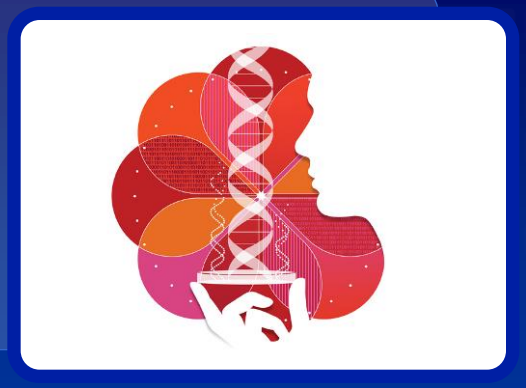


NHLBI Resources To Advance Translational Research

Sonia I. Skarlatos, Ph.D., FAHA
Deputy Director,
Division of Cardiovascular Sciences,
National Heart, Lung, and Blood Institute

NHLBI Mid-Atlantic Innovation Conference
October 15, 2012

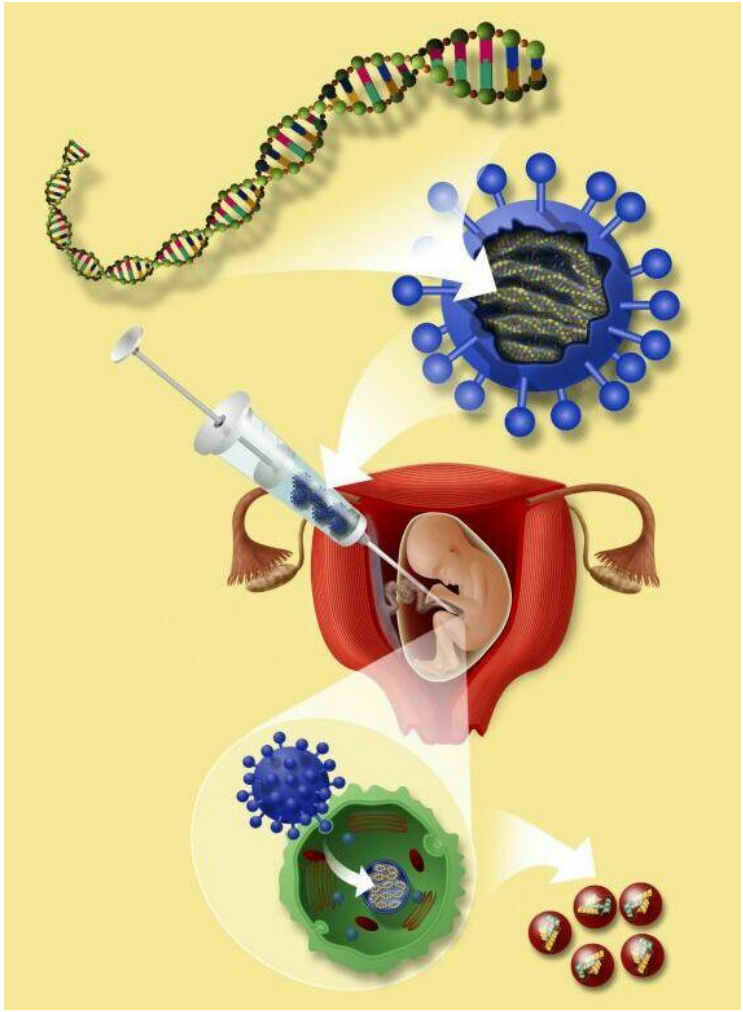
National Heart Lung and Blood Institute

NHLBI Resources

- Gene Therapy Resource Program (GTRP) www.gtrp.org/
- Science Moving TowArds Research Translation and Therapy (SMARTT) www.nhlbismartt.org/

