



biosharing.org

*standards, policies and communication in bioscience*

Susanna-Assunta Sansone<sup>1</sup>,

*also on behalf of*

Dawn Field<sup>1,2</sup>, Philippe Rocca-Serra<sup>1</sup>,

Annapaola Santarsiero<sup>1</sup>, Eamonn Maguire<sup>1</sup>, Chris Taylor<sup>2,3</sup>

and our partners and collaborators

1. *University of Oxford, Oxford e-Research Centre, Oxford, UK*

2. *NERC Environmental Bioinformatics Data Centre, UK*

3. *European Bioinformatics Institute, Cambridge, UK*

# Outline

- Rationale and motivations
- Genesis of [biosharing.org](http://biosharing.org)
- Current and planned activities
- Collaboration with International Society of Biocuration -> [bioDBcore](http://bioDBcore)

# Funders actively developing data policies

FUNDING BODY	COUNTRY	YEAR
Economic and Social Research Council (ESRC)	UK	(1994) 2000
Natural Environment Research Council (NERC)	UK	(1996) 2008
National Science Foundation (NSF)	US	2001
National Institute of Health (NIH)	US	2003
Gordon and Betty Moore Foundation (GBMF)	US	(2005) 2008
Genome Canada	Canada	(2005) 2008

FUNDING BODY	COUNTRY	YEAR
Medical Research Council Data Sharing and Preservation Policy (MRC)	UK	2006
Biotechnology and Biological Sciences Research Council (BBSRC)	UK	2007
Wellcome Trust	UK	2007
Department of Energy (DOE)	US	2008
European Commission	Europe	NA
European Science Foundation	Europe	NA

Several data **preservation**, **management** and **sharing** policies have emerged in response to increased funding for genomics and functional genomics bioscience domains

- Even if in general terms, **standards** are recognized as necessary ‘tools’ to **unambiguously represent, describe and communicate the datasets**

# Publishes are strong advocates of standards

“...revolutionary measures are needed for data management, analysis and accessibility.”

**The future of biocuration**  
Nature (2008)

“Research cannot flourish if data are not preserved and made accessible. All concerned must act accordingly... Data management should be woven into every course in science.”

**Data's shameful neglect**  
Nature (2009)

“...scientific disciplines are finding the data deluge to be extremely challenging; tremendous opportunities can be realized if we can better organize and access the data”

**Dealing with data**  
Science (2011)

BMC  
Research Notes

**EDITORIAL**

A call for BMC Research Notes contributions promoting best practice in data standardization, sharing and publication

Call for Papers  
Special Issue on Standards in Practice

Read more here!

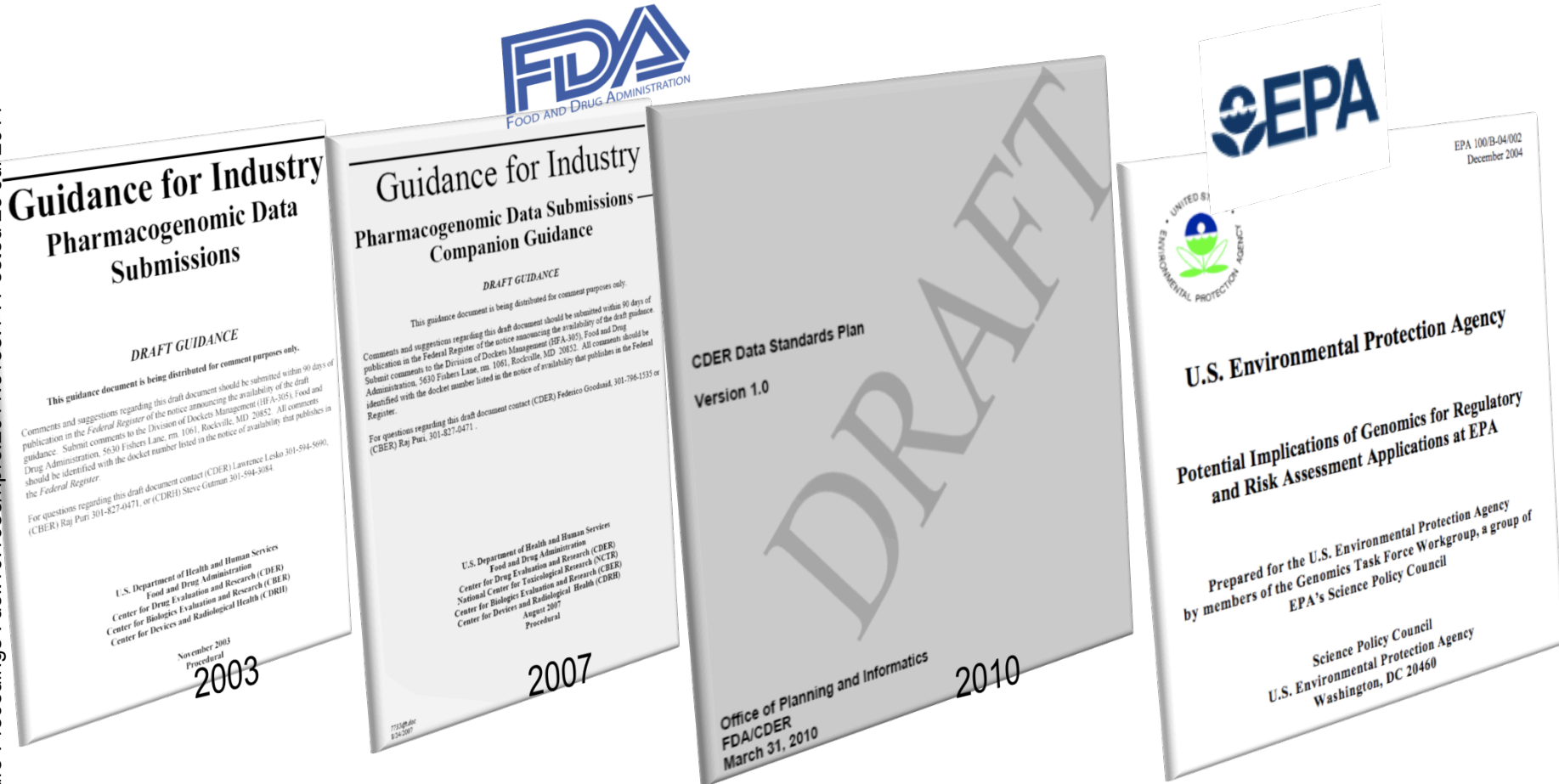
Journal of  
Biomedical  
Informatics  
**DRYAD**

