



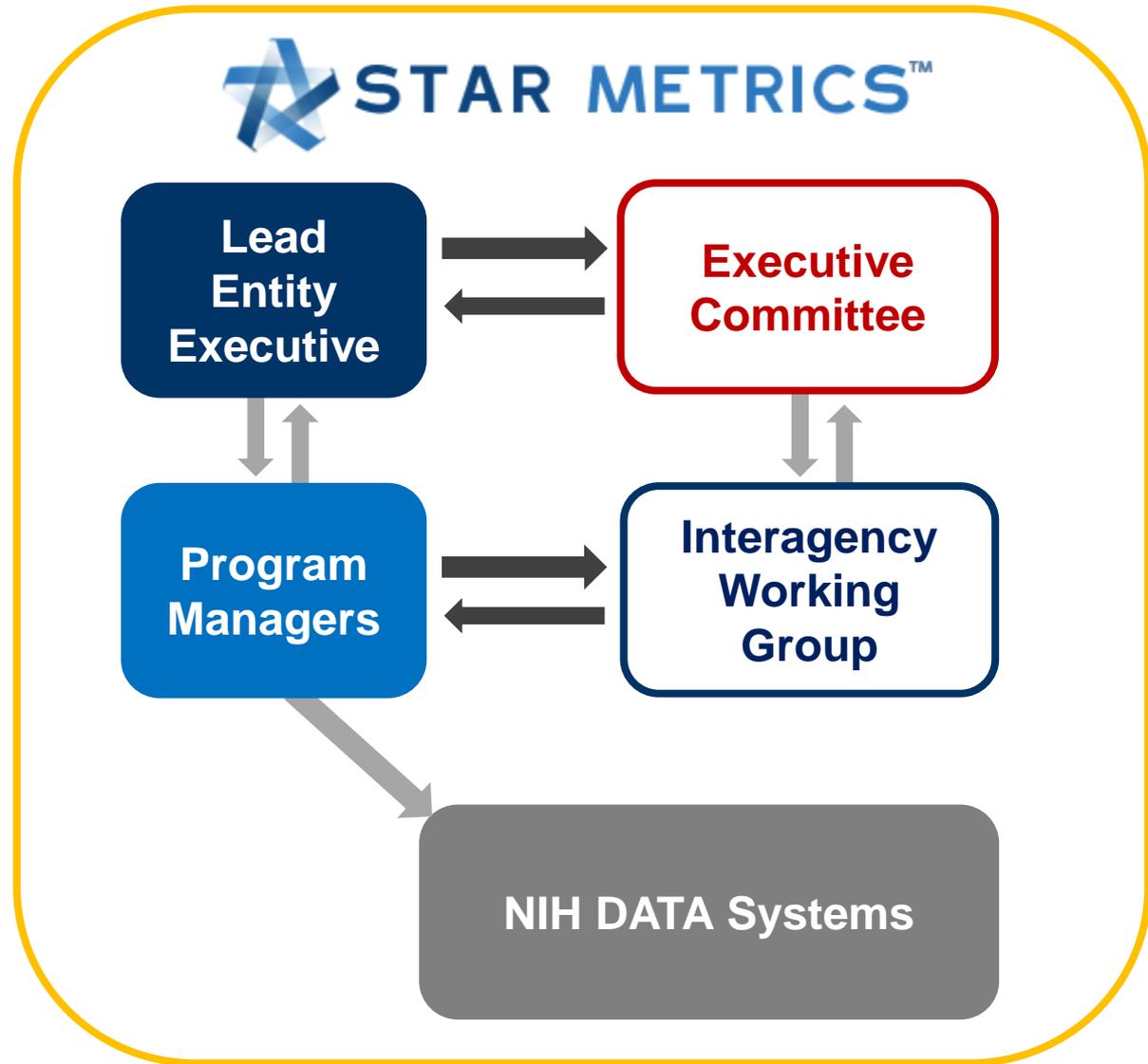
# STAR METRICS™

## Update & Review of Activities (2013 & 2014)

**Federal Demonstration Partnership**

**Jan 6, 2014**

- Multi-agency program aimed at documenting a partial set of outputs from federal science investments.
- Agencies:
  - WH OSTP 
  - NIH 
  - NSF 
  - USDA 
  - EPA 



