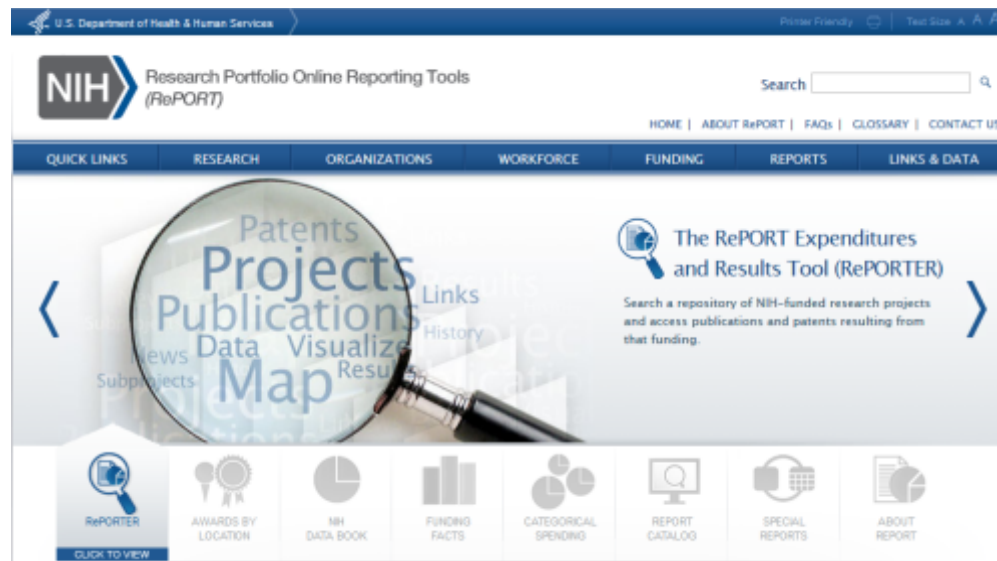


American Evaluation Association: Evaluation 2014

October 16, 2014



NIH's Analysis and Reporting Infrastructure

James Onken, Ph.D., MPH

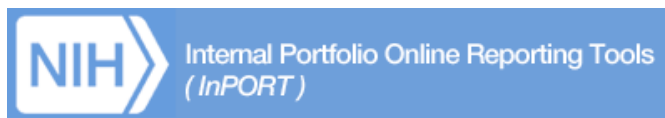
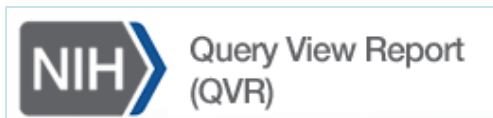
Brian Haugen, Ph.D.

Office of Data Analysis Tools and Systems

NIH Office of Extramural Research

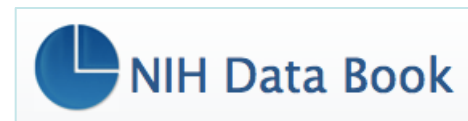
- **Enable quality decision-making by internal staff via timely, accurate, reliable, and high-value data**
 - Develop and support the data infrastructure needed for reporting and analysis
 - Provide easy-to-use tools for staff across NIH
 - Summarize large amounts of data into meaningful reports, charts, and other visualizations
- **Uphold NIH's commitment to the highest level of public accountability in carrying out its scientific missions**
 - Provide one-stop shop for NIH data and reports
 - Make data easily accessible to the public
 - Highlight the links between NIH funding and research results and products

Internal to NIH



And more in development...

Public-Facing



and many more...