Journals, biocurators and the research community continue to participate in the development of **standards, tools and databases**

- to support sharing of *sufficiently well annotated* datasets
- to enable *comprehensible, reusable, reproducible* research

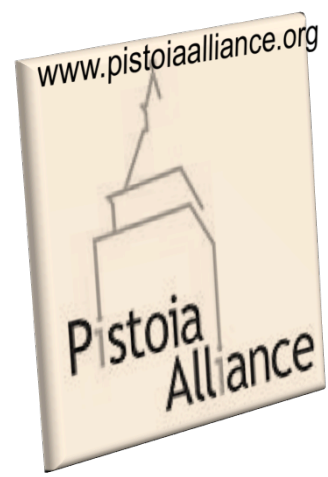
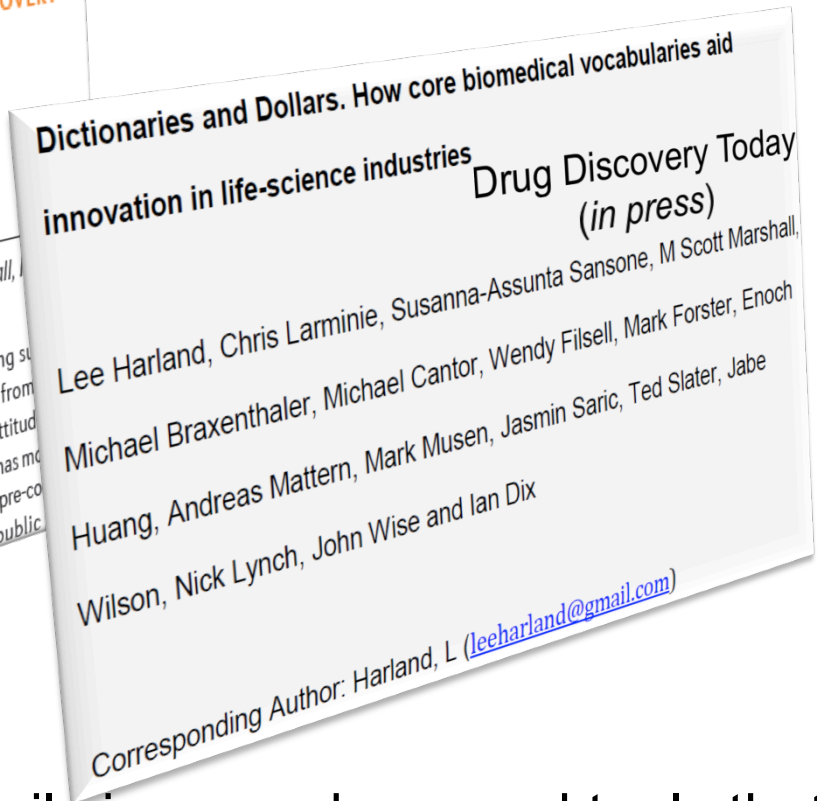
# ....similar trend in the regulatory arena

■ Literature Precedings : doi:10.1038/npre.2011.6153.1 : Posted 26 Jul 2011



“... lack of standardized data affects CDER’s review processes by curtailing a reviewer’s ability to perform integral tasks such as rapid acquisition, storage, analysis.....efficient management of a portfolio of **standards projects** will require coordinated efforts and clear roles for multiple participants within/outside FDA”

## ....and commercial sector



Nature Previews : doi:10.1038/npre.2011.6153.1 : Posted 26 Jul 2011

R&D has invested heavily in procedures and tools that integrate external information with their own data to enhance the decision-making process

- Now joining forces to streamline non-competitive elements of the life science workflow by the specification of **common standards**, business terms, relationships and processes

