

THE VIVO PROJECT



Webinar 1: Data Information Models for Scientific Research June 23, 2022

a contraction of the second se

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Index:

- 1) Introducing the VIVO community
- 2) The VIVO software and the Ontology
- 3) VIVO use cases
- 4) VIVO examples
- 5) Innovation in the VIVO community
- 6) Conclusions

Member-Supported Community

Open Source Community Supported program

- ✓ Software built by, for and with communities
- $\checkmark\,$ Identifying common needs
- ✓ Affordable









Connect – Share – Discover

VIVO Core Values

OPEN SOURCE

VIVO, and all VIVO components are provided as open source. Download at GitHub.



OPEN COMMUNITY

The VIVO community is open to everyone. You can follow the work of VIVO at the VIVO wiki.

OPEN DATA

VIVO produces Linked Open Data which is easily shared and combined across VIVO sites.

VIVO and all components of VIVO are open source. **Download from GitHub.**



The VIVO community is open to everyone. You can follow VIVO's work on our wiki.



VIVO produces linked open data that can be easily shared and combined across all VIVO sites.





Platinum Members,



Gold Members,



Silver Members.

Brown University	CINECA	University of New Mexico Health Sciences Center Clinical & Translational Science Center
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Bronze Members,

FI	lorida International University	George Washington University	Technical University of Denmark	Technische Informationsbibliothek (TIB)	University of California Davis
	University of Idaho	University of Lausanne	University of Quebec in Montreal		

Member-Supported Community

VIVO Service providers:



VIVO Strategic partner (MOU):



Other partners:



DSPACE

🔚 casrai



Community Organisation

Leadership Group

Define the strategic direction

Commiters Group

Developers in charge of the maintenance and evolution of the VIVO base code.

Technical Lead

Users Groups

Community-created groups with common interests, grouped by region or zone:

- North American User Group
- German User Group
- Iberoamerica User Group

Interest Groups

Groups created by the community to support initiatives but without limited time

Task Forces

Groups created by the community with a specific and finite objective in time

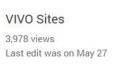


VIVO Sites

Access the interactive <u>VIVO map</u>!

+60 institutions and agencies +20

countries implementing VIVO



★ Add layer \$\cong + Share O Preview

- VIVO sites
- ✓ ➡ Styled by VIVO Version
 - **9** 1.9.x (17)

Q 1.8.x (8)

- **older** than 1.6.0 (8)
- **Q** 1.10.x (7)
- 💡 1.7.x (5)
- **Q** 1.11.x (4)
- **9** 1.12.0 (1)
- **Q** 1.9.x uses the https://github... (1)
- Other / No value (23)

Untitled layer
 Import
 Add places to this layer by drawing or importing data. Learn more





VIVO outcomes

A Look Back at 2021-2022

- Partnering with Lyrasis
- Strengthened governance
- Release of VIVO 1.11/1.12
- Pandemic caused financial stress
- New members. Berlin Alliance at Germany

Focus on Community, Members, and the VIVO System

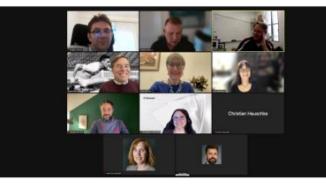




IVO is in its thirteenth year as an open-source, member-supported platform for representing scholarship. This Annual Report highlights accomplishments in the fiscal year from July 1, 2020 through June 30, 2021.

There's lots of good news about VIVO. Despite the pandemic, the community made outstanding contributions to VIVO, including a major new release, new ontologies, new members, and four well-attended events.

In countries all over the world, interest, energy and enthusiasm for VIVO grew substantially during this time, presenting opportunities for VIVO leadership and the community.



VIVO's Leadership Group provides strategic oversight and outlines priorities for the community's work. New members join the group every year, and officers were elected in 2021.