Portfolio monitoring

- Applications received
- Review outcomes
- Funded research

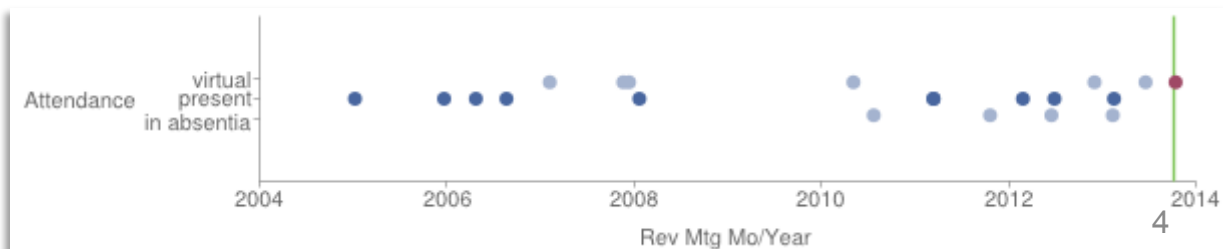
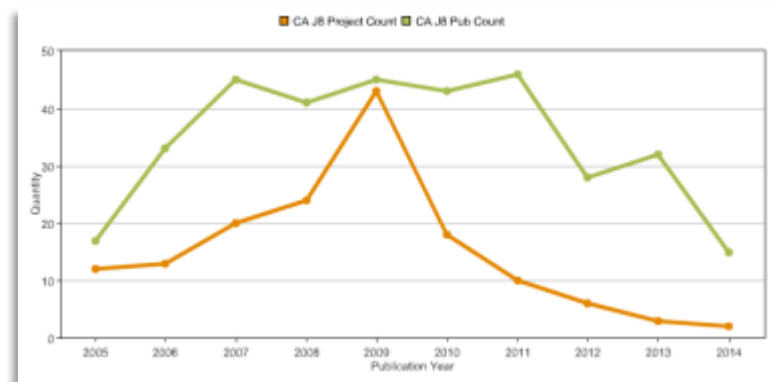
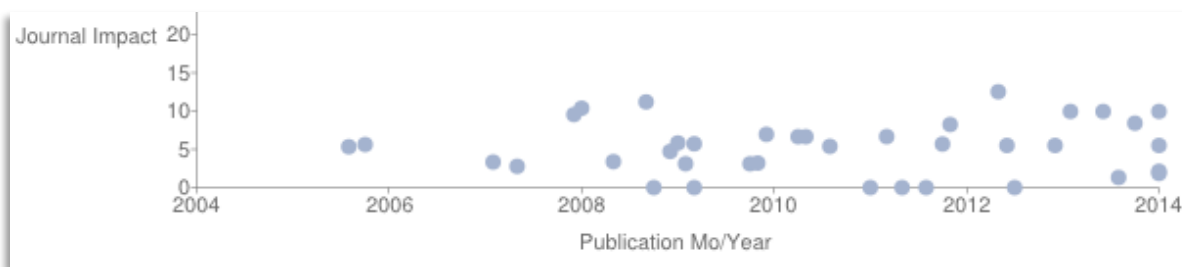
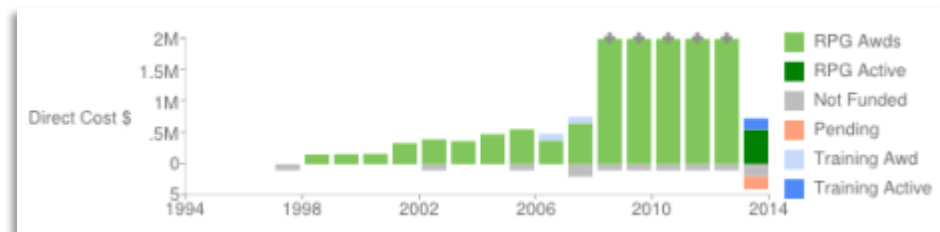
Portfolio Analysis

- Funding histories
- Scientific overlap
- Research results

Expertise Locator

Data Integration

Data Extraction





NIH RePORTER

- Funded research from NIH, as well as from other Health and Human Services agencies and the Veterans Administration
- Linked to Results
 - Publications, Patents, News, and NIH reports



Federal RePORTER

- Funded research from HHS, DOD, USDA, EPA, NSF and more



- Global funded research, from 9 funders
- Focused on sub-Saharan Africa, South Asia and East Asia/Pacific regions

QUERY BROWSE NIH MATCHMAKER BETA

SUBMIT QUERY CLEAR QUERY

Fiscal Year (FY): ? Active Projects
Current FY is 2014

SELECT

RESEARCHER AND ORGANIZATION

Principal Investigator (PI) / Project Leader:
(Last Name, First Name) Use '%' for wildcard
Enter several PI/Project

Organization: ?

Please enter at least 3 characters
Contains Begins With

Department: ?

Organization Type: ?

TEXT SEARCH

Text Search (Logic): ?