# Escalating number of standardization efforts in bioscience, e.g.:



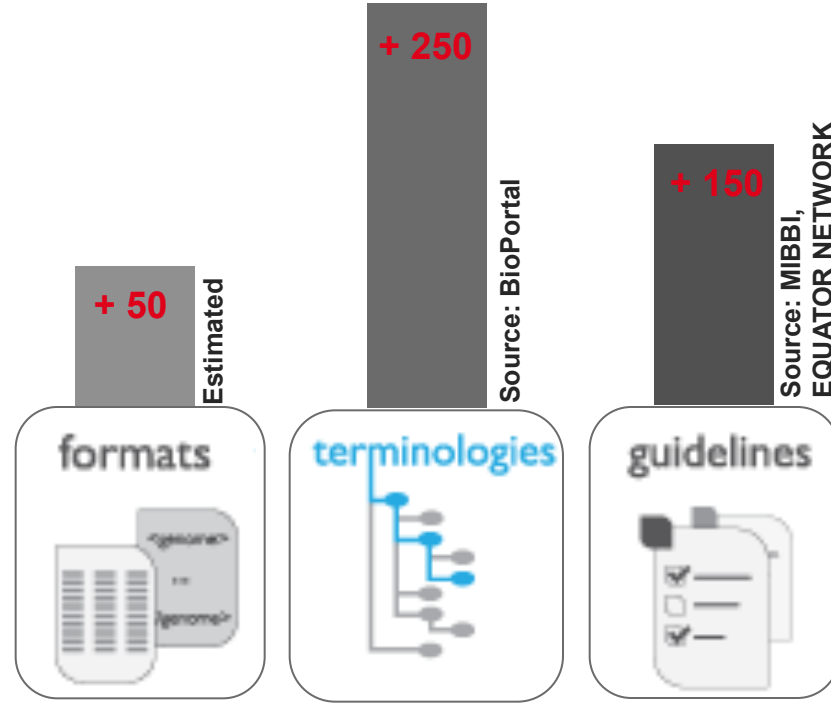
formats

terminologies

guidelines

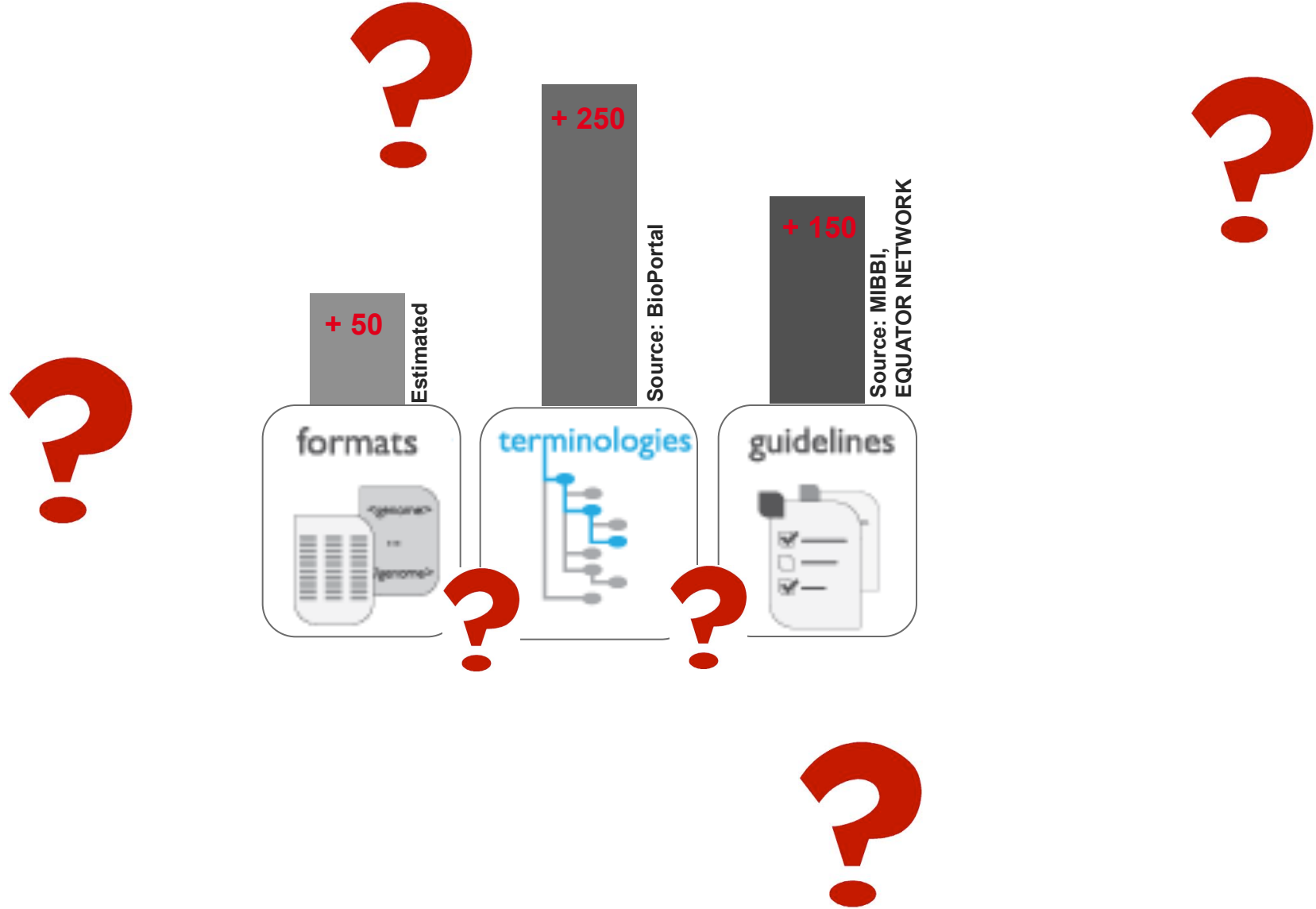


# Growing number of standards ....

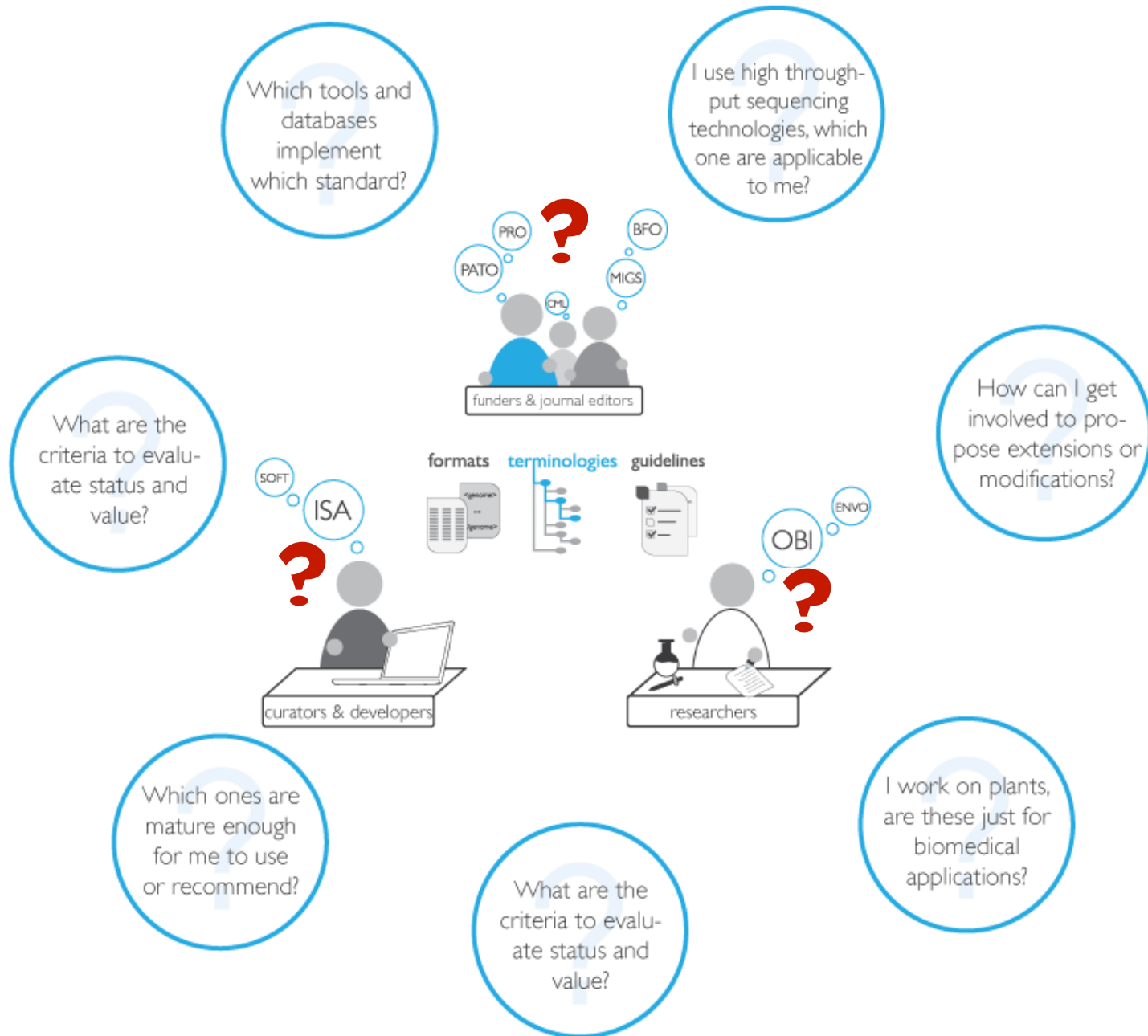




# Growing number of standards ....



# But how much do we know about these standards?



# Promoting coherent minimum reporting guidelines for biological and biomedical investigations: the MIBBI project

Chris F Taylor<sup>\*1,2</sup>, Dawn Field<sup>2,3</sup>, Susanna-Assunta Sansone<sup>1,2</sup>, Jan Aerts<sup>4</sup>, Rolf Apweiler<sup>1</sup>, Michael Ashburner<sup>5</sup>, Catherine A Ball<sup>6</sup>, Pierre-Alain Binz<sup>7,8</sup>, Molly Bogue<sup>9</sup>, Tim Booth<sup>2</sup>, Alvis Brazma<sup>1</sup>, Ryan R Brinkman<sup>10</sup>, Adam Michael Clark<sup>11</sup>, Eric W Deutsch<sup>12</sup>, Oliver Fiehn<sup>13</sup>, Jennifer Fostel<sup>14</sup>, Peter Ghazal<sup>15</sup>, Frank Gibson<sup>16</sup>, Tanya Gray<sup>2,3</sup>, Graeme Grimes<sup>15</sup>, John M Hancock<sup>17</sup>, Nigel W Hardy<sup>18</sup>, Henning Hermjakob<sup>1</sup>, Randall K Julian Jr<sup>19</sup>, Matthew Kane<sup>20</sup>, Carsten Kettner<sup>21</sup>, Christopher Kinsinger<sup>22</sup>, Eugene Kolker<sup>23,24</sup>, Martin Kuiper<sup>25</sup>, Nicolas Le Novère<sup>1</sup>, Jim Leebens-Mack<sup>26</sup>, Suzanna E