Metrics: From July 2020 to June 2021 Financials: Countries with New Software Revenue **Active Sites** Releases \$167,010 1.12.0, released in 22 June 2021 Expenses Active Development Sites Sprints \$128,758 64





VIVO Events

2021-22 Community Events

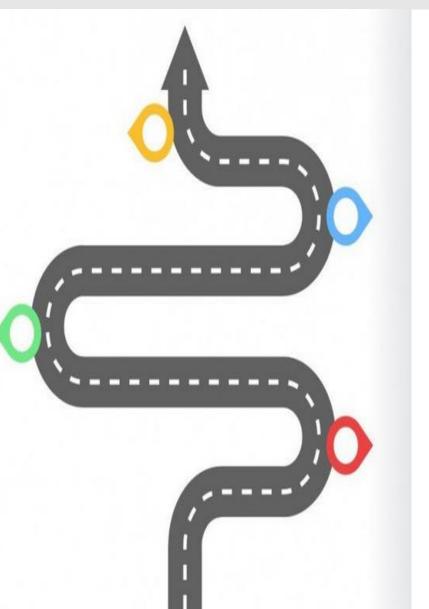
- VIVO 2021 conference (Virtual) 252 attendants, most international, from 32 countries worldwide
- North American User Group Meeting
- Launch of the Spanish-speaking User Group Meeting with more than 600 attendants
- VIVO track at the CRIS2022
- New German User Group Meeting in progress
- VIVO 2022 conference in progress







VIVO Roadmap



Usability and Utility

• Dynamic API

Software evolution

VIVO 1.13.0 release.

Interoperability

- CERIF2VIVO mapping Collaboration with EuroCris to align CERIF model to VIVO ontology. (ongoing) <u>https://wiki.lyrasis.org/display/VIVO/Ontology+Interest+Group</u>
- Integrating Dspace and VIVO: (ongoing) <u>https://wiki.lyrasis.org/display/VIVO/DSpace-VIVO+integration+task+force</u>
- Enhance interoperability with Fedora, & ORCID



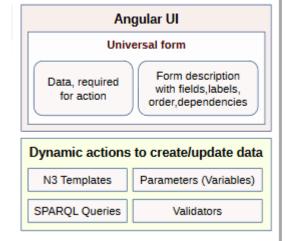
VIVO Roadmap. Dynamic API

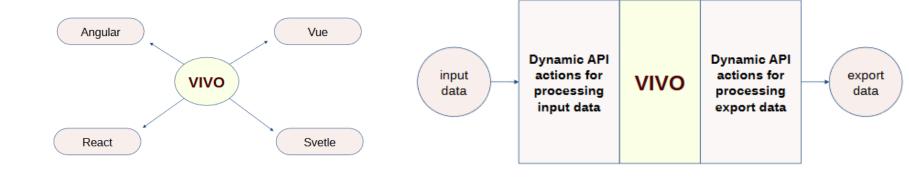
Goal: Dynamic API would lead to decoupling frontend and backend, would enable easier customization of VIVO.

 Dynamic custom entry forms

New web interfaces

 Better integration with external application.







VIVO Roadmap. New product releases

A new VIVO 1.13.0 has already been released for the community test

What's new:

- A new functionality to upload a file and link it with an individual in VIVO (for example, a book).
- Password authentication on external smtp servers
- New features for sparql update API
- Online translator editor, also enhancing Slavic languages.
- Deletion of individuals and related information
- Other minor improvements



VIVO Roadmap. CERIF2VIVO mapping

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euro



Memorandum of Understanding

The purpose of this Memorandum of Understanding (MoU) is to establish and promote a strategic and cooperative partnership between VIVO and euroCRIS.

euroCRIS is a not-for-profit, statutory association (https://www.eurocris.org) established in 2002, governed by Dutch law and dedicated to the development and implementation of efficient and effective institutional, national and international research information systems and their interoperability, based on CERIF (Common European Research Information Format). One of euroCRIS's main objectives is the promotion of cooperation and exchange of expertise between stakeholders in the research information domain, in particular by setting up Strategic Partnerships with international organisations in the field of research information.