☒ And
☐ Or
☐ Advanced

PROJECT DETAILS

Project Number/ Application ID:
Format: 5R01CA012345-04/8515397
Use '%' for wildcard in project number
Enter multiple project numbers

Program Officer (PO):
(Last Name, First Name) Use '%' for wildcard

Project Start Date: >= ?

Format: mm/dd/yyyy

Project End Date: <= ?

Format: mm/dd/yyyy

Award Notice Date: > ?
Format: mm/dd/yyyy

ADDITIONAL FILTERS

NIH (non) ARRA Selection: ? SELECT

Award Size: > ?

Only for NIH and CDC

SUBMIT QUERY CLEAR QUERY

PROJECTS

Click on the column header to sort the results

Application Type: Active

Act Project

☐ 5 K02 MH06411

☐ 5 M01 RR00005

☐ 5 M01 RR00005

☐ 2 M01 RR00005

☐ 5 M01 RR00005

☐ 5 M01 RR00005

☐ 5 K02 MH00111

☐ 5 K02 MH00111

☐ 5 K02 MH00111

☐ 2 K02 MH00112

☐ 5 K02 MH00111

☐ 5 K02 MH00111

☐ 5 K02 MH00111

☐ 5 K02 MH00111

☐ 5 K02 MH00111

PUBLICATIONS

In 2012, there were 373 publications citing support from projects in the hit list.