Lewis<sup>27</sup>, Phillip Lord<sup>16</sup>, Ann-Marie Mallon<sup>17</sup>, Nishanth Marthandan<sup>28</sup>, Hiroshi Masuya<sup>29</sup>, Ruth McNally<sup>30</sup>, Alexander Mehrle<sup>31</sup>, Norman Morrison<sup>2,32</sup>, Sandra Orchard<sup>1</sup>, John Quackenbush<sup>33</sup>, James M Reecy<sup>34</sup>, Donald G Robertson<sup>35</sup>, Philippe Rocca-Serra<sup>1,36</sup>, Henry Rodriguez<sup>22</sup>, Heiko Rosenfelder<sup>31</sup>, Javier Santoyo-Lopez<sup>15</sup>, Richard H Scheuermann<sup>28</sup>, Daniel Schober<sup>1</sup>, Barry Smith<sup>37</sup>, Jason Snape<sup>38</sup>, Christian J Stoeckert Jr<sup>39</sup>, Keith Tipton<sup>40</sup>, Peter Sterk<sup>1</sup>, Andreas Untergasser<sup>41</sup>, J Vandesompele<sup>42</sup> & Stefan Wiemann<sup>31</sup>



### MEGASCIENCE

# 'Omics Data Sharing

Dawn Field,<sup>1\*†‡</sup> Susanna-Assunta Sansone,<sup>1,2†</sup> Amanda Collis,<sup>3†</sup> Tim Booth,<sup>1</sup> Peter Dukes,<sup>4</sup> Susan K. Gregurick,<sup>5</sup> Karen Kennedy,<sup>6</sup> Patrik Kolar,<sup>7</sup> Eugene Kolker,<sup>8</sup> Mary Maxon,<sup>9</sup> Siân Millard,<sup>10</sup> Alexis-Michel Mugabushaka,<sup>11</sup> Nicola Perrin,<sup>12</sup> Jacques E. Remacle,<sup>7</sup> Karin Remington,<sup>13</sup> Philippe Rocca-Serra,<sup>12</sup> Chris F. Taylor,<sup>12</sup> Mark Thorley,<sup>14</sup> Bela Tiwari,<sup>1</sup> John Wilbanks<sup>15</sup>