National Heart Lung and Blood Institute

NHLBI Gene Therapy Resource Program

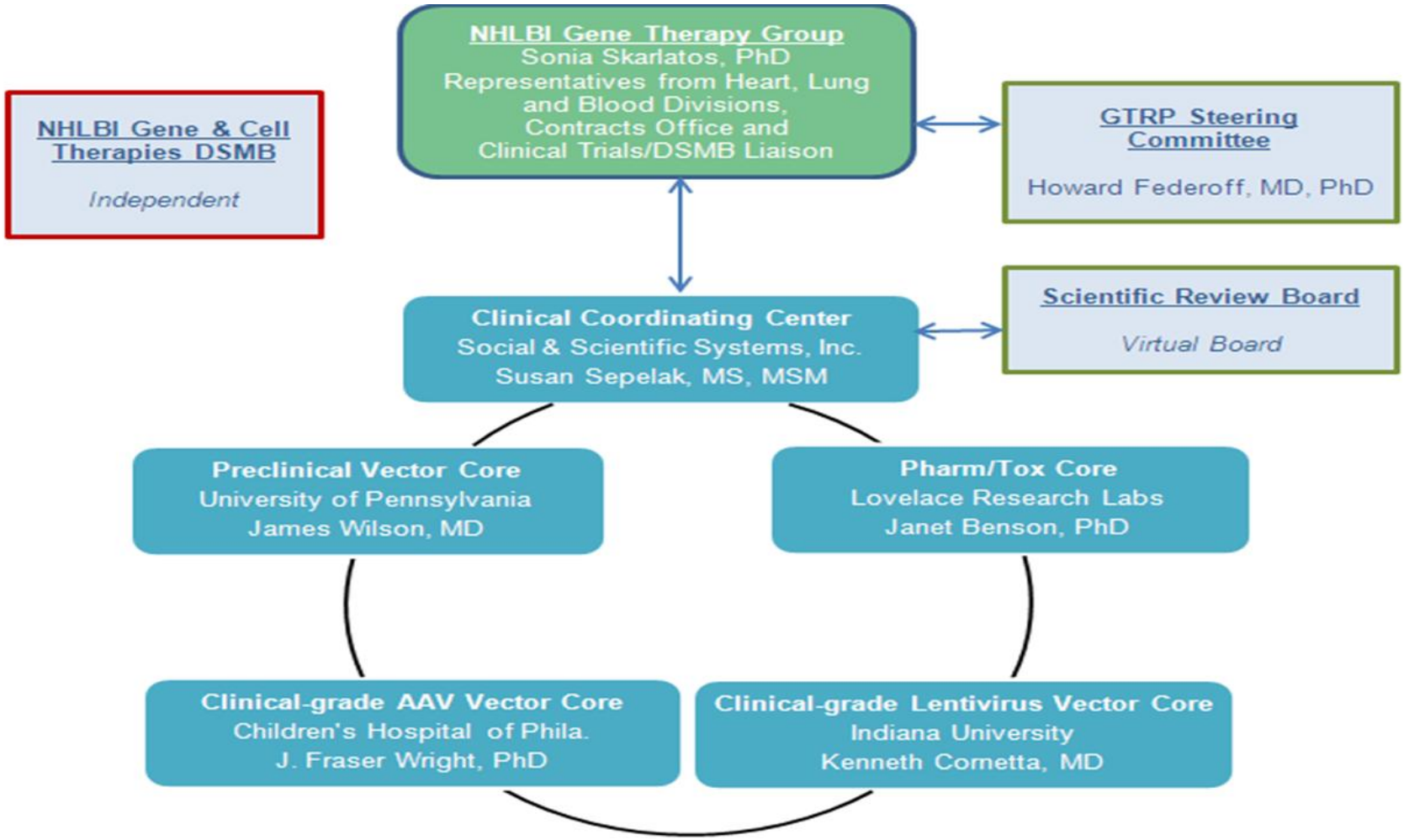


- Facilitate the translation of basic research in gene therapy to clinical application in heart, lung and blood diseases
- Provide the resources needed for gene therapy trials
- Provide support for gene therapy clinical protocols and assistance on regulatory issues

Gene Therapy image from Nikolaus Fiebiger Center of Molecular Medicine, University Erlangen-Nuernberg

National Heart Lung and Blood Institute

Program Infrastructure



National Heart Lung and Blood Institute

Application Process (web-based):

Become a GTRP Investigator

- Complete your online registration at www.gtrp.org
- The CCC will contact you with any questions.
- The NHLBI GTG will review within one week.