Click on the column header to sort

Core Project Number Title (Link to

M01RR000051 Effect of inhaled

P50MH062185 Can We Really

P50MH062185 Neural respons

R01MH074797 Impairment in S

P50DA009253 Possible barrier

U54NS043011 Translational s

P50MH084053 Deficits in Tran

P50MH062185 Suicidal ideatio

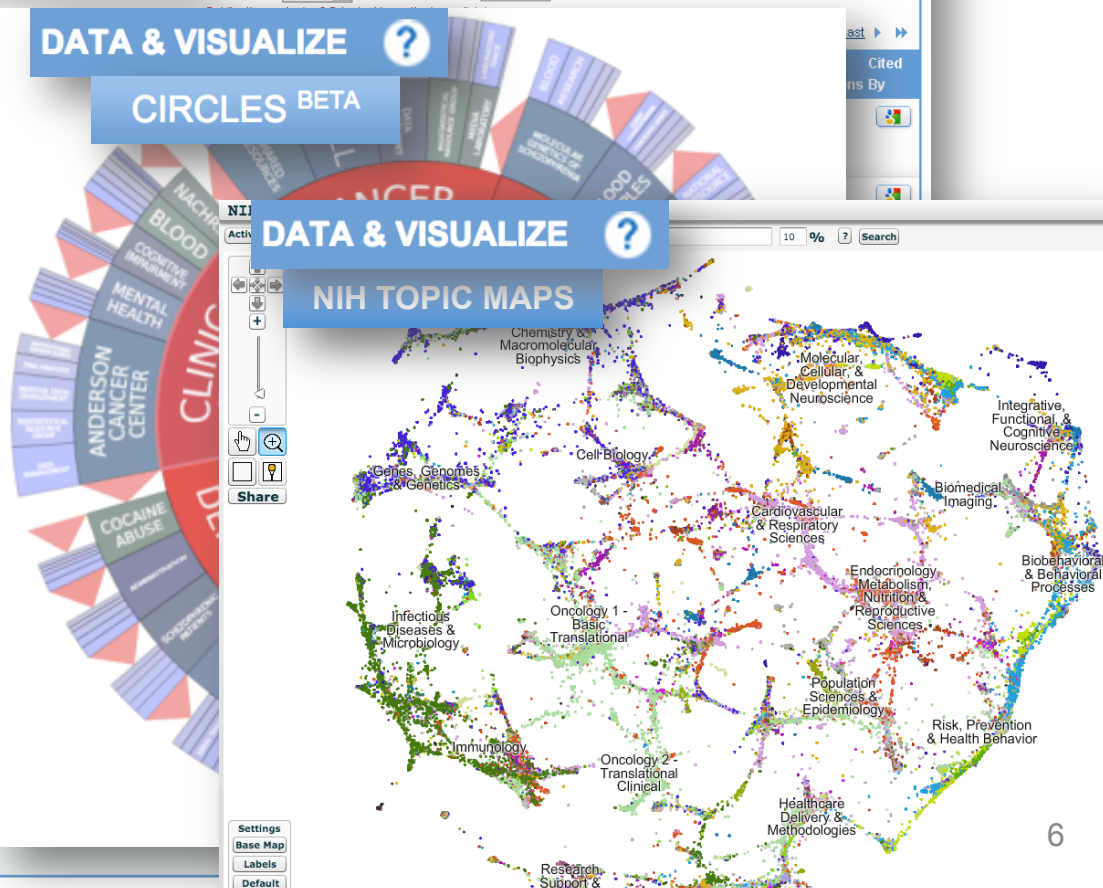
R01GM057481 Use of an %3

DATA & VISUALIZE

CIRCLES BETA

DATA & VISUALIZE

NIH TOPIC MAPS



Making RePORTER data available for bulk download and re-use



Memorial Sloan-Kettering
Cancer Center

researchprofiles

Recent Grants

This is a list of the 20 grants most recently added to the Research Profiles database. This shows the recently that is ongoing at the institution. The source of grants for this application is NIH ExPORTER, so only NIH grant ExPORTER is currently in a beta version until October 1, 2010, and therefore some data may not match the More information is available at: http://projectreporter.nih.gov/ExPORTER/ExPORTER_Catalog.aspx.



RePORT &
RePORTER

ebbling.library.wisc.edu | askebbling@library.wisc.edu | 608.262.2020

Ebling Library, University of Wisconsin-Madison



ClinicalTrials.gov
A service of the U.S. National Institutes of Health



5.2.2 Mapping CTSA Centers (NIH RePORTER Data)

5 Added by Ted Polley, last edited by Ted Polley on Mar 16, 2011 (view change)

CTSA2005-2009.xls	
Time frame:	2005-2009
Region(s):	Miscellaneous
Topical Area(s):	Clinical and Translational Science
Analysis Type(s):	PI-Institution Network, Co-Authorship Net



NEUROSCIENCE INFORMATION FRAMEWORK

ABOUT

About NIF
Release Notes 3.1
People

Search for Neuroscience Resources

SEARCH TIPS: 1. WHAT IS THIS? (example searches: cerebellum, "sullivan nucleus", gene symbol)

[npr](#) [topics](#) [programs](#) [listen](#)

By The Numbers: Search NIH Grant Data By Institution

by ROBERT BENINCASA,
RICHARD HARRIS and
ALYSON HURT
September 08, 2014 3:03
AM ET

NIH Budget By Fiscal Year, in 2014 Dollars

Research grants Remaining budget Federal stimulus funding

\$50 billion

\$40 billion



PARDEE RAND GRADUATE SCHOOL

Essays on Government Policy
and Pharmaceutical Innovation

Margaret

THOMSON REUTERS
RESEARCH IN VIEW™



Federal RePORTER

Fiscal Year (FY): [?]
Latest FY is 2013

Agency: [?]

City: [?]

RESEARCHER AND ORGANIZATION

Principal Investigator (PI) / Project Leader: [?]
(Last Name, First Name) Use '%' for wildcard
[Enter several PI/Project Leader names](#)

Organization: [?]
Please enter at least 3 characters to use Lookup.
☒ Contains ☐ Begins with ☐ Exact

DUNS Number: [?]

TEXT SEARCH

Text Search (Logic): [?]
☒ And ☐ Or ☐ Advanced

Limit Project search to
☐ Project Title ☐ Project Terms ☐ Project Abstracts

PROJECT DETAILS

Project Number: [?]
Use '%' for wildcard, e.g. %R21%
[Enter multiple project numbers/ application IDs](#)

☒ Check/Uncheck All

- ☒ Agriculture
 - ☒ Agricultural Research Service
 - ☒ Forest Service
 - ☒ National Institute of Food and Agriculture
- ☒ Defense
 - ☒ Center For Neuroscience and Regenerative Medicine
 - ☒ Congressionally Directed Medical Research Programs
- ☒ Education
 - ☒ National Institute on Disability and Rehabilitation Research
- ☒ Environmental Protection Agency
- ☒ Health and Human Services
 - ☒ Administration for Children and Families
 - ☒ Agency for Healthcare Research and Quality
 - ☒ Centers for Disease Control and Prevention
 - ☒ Food and Drug Administration
 - ☒ National Institutes of Health
- ☒ National Aeronautics and Space Administration
- ☒ National Science Foundation
- ☒ Veterans Affairs

