Training CAR T Cell Products (Adult T Cell 0101) • Training CAR T Cells from the Research Laboratory to the GMP Facility (Diana M. Reznick, PhD) • Choosing Optimal Host Vector for T Cell Transduction (Marian Wernke, PhD) • iPSC Derived Hematoids • iPSC Derived Auto File
2014	June 16, 2014 - Development of GMP Cell Manufacturing of Cordon Stem Cell
2009	<ul style="list-style-type: none"> • Cell Combination Therapy (Joshua Hines, MD, IVAC, Ph.D) • Regulatory Requirements for Clinical Research Product Development (Alicia Wilson, MS, MBA) • Technology Transfer: The Business of Intellectual Property (Din Van, PhD, JD) • iPSC Derived Hematoids • iPSC Derived Auto File
2005	January 16, 2005 - Early Phase Cell Therapy Product Development: Process Assays
2005	<ul style="list-style-type: none"> • Introduction (Linda Kofsky, PhD) • Examples of Applications (Craig Housner, PhD) • Introduction (Chou Chou, RT, AACP) • iPSC Derived Hematoids • iPSC Derived Auto File

[Home](#) | [About PACT](#) | [Apply to PACT](#) | [Education](#) | [Resource Center](#) | [Bibliography](#) | [Events](#) | [FAQ](#)

Resource Center

PACT continues to adhere to objectives in contributing to the advancements in the field of cellular therapy through information exchange and research. Contact Us if you would like to be added to our distribution list for PACT updates (e.g., Web Seminars, Newsletters).

PACT Updates

Clinical Research Readings

SOP Request

Regulatory References

Related Links

Cell Therapy Publications

NIH Funding Opportunities

PACT provides general facility SOPs upon request to assist you in developing your own cell processing facility SOPs. PLEASE NOTE that these SOPs are for INFORMATIONAL PURPOSES ONLY and involve no legal obligation by your own facility. Items in the table are the SOPs currently available. Once you have provided all required information, we will process your request as soon as possible. You should ensure the SOPs you have requested in Attachments Form. If the link above does not function properly with your email client, you may simply send us an email to the address below with the same information.

Click here to request one or more SOPs
*This will open an email window with an email request.

View

View

- Charging Procedures
 - Charging Procedures between Cellular Therapy Products
 - Charging Procedures for the GMP Cell Processing Facility
 - Facility Charging
 - Facility Cleaning and Waste Disposal
- Division Management
- Environmental Monitoring
- Personnel Training
- Quality Assurance/Quality Control
- Quality Management
- Standard Operating Procedures (SOPs)
- Development & Management
- Validation Process
- Links to Other SOPs and Regulatory Documents

14

Educational Resources

- SOPs
 - 309 individual requests totaling >1275 individual SOP distributions
 - 113 US Institutions/sites and 22 international countries

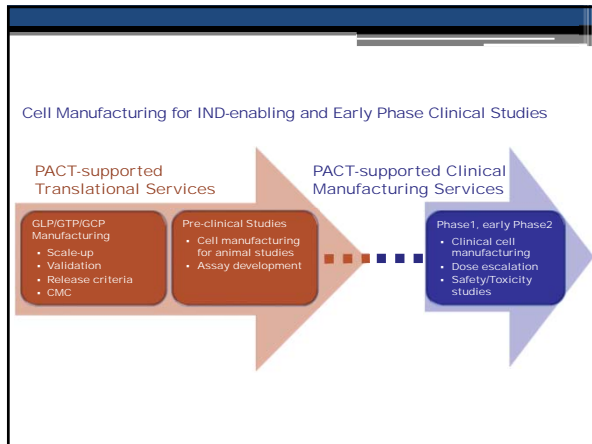
✓ Most requested

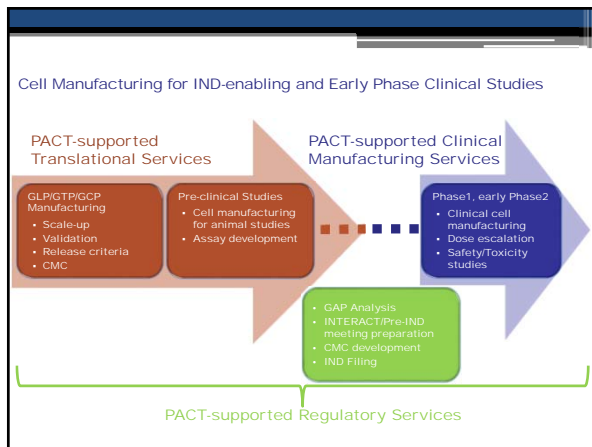
- ✓ Cleaning Procedures
- ✓ Division Management
- ✓ Environmental Monitoring
- ✓ Personnel Training
- ✓ Quality Assurance/Quality Control
- ✓ Quality Management
- ✓ Standard Operating Procedures (SOPs)
- ✓ Development & Management
- ✓ Validation Process

Production Assistance for Cellular Therapies

 National Heart Lung and Blood Program

Regulatory Support





GAP Analysis

- Provides insight into what additional work may be needed to support an IND application
- Geared toward an understanding of how the data generated from Proof of Concept, non-clinical and CMC development map to the requirements of an IND application
- Recommendations for facilitating a successful a PACT Request for Service Application (RSA)



Production Assistance for Cellular Therapies
National Heart Lung and Blood Program

FDA Meeting support

FDA Meeting Support

FDA communication and assistance:

- INTERACT and pre-IND meeting scheduling and planning
- Developed questions to ask the agency
 - Content
 - Format
- Quality of the CMC information
- Status of the Pre-clinical information
- Status of the general investigational plan and proposed clinical indication
- Adequate phase 1 synopsis, defined activity evaluation and protocol

Definitions for Acceleration of Review

- Serious or life threatening disease
 - Disease or condition associated with morbidity that has substantial impact on day-to-day functioning
- Unmet medical need
 - A condition whose treatment or diagnosis is not addressed adequately by available therapy

Other Regulatory Considerations

- Orphan Designation
- Special Protocol Assessment
- Accelerating Development
 - Fast Track
 - Breakthrough Designation
 - Priority Review
 - Accelerated Approval
- Regenerative Medicine Provisions
- Electronic submissions

Contact Information

Lani Ibenana or Ashraf El Fiky

Phone: 301-251-1161

Email: pactgroup@emmes.com

Website: www.pactgroup.net