RSA Initiation, Development and Submission

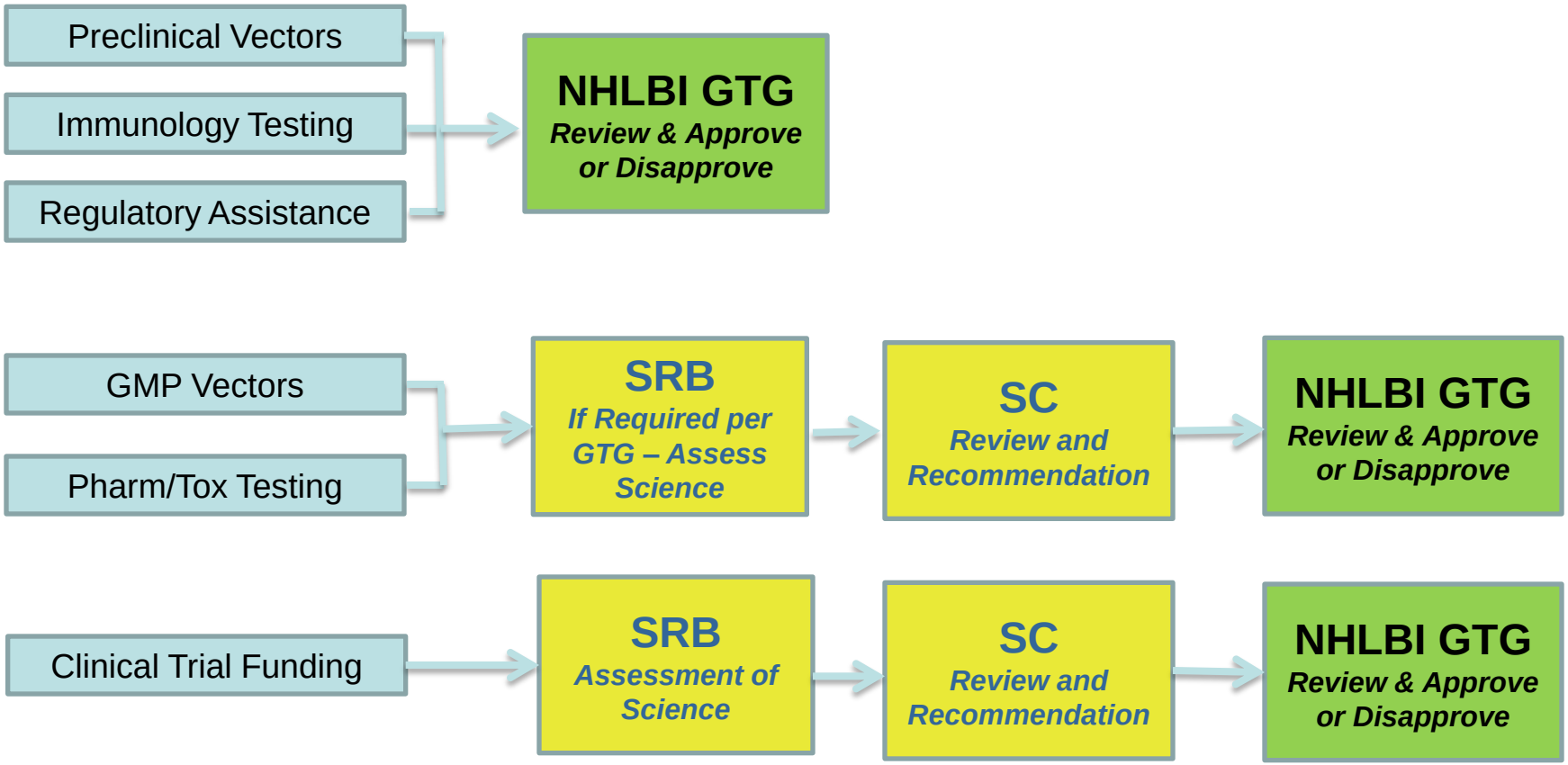
- Initiate RSA & save as prelim
- Develop RSA w/ Core Lab & CCC
- Submit RSA as "Final"