- **Proliferation of tools and databases available**
- **Duplication of effort and inefficient use of limited resources**
- **Users' idiosyncratic portfolio management needs and practices**
- **Data quality and data availability**
 - In program administrative systems (e.g., unstructured data)
 - From outside systems (ability to link to program data)
- **Gathering information on long-term outcomes is labor-intensive**
- **Lack of acceptance of quantitative measures**

Exploring Future Directions

Software

- **Develop common platform to integrate multiple analytic tools**
- **Provide access to basic portfolio management tools and standard reports**
 - **But building in features for customization**
- **Continue to incorporate new intuitive tools for visualization, exploration, and analysis**

Data Infrastructure

- **Integrate NIH program records with external databases**
 - **Direct citations**
 - **Fuzzy matching**
- **Maximize re-use by providing common access to integrated data sources**



iRePORT



PORTFOLIOS



WIDGETS



QVR



REPORTS



TOOLS

Widgets

- ☐ Active Principal Investigators
- ☐ Topic Maps
- ☐ Map portfolio
- ☐ RePORTER Circles View
- ☐ Grants Ready for Closeout
- ☐ Awarded grants by FY
- ☐ Applications and awards by round and fiscal year
- ☐ Funding by fiscal year
- ☐ Numbers of publications by year
- ☐ Numbers of PIs supported by fiscal year
- ☐ List of similar grants in other ICs
- ☐ Similar Grants to <this portfolio>
- ☐ Similar Grants to <this portfolio>
- ☐ Bookmark Dock

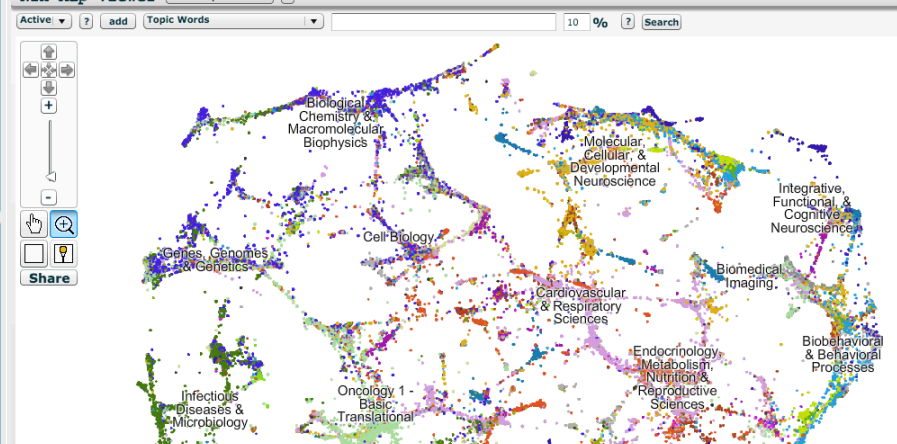
Custom Widgets

- ☐ SCORE Grant Transfers
- ☐ No-cost Extensions
- ☐ Incoming New Innovator awards (Status 70)

Applications Pending Review (1257)

Study Section	Project	Title	Investigator(s)	Rev Order	Mtg Location	Start	End
CICS	5R01HL				NOT AVAILABLE		
MEDI	5R01HL				NOT AVAILABLE		
MIM	5R01HL				NOT AVAILABLE		

NIH Map Viewer



News Items (18)

Project	News Title	Journal Link	PubMed Abstract	Release Date
R01HL111770	Molecule Protects Against Heart Failure in Mice	No Article Available	Abstract	9/15/2014
HL111770	Newly discovered heart molecule could lead to effective treatment for heart failure	No Article Available	No Abstract Available	8/10/2014
R01GM073791	Atomic structure of key muscle component revealed in Penn study	No Article Available	No Abstract Available	7/24/2014
R01HL114805	Novel marker and possible therapeutic target for cardiovascular calcification identified	No Article Available	No Abstract Available	3/13/2014
HL092235	Misplaced protein causes heart failure	No Article Available	No Abstract Available	3/6/2014

“NIH administrative staff have had limited tools to retrieve, analyze, and report the results of the NIH collective investment in biomedical research... A better way would be a more facile, **integrated analysis and reporting** tool for use across the NIH by administrative leadership and program staff. This tool (or these tools) would **take advantage of recent informatics capabilities.**”

-NIH Advisory Committee to the Director, Data and Informatics Working Group
<http://acd.od.nih.gov/Data and Informatics Working Group Report.pdf>

“**NIH should link its own data infrastructure** with that of its many partners in the science and health ecosystems who are already tracking many outcomes of interest to NIH (e.g., CDC, U.S. Patent and Trademark Office, Food and Drug Administration).”