Data sharing, and the good annotation practices it depends on, must become part of the fabric of daily research for researchers and funders.

  
www.biosharing.org

<sup>1</sup>U.K. Natural Environment Research Council (NERC), Environmental Bioinformatics Centre. <sup>2</sup>European Molecular Biology Laboratory (EMBL) Outstation, The European Bioinformatics Institute (EBI). <sup>3</sup>U.K. Biotechnology and Biological Sciences Research Council. <sup>4</sup>U.K. Medical Research Council. <sup>5</sup>U.S. Department of Energy. <sup>6</sup>Genome Canada. <sup>7</sup>Unit for Genomics and Systems Biology, European Commission. <sup>8</sup>Seattle Childrens Hospital. <sup>9</sup>Marine Microbiology Initiative, Gordon and Betty Moore Foundation. <sup>10</sup>U.K. Economic and Social Research Council. <sup>11</sup>European Science Foundation. <sup>12</sup>The Wellcome Trust. <sup>13</sup>U.S. National Institute of General Medical Sciences, NIH. <sup>14</sup>NERC. <sup>15</sup>Science Commons.

# Metagenomics, Metadata, Meta-analysis (M3) & BioSharing SIG

July 9-10th, 2010, colocated with ISMB 2010, Boston, MA, USA

Ed DeLong, Massachusetts Institute of Technology, US  
Owen White, University of Maryland, US

Dawn Field, NERC Centre for Ecology and Hydrology, UK  
Susanna-Assunta Sansone, European Bioinformatics Institute, UK



**BioSharing's  
Statement of Purpose  
was discussed and developed**

Session IV: Toward BioSharing in the real-world Chair: Suzi Lewis (LNBL)			
9:00	9:30	The BioSharing concept – Organizers	
9:30	10:15	Ewan Birney (EBI)	Data Standards, Genomics and BioSharing
10:15	10:45	Coffee + Networking	
Session V: Community Introductions Chair: Pascale Gaudet (NorthWestern)			
10:45	11:00	Dawn Field (NERC Centre for Ecology and Hydrology)	The Genomic Standards Consortium (GSC)
11:00	11:15	Sandra Orchard (EBI)	The HUPO Protomics Standards Initiative (PSI)- how common standards result in collaboration, data sharing and increased data deposition
11:15	11:30	Chris Taylor (EBI)	MIBBI, minimal information checklists
11:30	11:45	Suzi Lewis (LNBL)	The OBO Foundry
11:45	12:00	Pascale Gaudet (NorthWestern)	International Society of BioCuration
12:00	12:15	Alan Ruttenberg (Science Commons)	Science Commons
12:15	12:30	George Garrity (MSU)	The Standards in Genomic Sciences journal (SiGS)
12:30	13:30	Lunch + Networking	
Session VI: Current and Future Activities - Finding Intersections			
13:30	13:45	Phillipe Rocca-Serra (EBI)	The ISA Infrastructure and its community: consistent annotation and sharing of experimental information
13:45	14:00	Guy Cochrane (EBI)	Bioinformatics databases and standards: A community of resources'
14:00	14:15	Hilmar Lapp (NESCENT)	The Dryad Repository - linking authors, datasets and journals
14:15	14:30	Brian Bramlett (Lux Bio Group)	Digital Biology Foundation: open software community in life sciences
14:30	14:45	Nigam Shah (Stanford University)	National Center for Biomedical Ontology (NCBO)
14:45	15:00	Lynette Hirschman (MITRE)	The BioNLP community

## Session VI: BioSharing Panel Discussion - developing a vision for the future







10:00 Nature	17:30	<p>Co-Chairs Dawn Field (CEH) and Susanna Sansone (EBI)</p> <p>The Panel will include key proponents of BioSharing to drive discussions about how to develop the vision of real-world biosharing and ideally will advance a range of pilot projects that will build the connections between these communities.</p> <p>How can we work together better and more easily to speed up real-world data sharing? This discussion will focus more on work at the intersection of activities of two or more communities – for example, on whether current ontologies provide an adequate coverage of terms to meet the needs of all minimal information checklists or how databases and biocurators are working together to better annotate data, etc.</p>
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Nature Precedings : doi:10.1038/npre.2011.6153.1 : Posted 26 Jul 2011

“ BioSharing works at the global level to **build stable linkages** between funders, implementing data sharing policies, and well-constituted **standardization efforts** in the biosciences domain, to expedite the communication and the production of an integrated standards-based framework for the **capture and sharing of high-throughput genomics and functional genomic bioscience data**.

We work with other organisations to

1. develop **catalogues** to centralize **bioscience data policies** and **reporting standards**
  - enrich these progressively by linking to other related portals and resources to serve those seeking information on systems serving or implementing the standards;
2. moderate a **communication forum** for **funders** and **stakeholders**
  - promote mutual support and cross-project activities to ensure the difference among the policies and standards do not impede seamless interoperability of the data. ”

 <h3>POLICIES</h3> <p>A catalogue of data preservation, management and sharing policies from international funding agencies and regulators.</p>	<p>formats terminologies checklists</p>  <h3>STANDARDS</h3> <p>A catalogue of reporting standards (minimum reporting guidelines, exchange formats and terminologies) and organizations that develop these.</p>	 <h3>BLOG</h3> <p>Keep up to date on our activities and contribute to the discussions with our blog.</p>
<p>in partnership with</p>  <p>BioMed Central The Open Access Publisher</p> <p>BioMed Central and the journal BMC Research Notes proudly support BioSharing and its catalogue of domain-specific data standards.</p>	<p>developed by</p> <p>the same people who brought you</p> 	<p>follow us</p> 

## POLICIES

A prototype catalogue that centralizes bioscience data policies and plans. The enrichment of the content will be iterative. To send your feedback or to ensure a specific policy is added, use the relevant [submission form](#).