## Stakeholders

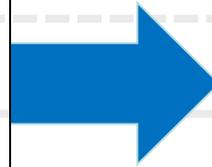
- Federal Agencies
- Research Institutions
- Social Science Community
- Legislative Bodies
- Taxpaying Public



Portfolio Analysis



Research Evaluation



Economic Impact



Communications

## *Measuring the economic impact of science funding*

- **Level I**: Estimating jobs created by federal science awards.

## *Enabling studies of the portfolio of federal science investments*

- **Level II**: A searchable database of science awards from federal agencies

- National workforce projections
- Benchmarking impact
- Communications
- Other- Reporting?

## Dependent On

- Data quality
- Quality of job estimates
- Representative sampling

## – Level I

- Input (source data)
- Process (job calculations)
- Output (features of report)

## – Level II

- Extend 1 year dataset to 5 year dataset
- Evaluate usefulness

## – Website & Access

- Update
- Improve usability

- Documented exact procedures for generation and QA of quarterly reports
- Regenerated and analyzed Level I reports from previous quarter.
- Analyzed SAS code for stress points and improvement opportunities

- Identified problem areas and potential roadblocks for the future
- Level I Workshop on November 12, 2013
  - 52 in person attendees
  - (50 < n < 100) viewed videocast

# Workshop Summary

- Data Quality- in all its many dimensions
- Linkage to other data sets- to facilitate other uses
- Recruitment- (perhaps targeted) to increase sample size
- Access (access & access)
- Understanding of the value of this effort through strategic communications

# Level II- $\alpha$ Open For Comment

- Search awards information from NIH, NSF, NASA, and EPA (2008-2012)
- <http://projectreporter.nih.gov/SM>
- Password: demo@sm
- Feedback: [starmetrics@mail.nih.gov](mailto:starmetrics@mail.nih.gov)

# Level II Query Form

**STAR METRICS™**  
A Federal Collaboration with Research Institutions

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System Health: GREEN

## Search Form

SUBMIT QUERY

CLEAR QUERY

Fiscal Year (FY):  
Current FY is 2013

2012

SELECT

Agency:

SELECT

Text Search (Logic):

- And  
 Or  
 Advanced

Limit Project search to

Project Title  Project Terms  Project Abstracts

City:

Use '%' for wildcard

State:

SELECT

Project Number:

Use '%' for wildcard, e.g. %R21%  
Enter multiple project numbers/ application IDs

Country:

SELECT

Congressional District:

SELECT

Principal Investigator (PI) /  
Project Leader:  
(Last Name, First Name)

Use '%' for wildcard  
Enter several PI/Project Leader names

Project Start Date is after:

Format: mm/dd/yyyy

mm/dd/yyyy

Project End Date is before:

Format: mm/dd/yyyy

mm/dd/yyyy

Organization:

LOOK UP

Please enter at least 3 characters to use Lookup.

Contains  Begins with  Exact

Award Size: >

DUNS Number:

SUBMIT QUERY

CLEAR QUERY



**NIH** National Institutes of Health  
Office of Extramural Research

# Level II Search Results

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## Project Search Results

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**Export**    All Projects

[PROJECTS](#)    [DATA & VISUALIZE](#)    [MAP](#)

There were **73507** results matching your search criteria.      Records per page:       Show/Hide Search Criteria

Click on the column header to sort the results      1 2 3 4 ... 2939 2940 2941      Page  of 2941 [Next](#) [Last](#)