Visit our website: **www.gtrp.org**

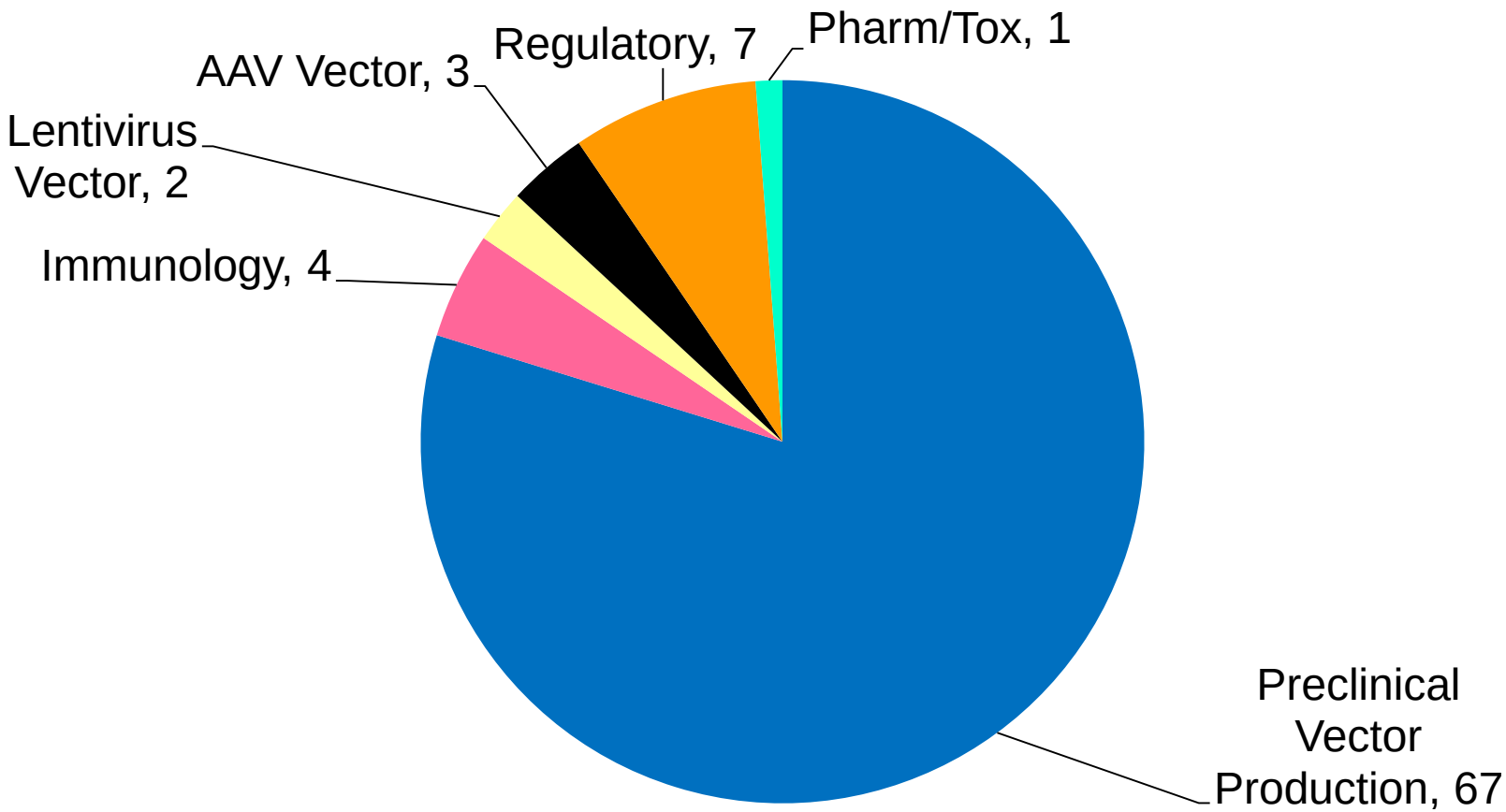
Gene Therapy Resource Program

National Heart Lung and Blood Institute

RSA Review by GTRP



RSAs Completed by Service Type N = 84



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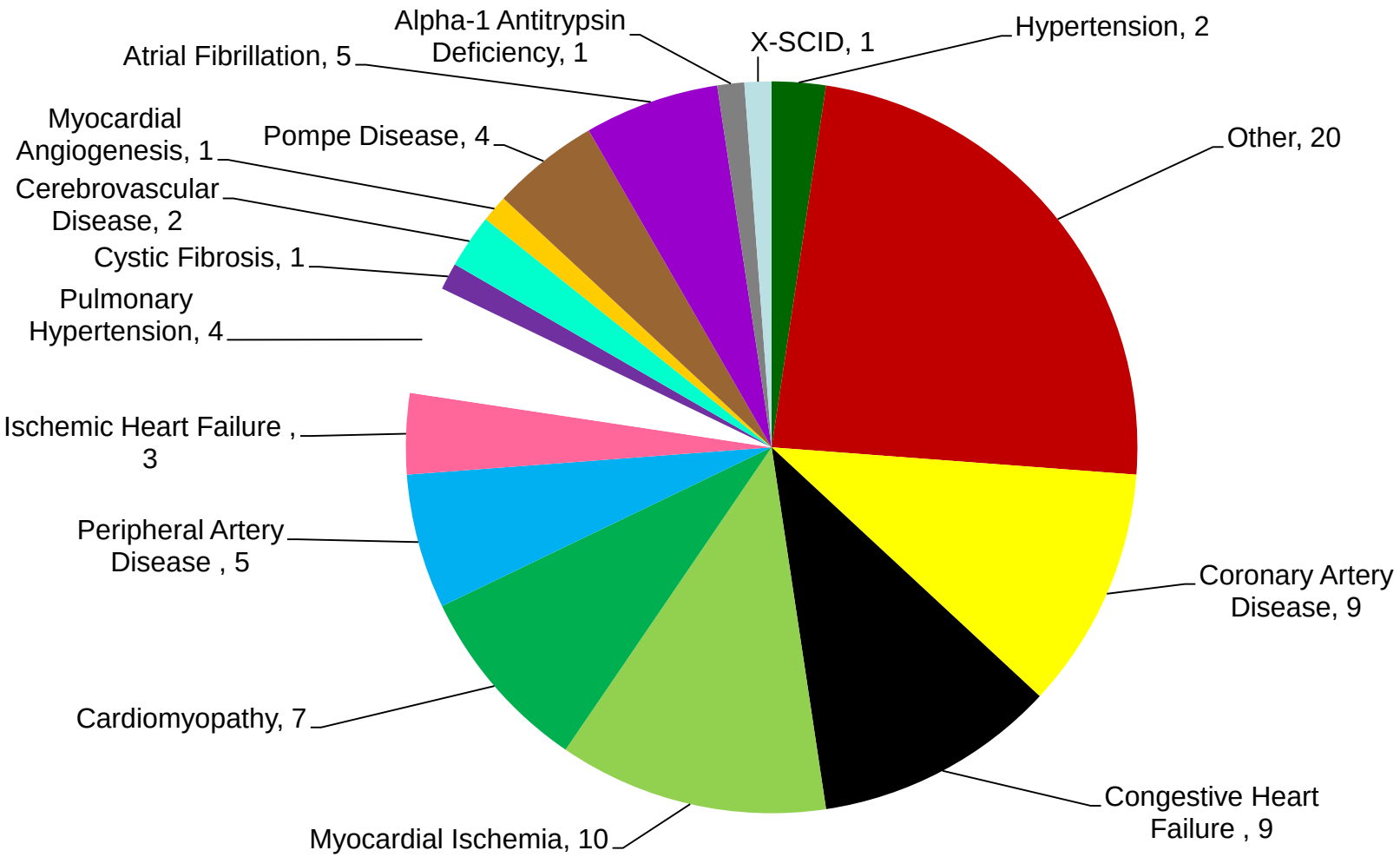
RSAs Completed by Targeted Disease N= 84