ORGANISATION ▲	ROLE	POLICY	COUNTRY	YEAR
Biotechnology and Biological Sciences Research Council	funding body	<a href="#">BBSRC Data Sharing Policy</a>	UK	2007
Cancer Research UK	funding body	<a href="#">Policy on Data sharing and Preservation</a>	UK	2009
Center for Drug Evaluation and Research	regulator	<a href="#">CDER Data Standards Plan Version 1.0</a>	UK	2010 (since 2003)
Department of Energy	funding body	<a href="#">Genomics: GTL Program Information and Data Sharing Policy (Office of Biological and Environment)</a>	US	2008
Economic and Social Research Council	funding body	<a href="#">ESRC Data Policies and Standards</a>	UK	2000 (since 1994)
Engineering and Physical Sciences Research Council	funding body	<a href="#">EPSRC Policy Framework on Research Data</a>	UK	2011
European Commission	funding body	<a href="#">Communication calling for uniform policies across Member Nations</a>	EU	n/a
European Science Foundation	funding body	ESF mainly provides ""network"" funding, therefore researchers are expected to follow the policies of the national agencies that directly provide research funding.	EU	n/a
Genome Canada	funding body	<a href="#">Genome Canada Data Release and Resource Sharing Policy</a>	US	2008 (since 2005)
Gordon and Betty Moore Foundation	funding body	<a href="#">GBMF Data Sharing Philosophy and Plan</a>	US	2008 (since 2005)
Medical Research Council	funding body	<a href="#">MRC Data Sharing and Preservation Policy</a>	UK	2006
<a href="#">multiple organizations</a>	funding bodies; research institutes; charitable foundations; international organisations	<a href="#">Sharing research data to improve public health: joint statement of purpose</a>	UK; US; DE; NZ; FR; AU; global	2011
National Institute of Health	funding body	<a href="#">NIH Data Sharing Policy</a>	US	2003
National Science Foundation	funding body	<a href="#">NSF Data Sharing Policy and Data Management Plan Requirements</a>	US	2001
Natural Environmental Research Council	funding body	<a href="#">NERC Data Policy</a>	UK	2008 (since 1996)
Wellcome Trust	funding body	<a href="#">WT Policy on Data Management and Sharing</a>	UK	2010 (since 2007)
Wellcome Trust Sanger Institute	research institute	<a href="#">Data Sharing Policy and Guidelines</a>	UK	2009 (since 1998)

## POLICIES

A prototype catalogue that centralizes bioscience data policies and plans. The entry includes a link to the relevant [submission form](#).

## ORGANISATION

## ROLE

Biotechnology and Biological Sciences Research Council	funding body
Cancer Research UK	funding body
Center for Drug Evaluation and Research	regulator
Department of Energy	funding body
Economic and Social Research Council	funding body
Engineering and Physical Sciences Research Council	funding body
European Commission	funding body
European Science Foundation	funding body
Genome Canada	funding body
Gordon and Betty Moore Foundation	funding body
Medical Research Council	funding body
multiple organizations	funding bodies; research institutes; charitable foundations; international organisations
National Institute of Health	funding body
National Science Foundation	funding body
Natural Environment Research Council	funding body
Wellcome Trust	funding body
Wellcome Trust Sanger Institute	research institute



0 votes

### Wellcome Trust Policy on Data Management and Sharing

David Carr

The Wellcome Trust's policy statement on data management and sharing, which was originally published in January 2007 and revised in August 2010.

Received 07 June 2011 15:06 UTC; Posted 07 June 2011

Posted to: Genetics & Genomics, Bioinformatics



0 votes

### Information and Data Sharing Policy, Genomic Science Program, DOE

Susan Gregurick

The Office of Biological and Environmental Research (OBER) will require that all publishable information resulting from GTL funded research must conform to community recognized standard formats when...

Received 19 May 2011 15:28 UTC; Posted 19 May 2011

Posted to: Genetics & Genomics

<a href="#">EPSRC Policy Framework on Research Data</a>	UK	2011
<a href="#">Communication calling for uniform policies across Member Nations</a>	EU	n/a
ESF mainly provides "network" funding, therefore researchers are expected to follow the policies of the national agencies that directly provide research funding.	EU	n/a
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<a href="#">GBMF Data Sharing Philosophy and Plan</a>	US	2008 (since 2005)
<a href="#">MRC Data Sharing and Preservation Policy</a>	UK	2006
<a href="#">Sharing research data to improve public health: joint statement of purpose</a>	UK; US; DE; NZ; FR; AU; global	2011
<a href="#">NIH Data Sharing Policy</a>	US	2003
<a href="#">NSF Data Sharing Policy and Data Management Plan Requirements</a>	US	2001
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WORK IN PROGRESS

A catalogue of data sharing resources that:

- 1. centralizes** community-developed bioscience **standards**, **linking** to **policies**, other **portals** (e.g. BioPortal, OBOfoundry), **open access resources** (e.g. BMC, Nature Precedings) **and lists of tools and databases** implementing the standards (e.g. NIF, Links Directory);
- 2. Identifies** and maintain a set of (implicit) criteria for assessing *usability* and *popularity* of the standards, also the interoperability and relations among them;
- 3. fosters** interoperability, addressing overlaps and duplication of efforts that hamper their wider uptake and interfere with the creation of standards-compliant systems.

View and browse the standards in a table or explore a draft set of visualizations:



Nature Precedings doi:10.1038/npre.2011.6153.1 : Posted 26 Jul 2011

## STANDARDS (UNDER DEVELOPMENT)

A prototype catalogue that centralizes reporting standards. A draft set of core information are exposed; the enrichment of the content and enhancement of functionalities will be iterative. Submit feedback or a new entry via the forms in the CONTACT page.