<input type="checkbox"/>	Project Number	Project Title	Contact PI/ Project Leader	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC	Similar Projects
<input type="checkbox"/>	<a href="#">1R01DK089201-01A1</a>	<a href="#">CONSERVED FETAL EPIGENOMIC SIGNATURES IN A PRIMATE MODEL OF MATERNAL OBESITY</a>	AAGAARD-TILLERY, KJERSTI MARIE	BAYLOR COLLEGE OF MEDICINE	2012	NIH	NIH	\$413,167	<input type="button" value="📄"/>
<input type="checkbox"/>	<a href="#">3DP2OD001500-01S2</a>	<a href="#">CHARACTERIZATION OF THE FETAL PRIMATE EPIGENOME AND METABOLOME UNDER IN UTERO</a>	AAGAARD-TILLERY, KJERSTI MARIE	BAYLOR COLLEGE OF MEDICINE	2011	NIH	NIH	\$3,916	<input type="button" value="📄"/>
<input type="checkbox"/>	<a href="#">3R15GM080690-01S1</a>	<a href="#">BINDING AND SPLICING MRNA</a>	AALBERTS, DANIEL PAUL	WILLIAMS COLLEGE	2009	NIH	NIH	\$79,200	<input type="button" value="📄"/>
<input type="checkbox"/>	<a href="#">5P01CA080058-13</a>	<a href="#">P53 - REGULATORS AND EFFECTORS</a>	AARONSON, STUART A	MOUNT SINAI SCHOOL OF MEDICINE	2012	NIH	NIH	\$1,419,497	<input type="button" value="📄"/>
<input type="checkbox"/>	<a href="#">5P01CA080058-12 (6756)</a>	<a href="#">EFFECTORS OF P53 PRO-SURVIVAL AND PRO-APOPTOTIC SIGNALING PATHWAYS</a>	AARONSON, STUART A	MOUNT SINAI SCHOOL OF MEDICINE	2011	NIH	NIH	\$466,373	<input type="button" value="📄"/>
<input type="checkbox"/>	<a href="#">2P01CA080058-11 (6756)</a>	<a href="#">EFFECTORS OF P53 PRO-SURVIVAL AND PRO-APOPTOTIC SIGNALING PATHWAYS</a>	AARONSON, STUART A	MOUNT SINAI SCHOOL OF MEDICINE	2010	NIH	NIH	\$838,290	<input type="button" value="📄"/>
<input type="checkbox"/>	<a href="#">5P01CA080058-10 (0005)</a>	<a href="#">EFFECTORS OF P53 PRO-SURVIVAL &amp; PRO-APOPTOTIC SIGNALING</a>	AARONSON, STUART A	MOUNT SINAI SCHOOL OF MEDICINE	2009	NIH	NIH	\$556,919	<input type="button" value="📄"/>



# Project Information

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## Project Information

3R15GM080690-01S1

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Project 3 of 73507

[NEXT](#)[DESCRIPTION](#)[DETAILS](#)[RESULTS](#)[SIMILAR PROJECTS](#) BETA**Project Number:** 3R15GM080690-01S1**Title:** BINDING AND SPLICING MRNA**Contact PI / Project Leader:** AALBERTS, DANIEL PAUL**Awardee Organization:** WILLIAMS COLLEGE

### Abstract Text:

DESCRIPTION (provided by applicant): Gene expression is often regulated by the binding of small RNAs or proteins to messenger RNA; examples include mRNA splicing, microRNA, and degradation signals. Making more accurate predictions will help uncover the function and cellular activity of binding and splicing mRNA. We propose to: (1) Develop physical-chemical models of small RNAs and proteins binding that modulate gene expression through mRNA binding. Our recently developed oligo-binding algorithm BINDIGO efficiently computes binding free energies. We aim to improve the accuracy with which binding sites can be identified. (2) Improve models of mRNA splicing to understand the role of thermodynamics in alternative splicing and intron/exon segregation, and correlations in the codon frames where introns begin. Our preliminary results show unexpected and significant correlations; they also show energetic biases which may explain how cells find splice junctions. (3) Discover how pre-existing secondary structure influences binding events, and how binding modifies remaining secondary structures. (4) Expand RNA folding algorithms to include binding events. It is estimated that at least 15% of genetic point mutations result in incorrectly spliced mature mRNA. By elucidating the mechanisms and improving the predictions of splicing, it may be possible to design therapeutics. And, since identifying splice sites is a bottleneck in finding genes, improvements in this area can contribute to revealing genomic information. The proposed algorithms have the potential for wider application: predicting anti-sense gene therapies, RNA interference, retro-transposon recognition, RNA regulation of gene expression, and systematic errors in gene chip microarrays. We propose to model and compute how binding small RNAs and proteins modulates gene expression, in particular mRNA splicing.