National Heart Lung and Blood Institute

Clinical Trials Supported Through GTRP

CHF: Ad5.hAC6

- **Multi-site Phase I/II trial**
- **Safety and potential efficacy – intracoronary delivery**
- **Target n=72; Treated to date=12**

Pompe Disease: AAV Acid Alpha-Glucosidase

- **Single-site Phase I/II trial**
- **Safety and potential efficacy – bilateral diaphragm delivery**
- **Inspiratory Muscle Strength Training (IMST)**
- **Target n=6; Treated to date=3**

Wiskott-Aldrich Syndrome: Lentiviral vector

- **Single-(U.S.)site Pilot and feasibility study**
- **Safety of lentivirus vector encoding WAS cDNA – transduced T-cell delivery**
- **Target n=5; Treated to date=0**

Access to Program Resources

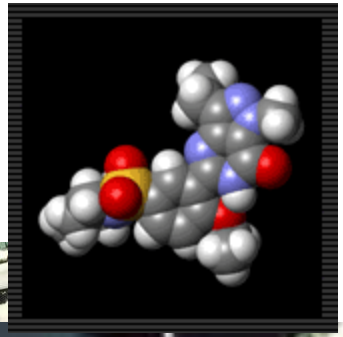
Step 1: Investigator Registration and Approval

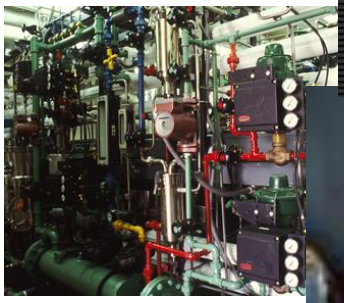
Step 2: Submit RSA

SMARTT Program

Goal: To remove common barriers between laboratory discoveries and clinical trials of new molecular entities