ACRONYM	FULL NAME	TYPE▲	DOMAIN	VERSION	PUBLICATION	CONTACT
BioPAX	Biological Pathway Exchange	exchange format	biological pathway	Level 3	Demir et al; Nat Biotech; 2010	BioPAX community
CellML	Cell Markup Language	exchange format	cell modelling	v 1.1	Cuellar et al; Simulation; 2003	CellML community
SBML	System Biology Markup Language	exchange format	computational modelling (biochemical reaction networks)	level 3, v 1 core	Hucka et al; Bioinformatics; 2003	SBML community
FuGE	Functional Genomics Experiment Markup Language	exchange format	experimental description	v 1.0	Jones et al; Nature Biotech; 2007	FuGE working group
ISA-Tab	Investigation/Study/Assay Tabular	exchange format	experimental description	v 1.0	Rocca-Serra et al; Bioinformatics; 2010	ISA working group
MINiML	MIAME Notation in Markup Language	exchange format	experimental description (functional genomics)	v 1.0		GEO
SOFT	Simple Omnibus Format in Text	exchange format	experimental description (functional genomics)	not versioned		GEO
GCDML	Genomic Contextual Data Markup Language	exchange format	experimental description (genomics)	v 2.0.0 beta	Kottmann et al; OMICS; 2008	GSC
MAGE-Tab	MicroArray Gene Expression Tabular	exchange format	experimental description (transcriptomics)	v 1.0	Rayner et al; BMC Bioinformatics; 2006	FGED Society
GelML	Gel Electrophoresis Markup Language	exchange format	gel electrophoresis	v 1.0	Gibson et al; Proteomics; 2010	HUPO PSI Protein Separation working group
mzML	mz Markup Language	exchange format	mass spectrometry (proteomics)	v 1.1.0	Martens et al; Mol Cell Proteomics; 2011	HUPO PSI
MIABE	Minimum Information About a Bioactive Entity	reporting guideline	bioactive entities	0.4		MIABE Working Group
MIPFE	Minimal Information for Protein Functional Evaluation	reporting guideline	biochemistry	v 01	de Marco; Microbial Cell Factories; 2008	MIPFE working group
BioCoreDB	Core Attributes of Biological Databases	reporting guideline	biological databases	not specified	Gaudet et al; NAR; 2010	Biocuration Society
GIATE	Guidelines for Information About Therapy Experiments	reporting guideline	cancer therapy experiments	not specified	Yong et al; Protein Eng Des Sel; 2009	Antibody Society
MIRIAM	Minimal Information Required In the Annotation of biochemical Models	reporting guideline	computational modeling	not specified	Le Novère et al; Nature Biotech; 2005	BioModels.net

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ISA-Tab	Investigation/Study/Assay Tabular	exchange format	experimental description	v 1.0	Rocca-Serra et al; Bioinformatics; 2010	ISA working group
MINiML	MIAME Notation in Markup Language	exchange format	experimental description (functional)	v 1.0		GEO
SOFT	Simple Omnibus Format in Text	exchange format				
GCDML	Genomic Contextual Data Markup Language	exchange format				
MAGE-Tab	MicroArray Gene Expression Tabular	exchange format				
GelML	Gel Electrophoresis Markup Language	exchange format				
mzML	mz Markup Language	exchange format				
MIABE	Minimum Information About a Bioactive Entity	reporting guideline				
MIPFE	Minimal Information for Protein Functional Evaluation	reporting guideline				
BioCoreDB	Core Attributes of Biological Databases	reporting guideline				
GIATE	Guidelines for Information About Therapy Experiments	reporting guideline				
MIRIAM	Minimal Information Required In the Annotation of biochemical Models	reporting guideline				

## ISA-Tab

## Investigation Study Assay Tabular

ID  
bsg-00064

TYPE  
exchange format

DOMAIN(S) COVERED  
experimental description (genomics)

RATING  
☆☆☆☆☆  
No votes yet

## PUBLICATION(S)

Rocca-Serra et al; Bioinformatics; 2010

ORGANIZATION  
ISA community

## MAIN CONTACT(S)

Philippe Rocca-Serra

## STANDARDS (UNDER DEVELOPMENT)

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ISA-Tab	Investigation/Study/Assay Tabular	exchange format	experimental description	ISA working group
MINiML	MIAME Notation in Markup Language	exchange format	experimental description (functional v 1.0)	GEO

Classify the domain(s) the standards cover in a consistent, in collaboration with



Nature Precedings : doi:10.1038/npre.2011.6153 : Posted 26 Jul 2011

### ISA-Tab Investigation Study Assay Tabular

**ID**  
bsg-00064

**TYPE**  
exchange format

**DOMAIN(S) COVERED**  
experimental description (genomics)

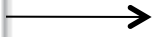
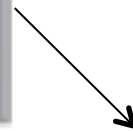
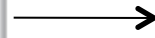
**PUBLICATION(S)**  
Rocca-Serra et al; Bioinformatics; 2010