### Project Terms:

Correlation Studies; Statistical Correlation; MicroRNAs; miRNA; Micro RNA; RNA Interference; Sequence-Specific Posttranscriptional Gene Silencing; RNAi; RNA Silencings; RNA Silencing; Quelling; Posttranscriptional Gene Silencings; Posttranscriptional Gene Silencing; Post-Transcriptional Gene Silencings; Post-Transcriptional Gene Silencing; RNA Binding; Binding (Molecular Function); Molecular Interaction; Binding; Small RNA; RNA Folding; Exons; Point Mutation; Spliceosomes; Gene Expression; Gene Expression Regulation; Gene Regulation Process; Gene Regulation; Gene Action Regulation; gene therapy; genetic therapy; gene-based therapy; Genetic Intervention; Gene Transfer; Gene Transfer Procedure; Gene Transfer Clinical; Gene Therapy Molecular Biology; RNA Therapy; Genes; genes; improved; Human; Modern Man; Man (Taxonomy);



# Project Details

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DESCRIPTION **DETAILS** RESULTS SIMILAR PROJECTS BETA

<b>Project Number:</b> 3R15GM080690-01S1	<b>Contact PI / Project Leader:</b> AALBERTS, DANIEL PAUL	
<b>Title:</b> BINDING AND SPLICING MRNA	<b>Awardee Organization:</b> WILLIAMS COLLEGE	
<b>Contact PI / Project Leader Information:</b> 	<b>Program Official Information:</b>	<b>Other PI Information:</b>
<b>Name:</b> AALBERTS, DANIEL PAUL	<b>Name:</b> Unavailable	Not Applicable
<b>Email:</b> <a href="#">Click to view Contact PI / Project Leader email address</a>		
<b>Title:</b>		
<b>Organization:</b>	<b>Department/ Educational Institution Type:</b>	<b>Congressional District:</b>
<b>Name:</b> WILLIAMS COLLEGE	Unavailable	<b>State Code:</b> MA
<b>City:</b> WILLIAMSTOWN <b>Country:</b> UNITED STATES	Unavailable	<b>District:</b> 01
<b>Other Information:</b>		
<b>FOA:</b>	<b>DUNS Number:</b> 020665972	<b>CFDA Code:</b>
<b>Study Section:</b>	<b>Project Start Date:</b> 30-SEP-2009	<b>Project End Date:</b> 31-AUG-2011
<b>Fiscal Year:</b> 2009 <b>Award Notice Date:</b> 18-SEP-2009	<b>Budget Start Date:</b> 30-SEP-2009	<b>Budget End Date:</b> 31-AUG-2011
<b>Agency:</b>		
NATIONAL INSTITUTES OF HEALTH		
<b>Project Funding Information for 2009:</b>		
Total Funding: \$79,200		



National Institutes of Health  
Office of Extramural Research

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**Project Number:** 3R15GM080690-01S1

**Title:** BINDING AND SPLICING MRNA

**Contact PI / Project Leader:** AALBERTS, DANIEL PAUL

**Awardee Organization:** WILLIAMS COLLEGE

### ABOUT STAR METRICS RESULTS

**Publications:** [Publications missing?](#) [Principal Investigators](#) [click here](#)

Click on the column header to sort the results

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= PubMed



= PubMed Central



= Google Scholar

[EXPORT](#)