The VIVO community (https://www.lvrasis.org/programs/Pages/VIVO.aspx) is an open-source software community focused on the development of an open-source software platform of the same name and an ontology for representing scholarship. The VIVO community is one of eight community-supported software programs supported by LYRASIS that serve a wide-range of organization types, sizes and disciplines across the globe. LYRASIS is a 501 c 3 (US law) non-profit membership organization whose mission is to support enduring access to the world's shared academic, scientific and cultural heritage through leadership in open technologies, content services, digital solutions and collaboration with archives, libraries, museums and knowledge communities.

Motivation

Both VIVO and euroCRIS share the same vision of realising an optimal availability of and access to information on research through research information systems, for the benefit and support of all stakeholders involved in research. In this respect, standards and ontologies are key to recording information on research and scholarly activities in research information systems in an unambiguous manner. In addition, standards allow for the exchange of interlinked metadata on research in a

MOU with EuroCRIS

- Align CERIF framework and VIVO ontology
- Collaborate on interoperability
- Communications between the communities
- Attend mutual conferences

Takes advantage of mutual interests



VIVO Roadmap. CERIF2VIVO mapping

Benefits of the mapping:

- ✓ Interoperability between VIVO platforms and CERIF-compatible CRIS systems
- ✓ Knowledge transfer
- Improvement of CERIF model and VIVO ontology by analyzing the other side
- \checkmark Extensions of the data models
- \checkmark Addition of descriptions and annotations
- Machine-executable mapping for various purposes and in various notations, for example, for a CERIF-compliant data export from VIVO



VIVO Roadmap. Integrating Dspace and VIVO

Goal: consider using VIVO as a frontend for one or multiple DSpace instances at the institution

- A new presentation of DSpace items and semantic web aspect to existing DSpace repositories
- DSpace-VIVO migration assigns a unique ID to the researchers and subjects (keywords)
- The 'Capability Map' allows an expertise mapping across data sources

VIVO	connect • share • discover		Search	
Home People Orga	nizations Research Events > Ca	apability Map		
Capability Map				
Build a 'first pass' capabilit	y map by typing in a search term that could	be said to represent a broad research	h capability.	
VIVO	Cutoff: 10 Sea	rch Search and Expand Reset		
		resume hide group labels	Search terms	- Info
			Term: VIVO	
Numerical-Sy	3 ymbolic Computation		Remove capability Exp Group: VIVO, Sema Remove group	
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S	emantic Web 2 VIVO VIVO-DSPACE 2		Group: VIVO, Inform DSPACE, Computer S Semantic Web	
			Remove group	
			Demo Anauthor, [X]	
			Group: VIVO, Nume	erical-Symbolic

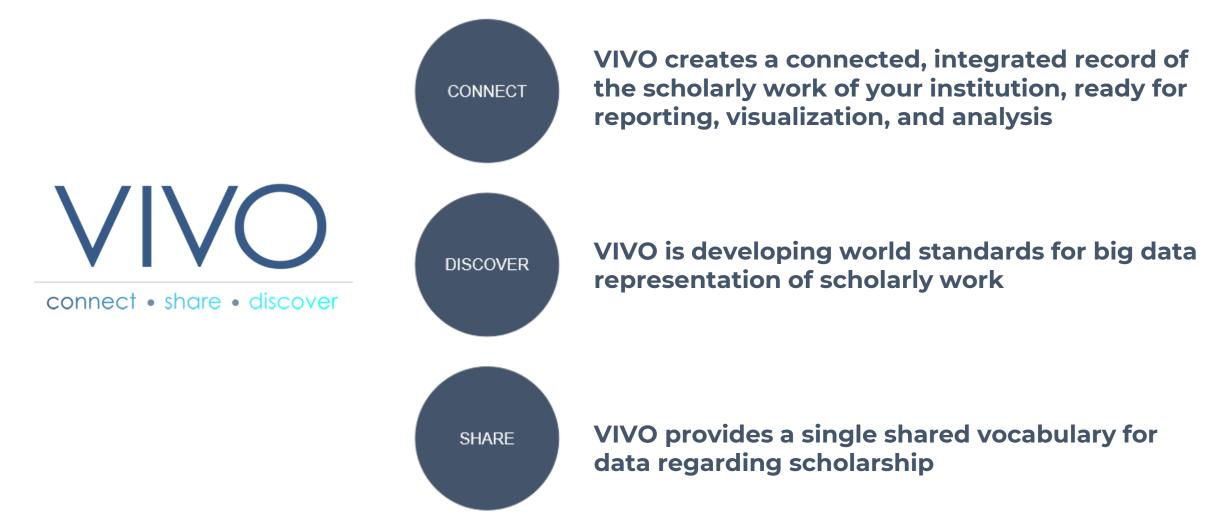
Project information:

https://github.com/vivo-community/DSpace-VIVO

https://wiki.lyrasis.org/display/VIVO/DSpace-VIVO+Technical+Documentation





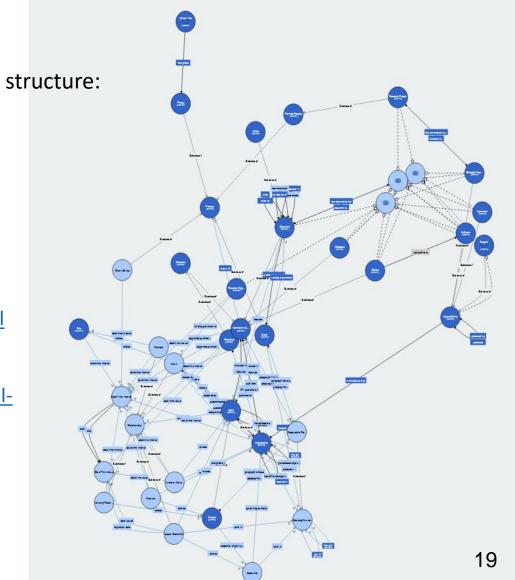




VIVO is an example of an application built entirely with <u>Semantic Web</u> technologies promoted by the <u>World Wide Web</u> <u>Consortium</u>.

- Implements an Ontology based on standard international ontologies
- Stores data as <u>RDF</u> expressed in terms of <u>vocabularies called ontologies</u>
- provides <u>persistent URIs for data</u>.
- Represents the expertise of people engaged in the creation, transmission, and preservation of knowledge and creative works.
- Contains FAIR data, complying with Linked Open Data Standards
- System requirements: VIVO may be hosted on one or more physical servers, on virtual servers, or in the cloud. Components:
 - Recommended installation (*): 4 cores x64 (min 2), 32 Gb RAM (min 2GB), 500 GB SDD (min 100 GB HDD)
 - OS Linux
 - TomCat Web application
 - MySQL database (with the default Jena SDB triple store)
 - Apache Solr search index.





Ontologies Used in the VIVO Ontology

The VIVO Ontology leverages the following ontologies in a unified, semantic structure:

- •eagle-i Resource Ontology (ERO) <u>http://www.obofoundry.org/ontology/ero.html</u>
- •Basic Formal Ontology (BFO) <u>http://www.obofoundry.org/ontology/bfo.html</u>
- •Bibliographic Ontology (BIBO) <u>http://bibliontology.com/</u>
- •Event Ontology <u>http://motools.sourceforge.net/event/event.html</u>
- •Friend of a Friend (FOAF) <u>http://www.foaf-project.org/</u>
- •Gene Ontology (GO) <u>http://obofoundry.org/ontology/go.html</u>
- •<u>Geopolitical.owl</u>, from the U.N. Food and Agriculture Organization
- •Information Artifact Ontology (IAO) <u>http://www.obofoundry.org/ontology/iao.html</u>
- •Ontology for Biomedical Investigations (OBI) –
- http://www.obofoundry.org/ontology/obi.html
- •Ontology of Clinical Research (OCRe) <u>http://code.google.com/p/ontology-of-clinical-research/</u>
- •Relations Ontology (RO) <u>http://www.obofoundry.org/ontology/ro.html</u>
- •Software Ontology (SWO) <u>http://www.obofoundry.org/ontology/swo.html</u>
- •SKOS (Simple Knowledge Organization System) <u>http://www.w3.org/2004/02/skos/</u>
- •vCard <u>http://www.w3.org/TR/vcard-rdf/</u>
- •SPAR ontologies, including FABIO, CiTO, and C4O: <u>https://purl.org/spar/fabio</u>