NIH Scientific Management Review Board
Working Group on Approaches to Assess the Value of Biomedical Research Supported by NIH
<http://smrb.od.nih.gov/documents/reports/VOBR-Report-122013.pdf>

“Measures of research activities, outputs, and technology transfer are important, and both the measures and **the underlying data need to be improved.** [NIH Data] would be more valuable if its data had more complete coverage, were **linked to other data sources**, and were made more accessible to researchers.”

NRC Committee on Assessing the Value of Research in Advancing National Goals
http://nap.edu/catalog.php?record_id=18804

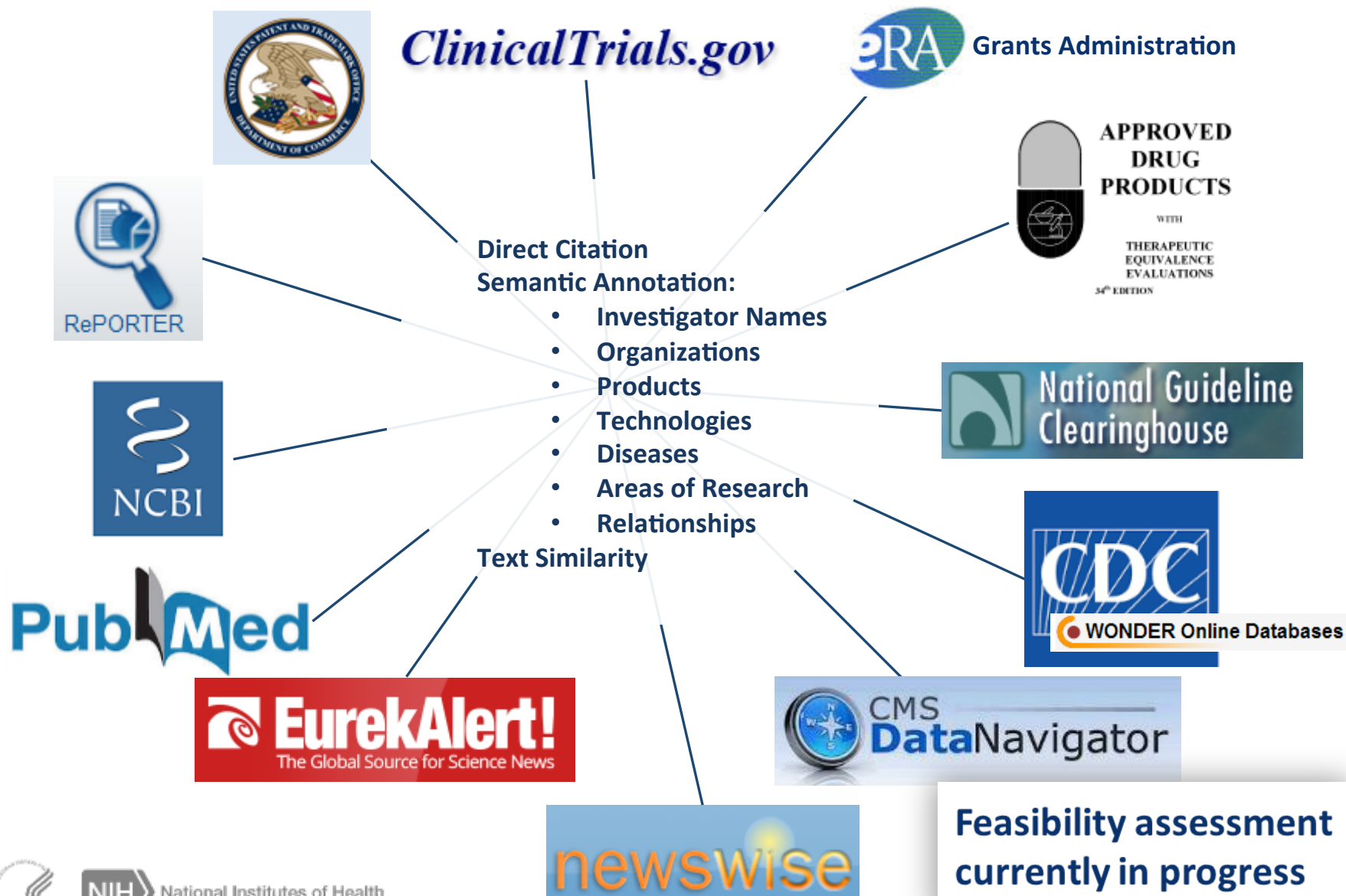
It is also challenging to place an empirical value, especially a dollar amount, on knowledge... **Narratives constructed from well-designed case studies can be especially effective illustrations of the broad impacts of biomedical research.** Carefully constructed retrospective case studies can demonstrate stewardship and capture value in a range of outcomes, including the impact of a basic finding on public health, or the economic return on investment for a specific research endeavor... Information and stories for case studies can come from a variety of sources, including the publications and communications documents of research institutions in all sectors and from around the globe.