Title (Link to full-text in PubMed Central)	Journal (Link to PubMed abstract)	Authors	Similar Publications By	Cited
Free energy cost of stretching mRNA hairpin loops inhibits small RNA binding.	<a href="#">Biophysical journal. 2013 Jan 22; 104 (2) :482-7</a>	Meng, Yuzhong; Aalberts, Daniel P	   	 
Visualizing RNA base-pairing probabilities with RNAbow diagrams.	<a href="#">RNA (New York, N.Y.). 2013 Apr; 19 (4) :475-8</a>	Aalberts, Daniel P; Jannen, William K	   	 
A two-length-scale polymer theory for RNA loop free energies and helix stacking.	<a href="#">RNA (New York, N.Y.). 2010 Jul; 16 (7) :1350-5</a>	Aalberts, Daniel P; Nandagopal, Nagarajan	   	 
<b>Patents:</b>				



# Similar Projects

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**Project Number:** 3R15GM080690-01S1

**Title:** BINDING AND SPLICING MRNA

**Contact PI / Project Leader:** AALBERTS, DANIEL PAUL

**Awardee Organization:** WILLIAMS COLLEGE

100 projects similar to 3R15GM080690-01S1 (100 maximum).

Click on the column header to sort the results

 Records per page 

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Match Score	Project Number	Sub #	Project Title	Contact PI / Project Leader	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC
802	<a href="#">5R37GM018360-37</a>		<a href="#">KINETICS OF DRUG MACROMOLECULE COMPLEX FORMATION</a>	<a href="#">TAYLOR, PALMER WILLIAM</a>	UNIVERSITY OF CALIFORNIA	2008	NIH	NIH	\$646,111
745	<a href="#">3P30HD002274-41S1 (0003)</a>		<a href="#">ORGANIZATION AND FUNCTION OF TRANSCRIPT CONTROL ELEMENTS AT THE HUMAN FRAGILE X</a>	<a href="#">TAPSCOTT, STEPHEN J.</a>	UNIVERSITY OF WASHINGTON	2008	NIH	NIH	\$152,847
745	<a href="#">5R01GM050288-18</a>		<a href="#">STRUCTURE-FUNCTION ANALYSIS OF SPLICEOSOMAL ATPASES</a>	<a href="#">SCHWER, BEATE</a>	WEILL MEDICAL COLL OF CORNELL UNIV	2011	NIH	NIH	\$369,370
745	<a href="#">5R01GM050288-17</a>		<a href="#">STRUCTURE-FUNCTION ANALYSIS OF SPLICEOSOMAL ATPASES</a>	<a href="#">SCHWER, BEATE</a>	WEILL MEDICAL COLL OF CORNELL UNIV	2010	NIH	NIH	\$373,101
745	<a href="#">2R01GM050288-15A2</a>		<a href="#">STRUCTURE-FUNCTION ANALYSIS OF SPLICEOSOMAL ATPASES</a>	<a href="#">SCHWER, BEATE</a>	WEILL MEDICAL COLL OF CORNELL UNIV	2008	NIH	NIH	\$374,640



# Level II Next Steps

- Incorporate user feedback
- Update with FY 2013 data + USDA
- Release to the public (search tool and data)
- Add links to SciENcv profiles
- Incorporate research results
  - Publications
  - Patents
  - RPPR products
  - SciENcv data

- Finalized design concepts for the STAR METRICS website redesign
- Development of a responsive website

# Redesigning Website

- Simple yet modern, clean and organized
- Updated content (in progress)
- Responsive and adaptive to all type of devices using different screen resolutions.
- The user-interface of the institutional pages is re-aligned for easy access to the quarterly reports and data requests.



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## Science and Technology for America's Reinvestment: Measuring the Effect of Research on Innovation, Competitiveness and Science

SEARCH

STAR METRICS is a federal and research institution collaboration to create a repository of data and tools that will be useful to assess the impact of federal R&D investments. The National Institutes of Health (NIH) and the National Science Foundation (NSF), under the auspices of Office of Science and Technology Policy (OSTP), are leading this project.

### ABOUT STAR METRICS

#### News

##### Measuring the Results of Science Investments

Science agencies and research institutions are building the infrastructure to evaluate results of federal funding of science research.

##### Vice President Biden, University Leaders Discuss Impact of Stimulus on Research and Innovation

Among American Recovery and Reinvestment Act's legacies may be the knowledge to solve society's greatest challenges related to health, energy and the environment.