Ontology model. Main entities in VIVO

Fundamental:

- foaf:person
- Foaf:organization
- iao: informationContentEntity/vivo:document
- Skos: concept
- Event

With (important parts of linking them together):

- vivo:Relationship/vivo:Position
- bfo:Role
- bfo:Process

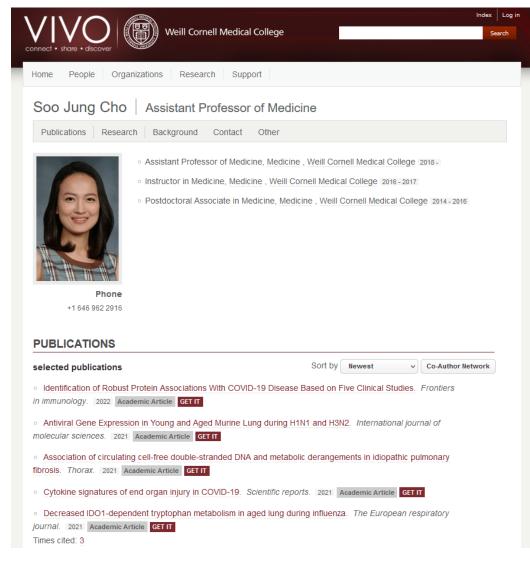
Access to the VIVO Ontology diagram



Some examples

connect • share • discover

Some examples

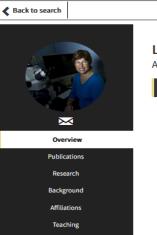


https://vivo.weill.cornell.edu/

Duke scholars@duke	Support Index Subscribe to An	
	Search People, Places or Things	Search /anced Sear
Home > People Schools / Institutes Research About		
James Abbruzzese	Manage This	Profile
D. C. I. Distinguished Professor of Medical Oncology	Manage This	Tome
My research interests include the clinical study and treatment of pancreatic cancer.	Add Data to my	Website
Current Appointments & Affiliations	100	n
D. C. I. Distinguished Professor of Medical Oncology, <u>Medicine, Medical Oncology</u> , <u>Medici</u> 2018	ne	-
Professor of Medicine, <u>Medicine, Medical Oncology</u> , <u>Medicine</u> 2015		2
Chief, Division of Medical Oncology, Medicine, Medical Oncology, Medicine 2013	A CONTRACT OF	
Member of the Duke Cancer Institute, <u>Duke Cancer Institute</u> , <u>Institutes and Centers</u> 2013		
Contact Information		
440 Mudd Building, Box 3406, Durham, NC 27710		
440 Mudd Building, Box 3406, Durham, NC 27710		
⊠ j <u>ames.abbruzzese@duke.edu</u>		
Background		
😏 Education, Training, & Certifications		
😌 Previous Appointments & Affiliations		
Recognition		
😌 In the News		
Expertise		
😌 Subject Headings		
Research		



Some examples



View All

Curriculum Vitae [PDF]