NIH Scientific Management Review Board

Working Group on Approaches to Assess the Value of Biomedical Research Supported by NIH

<http://smrb.od.nih.gov/documents/reports/VOBR-Report-122013.pdf>

Recommendation: Assessments of NIH's value should attempt to trace NIH's contribution to the numerous translational pathways that exist and draw clear connections between the generation of knowledge and its application to health and broader societal impacts.



**Feasibility assessment
currently in progress**

Go back

- ☐ Curatable
☐ Not Curatable

PubTator

PMID:25115152 Anti-tumor effects of genetic vaccines against HPV major oncogenes.

Publication: Human vaccines _ immunotherapeutics; 2014 Aug 6 ; 11(1) [\[Full text links\]](#)

Gene Chemical Disease Species Mutation Clear Reset 

TITLE:

Anti-tumor effects of genetic vaccines against HPV major oncogenes.

ABSTRACT:

Expression of HPV E5, E6 and E7 oncogenes are likely to overcome the regulation of cell proliferation and to escape immunological control, allowing uncontrolled growth and providing the potential for malignant transformation. Thus, their three oncogenic products may represent ideal target antigens for immunotherapeutic strategies. In previous attempts, we demonstrated that genetic vaccines against recombinant HPV16 E7 antigen were able to affect the tumor growth in a pre-clinical mouse model. To improve this anti-HPV strategy we developed a novel approach in which we explored the effects of E5-based genetic immunization. We designed novel HPV16 E5 genetic vaccines based on two different gene versions: whole E5 gene and E5Multi. The last one is a long multi epitope gene designed as a harmless E5 version. Both E5 genes were codon optimized for mammalian expression. In addition, we demonstrated that HPV 16 E5 oncogene is expressed in C3 mouse cell line making it an elective model for the study of E5 based vaccine. In this mouse model the immunological and biological activity of the E5 vaccines were assessed in parallel with the activity of anti-E7 and anti-E6 vaccines already reported to be effective in an immunotherapeutic setting. These E7 and E6 vaccines were made with mutated oncogenes, the E7GGG mutant that does not bind pRb and the E6F47R mutant that is less effective in inhibiting p53, respectively. Results confirmed the immunological activity of genetic formulations based on attenuated HPV16 oncogenes and showed that E5-based genetic immunization provided notable anti-tumor effects.

Wei CH et. al., PubTator: a Web-based text mining tool for assisting Biocuration, Nucleic acids research, 2013, 41 (W1): W518-W522. doi: 10.1093/nar/gkt44

Wei CH et. al., Accelerating literature curation with text-mining tools: a case study of using PubTator to curate genes in PubMed abstracts, Database (Oxford), bas041, 2012