##### Let's Make Science Metrics More Scientific

Julia Lane of the NSF has published an article in Nature about the STAR METRICS project.

#### STAR METRICS Funding Map

All States

All Available Congressional Dist.

#### Mini Search

Research Institutions:

Fiscal Year:

Project Number:

Duns Number:



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## About Star Metrics

Welcome to the STAR METRICS project. This STAR METRICS project guide will provide an overview of the STAR METRICS project and outline how research institutions can get involved with this project. This guide is complemented by further documentation on the STAR METRICS website that outlines the technical specifications for the project and provides guidance to research institutions wishing to participate in STAR METRICS.

## STAR METRICS Overview

STAR METRICS is a federal and research institution collaboration to create a repository of data and tools that will be useful to assess the impact of federal R&D investments. The National Institutes of Health (NIH) and the National Science Foundation (NSF), under the auspices of Office of Science and Technology Policy (OSTP), are leading this project. This project has been developed after a successful pilot project was conducted with several research institutions in the Federal Demonstration Partnership (FDP). The STAR METRICS project consists of two implementation levels:



### Level I

Developing uniform, auditable and standardized measures of the impact of science spending (ARRA and non-ARRA) on job creation, using data from research institutions' existing database records. No personally identifiable information (PII) is collected in Level I.



### Level II

Developing measures of the impact of federal science investment on scientific knowledge (using metrics such as publications and citations), social outcomes (e.g. health outcomes measures and environmental impact factors), workforce outcomes (e.g. student mobility and employment), and economic growth (e.g. tracing patents, new company start-ups and other measures). Data elements that will be collected in Level II will be collectively determined in consultation with Institutions that have joined Level I.

## What is STAR METRICS?

STAR METRICS™ - Science and Technology for America's Reinvestment: Measuring the Effect of Research on Innovation, Competitiveness and Science, is a multi-agency venture led by the National Institutes of Health, the National Science Foundation (NSF) and the White House Office of Science and Technology Policy (OSTP).

## Mini Search

Research Institutions:

Fiscal Year:

Project Number:

Duns Number:

SUBMIT

CLEAR





Dashboard
 Management
 Upload

Recent STAR METRICS Updates

[All Project Updates](#)

Report Label	Report Type	Date Created	Status
test	STAR METRICS Reporting	9/8/2011	Active
test	STAR METRICS Reporting	9/8/2011	Active
test	STAR METRICS Reporting	9/8/2011	Active

Recent Submission History

[All Submission History](#)

Submission Type	Latest Submission Date
Unknown	5/4/2011 3:37 PM ET
Award	10/26/2013 3:43 PM ET
Employee	10/26/2013 3:44 PM ET
Sub-Award	10/26/2013 3:45 PM ET
Vendor	10/26/2013 3:45 PM ET

Recent Reports

[All Reports](#)

Report Label	Report Type	Date Created	Status
test	STAR METRICS Reporting	9/8/2011	Active
test	STAR METRICS Reporting	9/8/2011	Active
test	STAR METRICS Reporting	9/8/2011	Active

Welcome Username

\*\* Test University \*\*

Data Dictionary

Review the Data Dictionary ([pdf](#)) details the structure and characteristics of the XML and CSV files requested.

For non-federal awards or federal awards that lack a CFDA number, please refer to the list of [Other Funding Source \(OFS\) Codes \(pdf | xls\)](#) that may be used in lieu of CFDA numbers.

Employment Calculations

See [Employment Calculations](#) for an explanation of the calculations used to derive the jobs created. These are consistent with ARRA reporting requirements in Section 1512.

Request Additional Users

Request access to STAR METRICS for additional users at your institution to give them data upload capability and/or report download access.

[Request Accounts](#)

Join InCommon

[Simplify your log on process](#) by joining InCommon and becoming federated with the NIH.

# Acknowledgments

- STAR METRICS Executive Committee
- STAR METRICS Interagency Working Group
- NIH DATA Systems
- FDP