Lynn Rothschild

Researchers@Brown

Adjunct Professor of Molecular Biology, Cell Biology and Biochemistry

Manage your Profile

Overview

Prof. Rothschild is an astrobiologist/ synthetic biologist at NASA Ames specializing in molecular approaches to evolution, particularly in microbes, and the application of synthetic biology to NASA's mission. With a foundation in protistology and evolution, research interests include the early evolution of life, life in extreme environments and the search for life in the universe. In 2008 she established a program in synthetic biology for NASA and represented the Agency on the OSTP synthetic biology working group. Flight experience includes high altitude ballooning for astrobiology, the PI on the PowerCell payload on DLR's Eu:CROPIS satellite (launched December 2018), and Co-I on ESA's BIOMEX experiment on ISS. Extensive outreach including lectures worldwide, documentaries and a TEDx talk. Teaching experience includes "Astrobiology and Space Exploration", Stanford, 2004-13 (astrobiology.stanford.edu), directing theses (current Ph.D. students from Columbia, TU Delft, and UC Santa Cruz,), and the faculty advisor of the award-winning Brown-Stanford iGEM team. iGEM projects included synthetic biology for Mars Exploration (2011), Synthetic biology for astrobiology, including biomining (2012), Synthetic biocommunication (2013), Towards a Biodegradable UAS (2014), BiOrigami (2015) for which the team won "Best Manufacturing", and "BioBalloon" (2016) for which the team won "Best Measurement" and runner up for "Best Manufacturing", "Mars: getting there and staying there" (2017), Stanford-Brown-RISD iGEM team, "Myco for Mars" (2018) for which the team was the runner up for the best new composite part and for best in manufacturing. In 2019 we joined forces with Princeton to form the Brown-Stanford-Princeton team, which won the iGEMers Prize. During the pandemic, Prof. Rothschild is supervising students remotely.

Brown Affiliations

Molecular Biology, Cell Biology and Biochemistry

Research Areas

astrobiology | evolution | microbiology | protistology | space exploration | synthetic biology

On the Web

- S Profile, Motherboard/VICE Spring 2017
- S TED talk 2019, The living tech to support life on other planets
- 🔗 Isaac Asimov Award Lecture
- 🔗 NASA 360 podcast, Urban Biomining
- S NASA 360 podcast, Mycotecture
- 🔗 Wikipedia page

https://vivo.brown.edu/

TIBVIVO	ndex Log in 🗾
Home People Organizations Research Events Capability Map	Search for an Expert Search
Cahill, Brian Positions Mitarbeiter, Nachwuchsforschungsgruppe Learning and Skill Analytics, Programmbereich d	・ Sorschung und Entwicklung 2020 -
Publications Contact Identity View All selected publications	Publications in VIVO
academic article Give and take on the MSCA: Programme for early career researchers aims to be more inclusive with less money. Research Europe. 2021 Researcher Mental Health and Well-being Manifesto 2021 The Impact of the COVID-19 Pandemic on the Working Conditions, Employment, Career Development and Well- Being of Refugee Researchers. Societies. 11:71. 2021 Commercial Control of Refugee Researchers. Societies. 11:71. 2021 Commercial Control of Refugee Researchers. Four ways to fight science-funding cuts across Europe. Nature. 2020 Commercial Physical Chemistry Chemical Physics. 21:18290-18299. 2019 Commercial Control of Refugee Researchers.	Co-author Network
article Creating Research Environments that foster Mental Health and Wellbeing Animetric a Increasing Awareness of Researcher Mental Health Who is responsible for transferable skills and how can RRI and Open Science help? blog posting	Contact Info ⊠ brian.cahill∉tib.eu
How MSCA is changing under Horizon Europe. Research Professional Europe. 2021 chapter Electrical Sensing in Segmented Flow Microfluidics. Micro-Segmented Flow. 73-100. 2014 Electrical Switching of Droplets and Fluid Segments. Micro-Segmented Flow. 31-54. 2014 Introduction. Micro-Segmented Flow. 1-3. 2014	