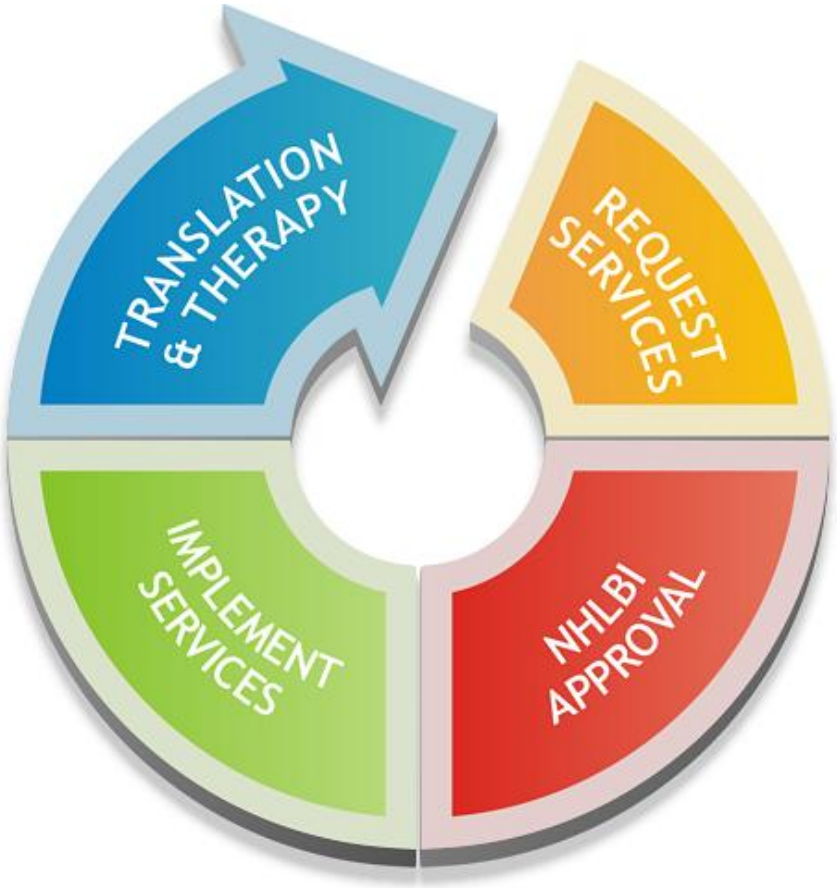
Agents: Small molecules and biological therapeutic agents (including vaccines)





National Heart Lung and Blood Institute

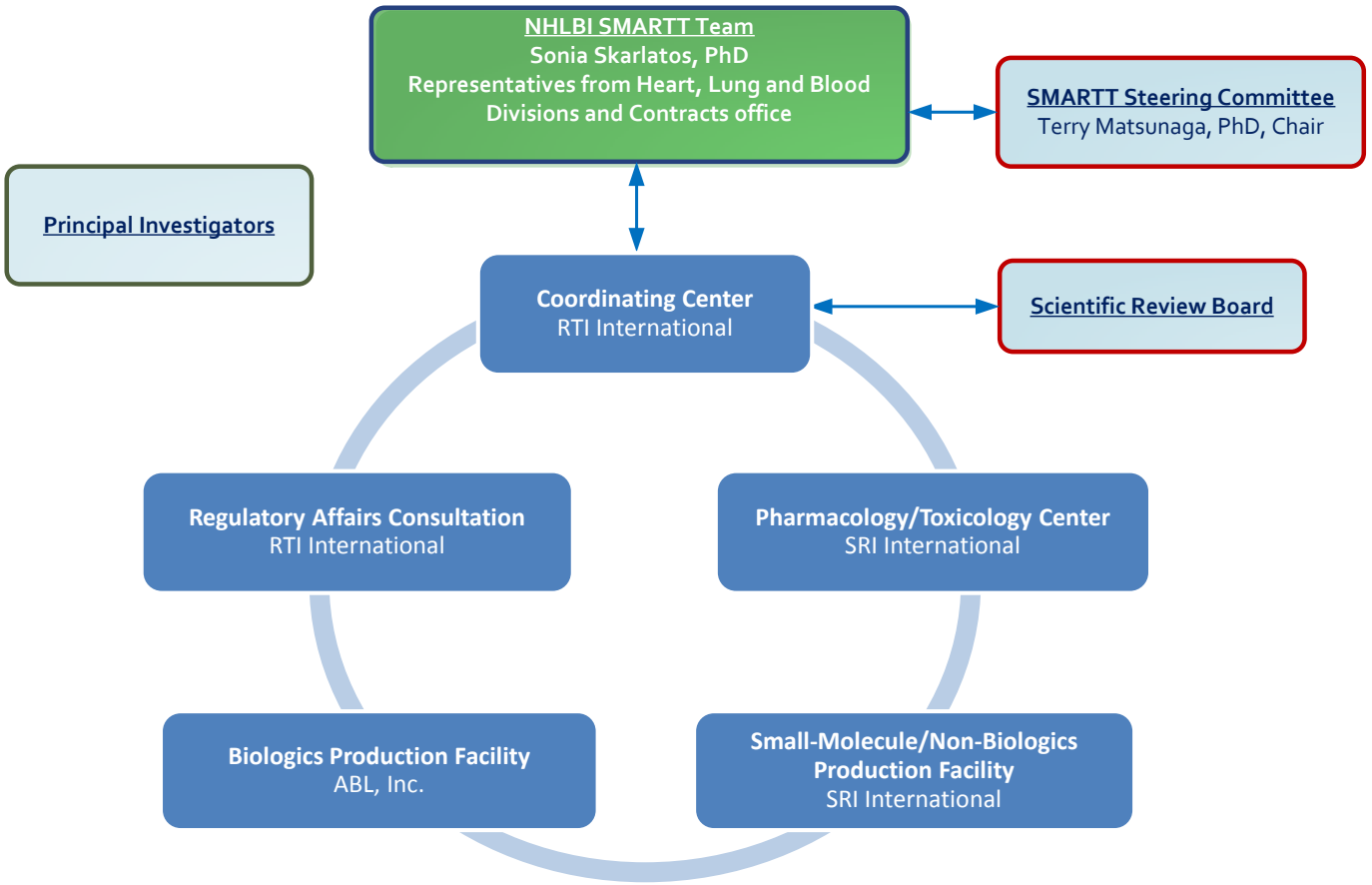
NHLBI Science Moving towArds Research Translation and Therapy (SMARTT)



