

Biomedical Data Translator

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NCATS

The Issue

- Clinicians and biologists think of disease in different ways, and speak different languages
 - Physicians diagnose and treat disease based on signs and symptoms affecting specific target organs
 - Biomedical researchers think of disease in terms of molecular changes in specific proteins, pathways or cell types

The Opportunity

- A vast amount of data exist (e.g., research, health records, clinical trials and adverse event reports)

The Challenge

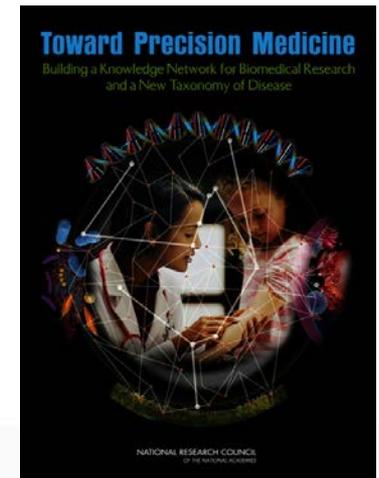
- These very rich yet different data sources are housed in various locations, often in forms that are not compatible or interoperable with each other

The Vision

- Accelerate development and dissemination of therapies by creating a biomedical “data translator” for the research community
- Integrate multiple types of existing data sources relevant to understanding pathophysiology
- Open source and completely publicly available

The Time Is Now

- Convergence of data science, computer science, and translational research expertise
 - Can we extract more from the data by not only gathering the data, but also integrating those data to enable new analyses
- Reclassification of disease based on molecular pathophysiology or molecular etiology could lead to
 - new intervention opportunities
 - new “patient populations”
 - more success with clinical trials



Goals for the 2-Year Program

- Feasibility and design assessment
 - what will be technically and scientifically possible
 - what will it cost at scale
- Identify high-value data sources
- Develop a plan for integrating across a comprehensive variety of data types.
 - Identify integration barriers or data inclusion barriers
- Develop and test a plan for data quality control and data updates
- Develop a demonstration project
- Define the requirements for a comprehensive Translator

NCATS Be Nimble, NCATS Be Quick: *Other Transactions* Are Different

- Solicitation
- Eligibility
 - Organizations
 - Individuals
- Application content and submission includes
 - Five (5) page project plan
 - Submit via e-mail as a single PDF
- Evaluation
 - Objective review to assess science and complementarity
 - Includes in person presentations by invitees
- Implementation
 - Collaboration
 - Projects or components can be expanded, modified, partnered or discontinued

Timeline

Key Events	Dates	Action needed by applicants
Call for projects posted	April 29, 2016	
Project applications due	June 1, 2016	Email completed application by 5pm local time
Review of written applications completed	June 14, 2016	
Invitations to present in person sent out	June 15, 2016	
Responses to invitations	June 17, 2016	Accept or decline invitation to present
Presentation by invited candidates in Bethesda	June 29-30, 2016	*Candidates and team attend in person
Negotiations begin	July 2016	

*Presentation in person by at least one team member was required. NCATS provided limited travel support.



Feasibility Assessment Investigators

Organization	Investigator(s)
Broad Institute of MIT and Harvard	Paul Clemons, Ph.D. Joshua Bittker, Ph.D. Jason Flannick, Ph.D.
Columbia University	Nicholas Tatonetti, Ph.D. Chunhua Weng, Ph.D. George Hripcsak, M.D., M.S. Aris Floratos, Ph.D.
Institute for Systems Biology	Sui Huang, M.D., Ph.D. Gustavo Glusman, Ph.D.
Jackson Laboratory	Peter Robinson, Ph.D.
Johns Hopkins University	Christopher Chute, M.D., Dr.P.H. Ada Hamosh, M.D., M.P.H. Kim Doheny, Ph.D. Casey Overby, Ph.D.
Lawrence Berkeley National Laboratory	Christopher Mungall, Ph.D.
Mayo Clinic	Hongfang Liu, Ph.D. Guoqian Jiang, M.D., Ph.D.

Feasibility Assessment Investigators

Organization	Investigator(s)
Oregon Health & Science University	Melissa Haendel, Ph.D. Shannon McWeeney, Ph.D. David Koeller, M.D. Maureen Hoatlin, Ph.D.
Scripps Research Institute	Andrew Su, Ph.D. Benjamin Good, Ph.D. Chunlei Wu, Ph.D.
St. Jude Children's Research Hospital	Jinghui Zhang, Ph.D.
Stanford University	Michel Dumontier, Ph.D.
University of Alabama	James Ciminio, M.D.
University of California, San Diego	Trey Ideker, Ph.D.
University of Montreal	Michael Tyers, Ph.D.
University of North Carolina at Chapel Hill	Stanley Ahalt, Ph.D. Alexander Tropsha, Ph.D.

Kickoff Meeting October 12-14



Getting Started

- Identifying high value data sources
- Synergies across groups
- Data sharing challenges
- Developing queries

Queries

- What other pathophysiologies could drive this constellation of signs and symptoms?
- Could treatment non-responders for disease X be classified differently?

We Want Your Queries

Please send to:

Translator-questions@nih.gov

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- Carol Lambert
- Tammy Magid
- Cindy McConnell
- Pamela McInnes
- Dac-Trung Nguyen
- Eugene Passamani
- Tyler Peryea
- Lili Portilla
- Anna Ramsey-Ewing
- Julia Shriner
- Dan Tagle
- Mohan Viswanathan
- Mark Williams
- David Adams (NHGRI)
- Craig Blackstone (NINDS)
- Ian Fore (NCI)
- Susan Gregurick (NIGMS)
- Jonathan Kaltman (NHLBI)
- Jennie Larkin (OC/ADDS)
- Melissa Parisi (NICHD)
- Grace Peng (NIBIB)
- Ajay Pillai (NHGRI)
- Jeff Schloss (NHGRI)
- Chuck Venditti (NHGRI)
- Dorit Zuk (NIGMS)

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