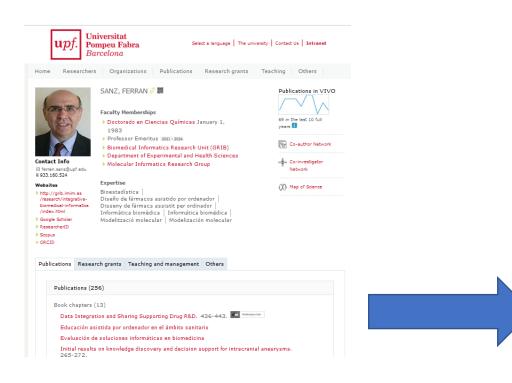
https://vivo.tib.eu/fis/



Some examples

Enhancing the research impact

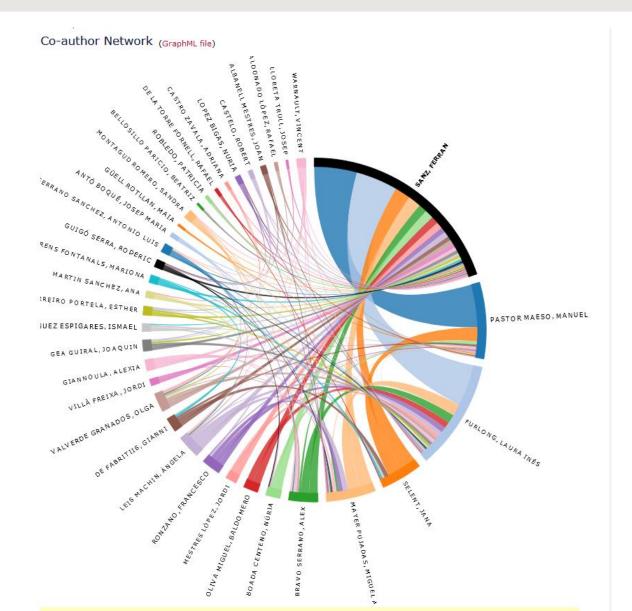
Display the detailed information of a publication with bibliometric indicators for information and evaluation purposes.



upf.	Universitat Pompeu Fabra Barcelona	Select a la	nguage The university	Contact Us Intranet
Home Rese	archers Organizations	Publications Res	earch grants Tea	aching Others
	comprehensive platfo on human disease-ass urnal articles		Biblior	netric Indicators 789 limes olted
Authors	Piñero J, Bravo A, Queralt-Rosir Pons J, Centeno E, García-Garc		WEB OF SCIENCE	769 times cited
Related people	BRAVO SERRANO, ALEX Authors FURLONG, LAURA INÉS Authors SANZ, FERRAN Authorship		Scopus Sources	Category, Rank and Percentile
Subtype Journal title	Investigation article Nucleic Acids Research		SJR	Index Scimago 9,025(2017)
Year of publication	2017		Index H SJR	537(2020)
Volume	45		Quartile SJR	Q1(2018)
Number	Di		Field SJR	Genetics (Q1)(2018)
Pages	833-839 0305-1048		MIAF	Link to Miar
Abstract	The information about the gene at the heart of precision medici to realize its full potential to su problems, such as fragmentatic different conceptualization of th provide the community with a we have developed DisGeNET of the largest available collection involved in human diseases. Di expert curated repositories, GW and the scientific interature. Disist annotated with controlled vocal ontologie (more)	ne and drug discovery. Howev opport these goals, several m, heterogeneity, availability a le data must be overcome. To resource free of these hurdles, (http://www.disgenet.org), or ms of genes and variants sGeNET integrates data from (AS catalogues, animal models GeNET data are homogeneous	r, nd = Altmetric _S	22) ee more details Picked up by 2 news outlets Tweeted by 15 655 neaders on Mendeley 3 readers on CiteULlike
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6 Full text				
Citation	Piñero J, Bravo A, Queralt-Rosi Pons J, Centeno E, García-Garc DisGeNET: a comprehensive pla human disease-associated gen Research 2017; 45(D1): 833 -	ía J, Sanz F, Furlong LI. Atform integrating information as and variants. Nucleic Acids		