- Supports the translation of novel discoveries into successful new therapies for heart, lung and blood diseases
- Provide rapid preclinical development services to investigators
- Provide tailored pharmacology and toxicology testing, manufacturing services, and regulatory support

National Heart Lung and Blood Institute

Program Infrastructure



National Heart Lung and Blood Institute

Application Process (web-based):

Become a SMARTT Investigator

1. Complete online application at www.nhlbismartt. org
2. The Steering Committee will review within 1-2 weeks
3. Upon concurrence, investigators are invited to submit RSA

RSA Submission, Review and Approval

1. Complete a RSA for each service request
2. The SRB and Steering Committee will review RSAs
3. NHLBI will award final approval upon review of the project plan

Visit our website: **www.nhlbismartt.org**

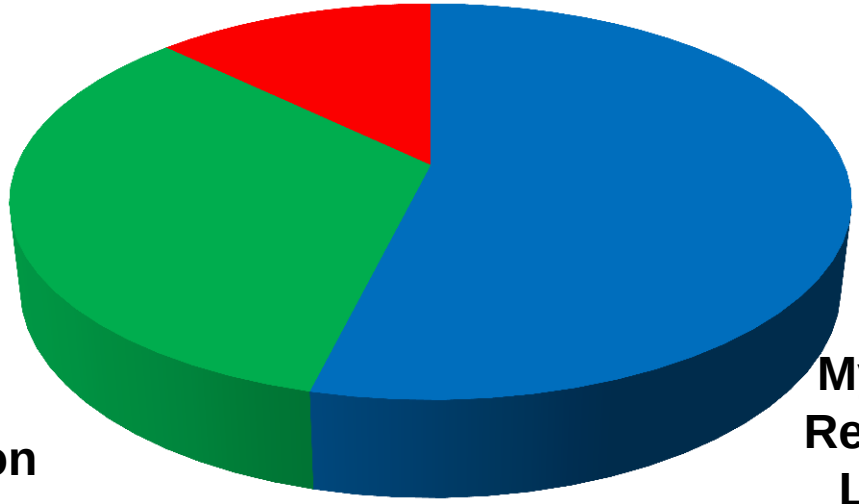
SMARTT

National Heart Lung and Blood Institute

SMARTT Requests as of 09/2012

BLOOD (13%)
Sickle cell disease
Stem cell transplant

LUNG (33%)
COPD
Asthma
Cystic fibrosis
Acute lung injury
Pleural loculation
Pulmonary fibrosis
Pulmonary hypertension
Pulmonary inflammation



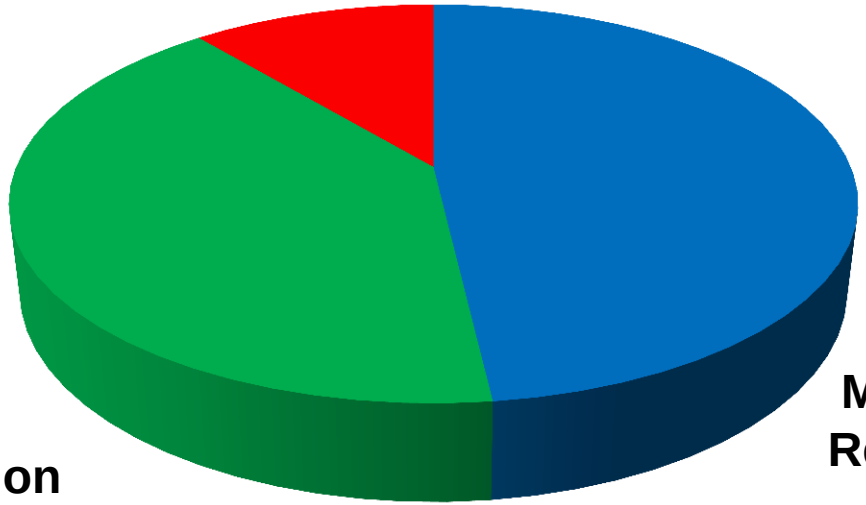
HEART (54%)
Thrombosis
Hypertension
Ischemic injury
Atrial fibrillation
Atherosclerosis
Myocardial infarction
Reverse cardiac aging
Long QT syndrome