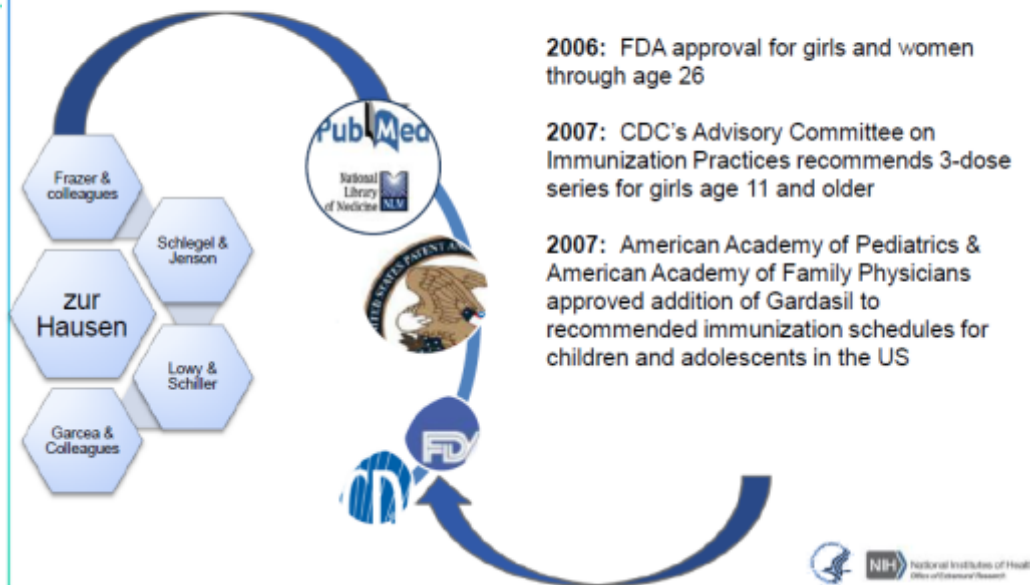
Wei CH et. al., PubTator: A PubMed-like interactive curation system for document triage and literature curation, in Proceedings of BioCreative 2012 workshop, Washington DC, USA, 145-150, 2012



NIH's Role in Developing an HPV Vaccine: a retrospective portfolio analysis

Pritty Joshi, PhD
Division of Planning and Evaluation,
Office of Extramural Research, National Institutes of Health

Building the Chain of Evidence



- **Build on integrated data infrastructure to support tracing studies**
- **Identify direct and semantic links among NIH investments, investigators, publications, intellectual property, and other long-term outcomes**
- **Provide timeline of critical events**
- **Allow experts to easily curate to identify the valid relationships**

NIH Research Timeline Reporting, Analysis, and Curation Environment (ReTRACE)

Search Results

First Term Search Criteria

REVISE SEARCH

DOCUMENT TITLE	YEAR	TYPE	CITES	CITED BY	PEOPLE
Sustained efficacy, immunogenicity, and safety for GlaxoSmithKline's HPV vaccine	2014		10		
Advisory Committee on Immunization Practices recommended immunization schedule for adults aged 19 years or older	2013		58	5	
Vaccinating boys plays key role in HPV prevention	2013		3		
HPV vaccine may benefit HIV-infected women	2012		2		
NIH study finds two doses of HPV vaccine may be as protective as full course	2012		5		
NIH Fact Sheet: Cervical Cancer	2012		1		

- NIH research project
- News release
- Awarded patent
- Clinical trial
- Publication
- Clinical guideline
- NIH report

DOCUMENT TITLE	YEAR	TYPE	CITES	CITED BY	PEOPLE
Gardasil Vaccination as Therapy in Low Grade Cervical Abnormalities	2010		30	57	
Quadrivalent Human Papillomavirus Vaccine	2010		23		
Papillomavirus L2 N-terminal peptides for the induction of broadly cross-neutralizing antibodies	2009		17	74	Schiller, John T., et al.
HPV vaccine shown effective at reducing cancer-causing infections	2009		1		
Major step forwards for vaccine against cervical cancer	2008		2		
Papillomavirus vaccine	2007		7		
Cervical cancer – A single vaccine could benefit most women	2006		25	23	
Treatment of papillomavirus infections	2005		15	8	Frazer, I., et al.
ORAL IMMUNIZATION AGAINST ANOGENITAL HPV DISEASE	2003		11	5	ROSE, ROBERT C
A PHASE I/II STUDY OF A VACCINIA-HPV RECOMBINANT	1999		3		ALLEGRA, CARMEN J

Linked to NIH funding

Brian Haugen, Ph.D. Program Manager (haugenb@od.nih.gov)

Video Tutorials at <http://report.nih.gov/tutorial/>

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. A vertical margin line is present on the left side, creating a narrow left margin. The top-right corner of the paper is folded over, revealing another layer of the same ruled paper underneath. The entire sheet is set against a solid black background.