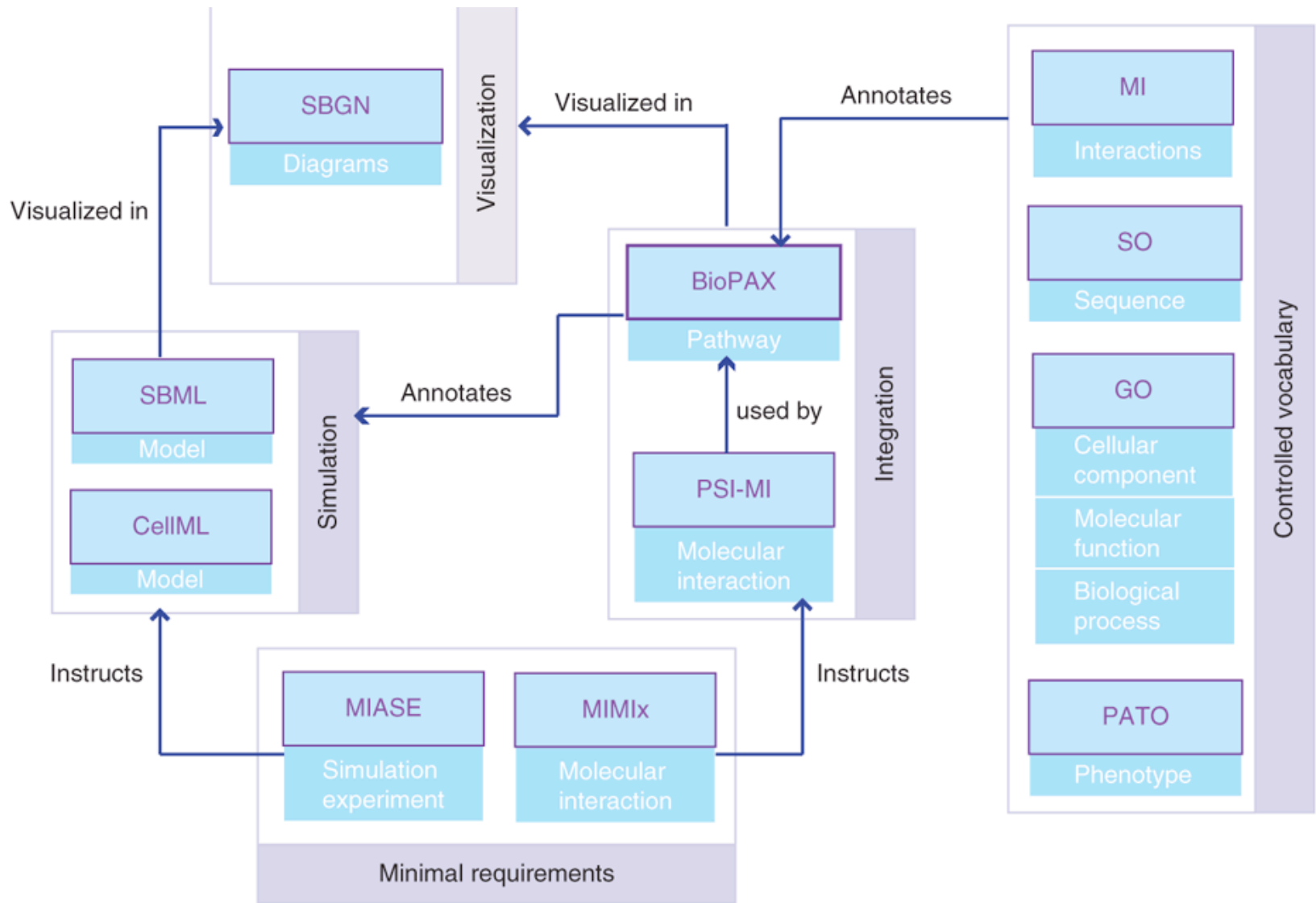
**ORGANIZATION**  
ISA community

**MAIN CONTACT(S)**  
Philippe Rocca-Serra

**RATING**  
☆☆☆☆☆  
No votes yet

MIPFE	Minimal Information for Protein Functional Evaluation	reporting guideline		
BioCoreDB	Core Attributes of Biological Databases	reporting guideline		
GIATE	Guidelines for Information About Therapy Experiments	reporting guideline		
MIRIAM	Minimal Information Required In the Annotation of biochemical Models	reporting guideline		





### The relationship among popular standard formats for pathway information

BioPAX and PSI-MI are designed for data exchange to and from databases and pathway and network data integration. SBML and CellML are designed to support mathematical simulations of biological systems and SBGN represents pathway diagrams.

CREDIT:  
 “The BioPAX community standard for pathway data sharing.” **Nature Biotechnology** 28, 2010.

in partnership with



BioMed Central and the journal BMC Research Notes proudly support BioSharing and its catalogue of domain-specific data standards.

## EDITORIAL

nature  
genetics

NATURE GENETICS | VOLUME 43 | NUMBER 6 | JUNE 2011

# Standard cooperating procedures

Community review of proposed standards is a good strategy to broaden consensus on ways to conduct principled, ethical and efficient research. We are pleased to welcome new partners for our *Nature Precedings* Data Standards initiative and suggest other standards that could be usefully presented as citable preprints.

Our community approach extends not only to our own site but to those of other publishers, funders, informaticians and research consortia. In this respect, we are pleased to work with the Biosharing project

International Society for Biocuration

### bioDBCore

**Announcements**

- BioDBCore is registered at [MIBBI](#)
- An announcement of BioDBCore is published in the 2011 edition of the NAR Database issue: [Gaudet et al. 2011](#) and in the DATABASE journal [Gaudet et al. 2011](#).

**Overview**

BioDBCore is a community-defined, uniform, generic description of the core attributes of biological databases. The BioDBCore checklist is overseen by the International Society for Biocuration (ISB) (<http://biocurator.org/>), in collaboration with the [BioSharing](#) forum.

**Motivation for BioDBCore**

The world of public biological databases is constantly evolving, as attested by the ever-growing size of the annual NAR database issue, as well as by the creation of a new journal dedicated to databases and biocuration, DATABASE. As in any emerging field, standardization across the biological databases is still inadequate at many levels. To address this we propose the adoption of a community-defined, uniform, generic description of the core attributes of biological databases, which we will name BioDBCore.

The goals of the proposed BioDBCore checklist are to:

- Gather the necessary information to provide a general overview of the database landscape, and compare and contrast the various resources.
- Encourage consistency and interoperability between resources.
- Promote the uptake and use of semantic and syntactic standards.

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