National Heart Lung and Blood Institute

SMARTT Projects Submitted to Date

BLOOD (11%)
Sickle cell disease
Stem cell transplant

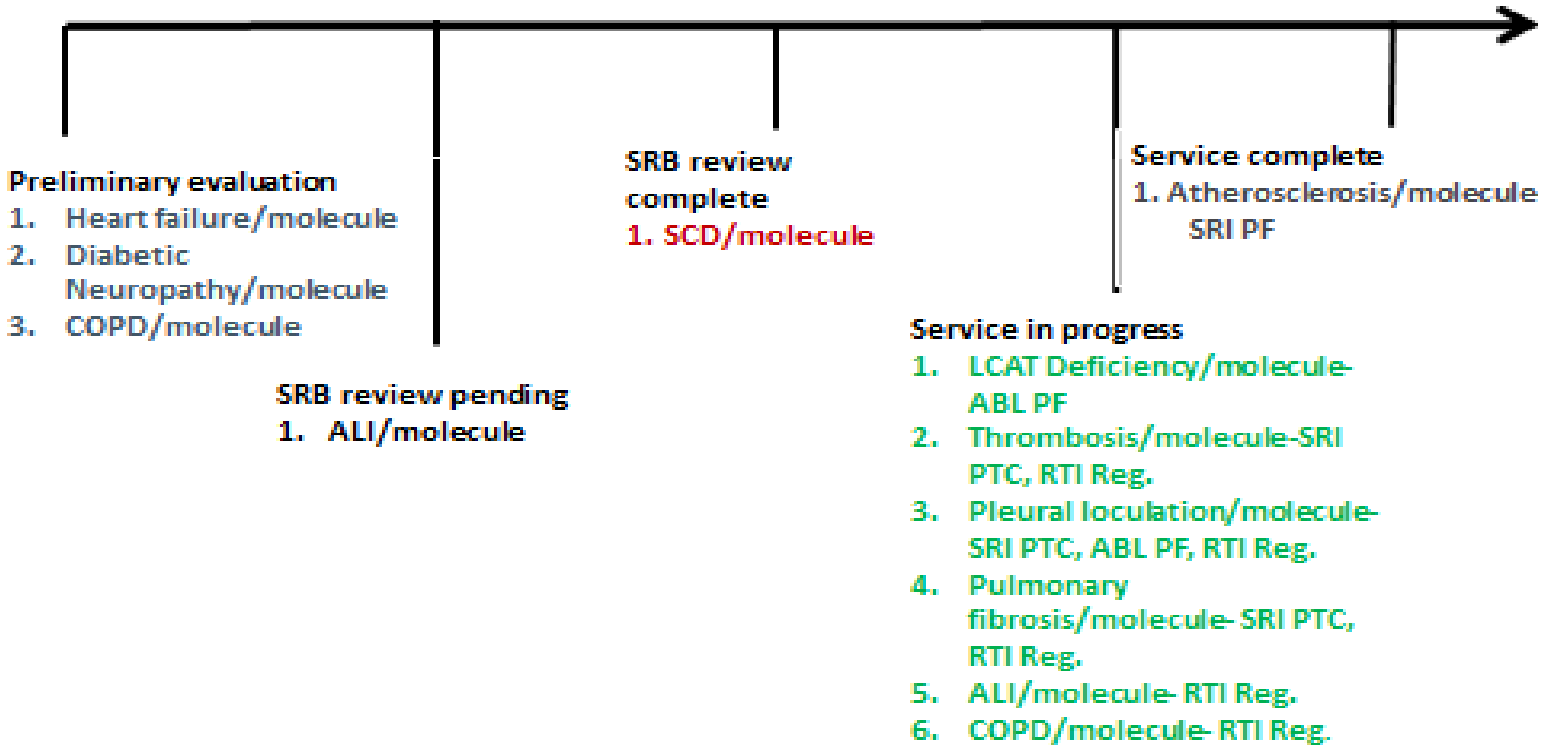
LUNG (41%)
COPD
Asthma
Cystic fibrosis
Acute lung injury
Pleural loculation
Pulmonary fibrosis
Pulmonary hypertension
Pulmonary inflammation



HEART (48%)
Thrombosis
Hypertension
Ischemic injury
Atrial fibrillation
Atherosclerosis
Myocardial infarction
Reverse cardiac aging

National Heart Lung and Blood Institute

RSA Status Overview



Thank You

skarlats@nhlbi.nih.gov