VIVO as a network



To boost collaborations





Tables

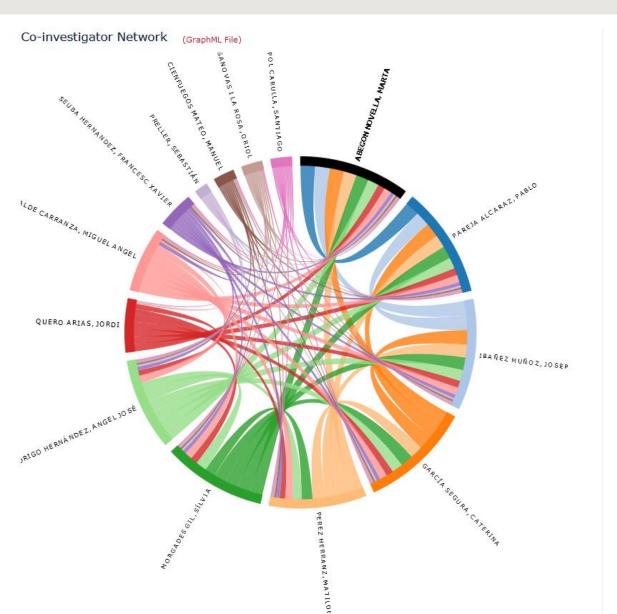
Publications per year (.CSV File)		Co-authors (.CSV File)	
Year	Publications	Author	Publication
1975	1	PASTOR MAESO, MANUEL	40
1977	2	FURLONG, LAURA INÉS	39
1978	2	SELENT, JANA	15
1979	1	MAYER PUJADAS, MIGUEL	12
1982	2	ANGEL	
1983	4	BRAVO SERRANO, ALEX	8
1984	2	BOADA CENTENO, NÚRIA	8
1986	4	OLIVA MIGUEL,	7
1987	1	BALDOMERO	
1988	8	MESTRES LÓPEZ, JORDI	6
1989	6	RONZANO, FRANCESCO	
1990	5	LEIS MACHIN, ÁNGELA	5
1991	6	VALVERDE GRANADOS, OLGA	4
1992	4		
		DE FABRITIIS, GIANNI	4
1993	6	VILLÀ FREIXA, JORDI	4
1994	8	GEA GUIRAL, JOAQUIN	3
1995	5	GIANNOULA, ALEXIA	3
1996	8	GUIGÓ SERRA, RODERIC	2
1997	6	BARREIRO PORTELA,	2
1998	4	ESTHER	_
1999	5	RODRIGUEZ ESPIGARES, ISMAEL	2

42 co-authors from 1994 - 2021 (44 total) (.CSV File)

nors (.CSV File)			
	Publications with		
AESO, MANUEL	40		
LAURA INÉS	39		
ANA	15		
JADAS, MIGUEL	12		
RRANO, ALEX	8		
	-		
NTENO, NÚRIA	8		
GUEL, RO	7		
LÓPEZ, JORDI	6		
, FRANCESCO	5		
HIN, ÁNGELA	5		
GRANADOS,	4		
TIIS, GIANNI	4		
IXA, JORDI	4		
AL, JOAQUIN	3		
A, ALEXIA	3		
RRA, RODERIC	2		
PORTELA,	2		



VIVO as a network



to boost collaborations



from 2009 through 2021 (.CSV File)

Tables

The information in the following tables is for all years. 🚺

Grants per year (.CSV File)		Co-investigator(s) (.	CSV File)
Year	Grants	Investigator	Grants with
2009	1	PAREJA ALCARAZ, PABLO	8
2012	2	IBAÑEZ MUÑOZ, JOSEP	8
2014	1	GARCÍA SEGURA, CATERINA	8
2015	1	PEREZ HERRANZ, MATILDE	7
2016	1	MORGADES GIL, SÍLVIA	7
2017	1	RODRIGO HERNÁNDEZ,	6
2018	1	ANGEL JOSÉ	
		QUERO ARIAS, JORDI	4
		ELIZALDE CARRANZA, MIGUEL ANGEL	4
		SEUBA HERNANDEZ, FRANCESC XAVIER PRELLER, SEBASTIÁN CIENFUEGOS MATEO, MANUEL CASANOVAS I LA ROSA, ORIOL RIPOL CARULLA, SANTIAGO	2 1 1 1



from 2009 through 2021 (.CSV File)



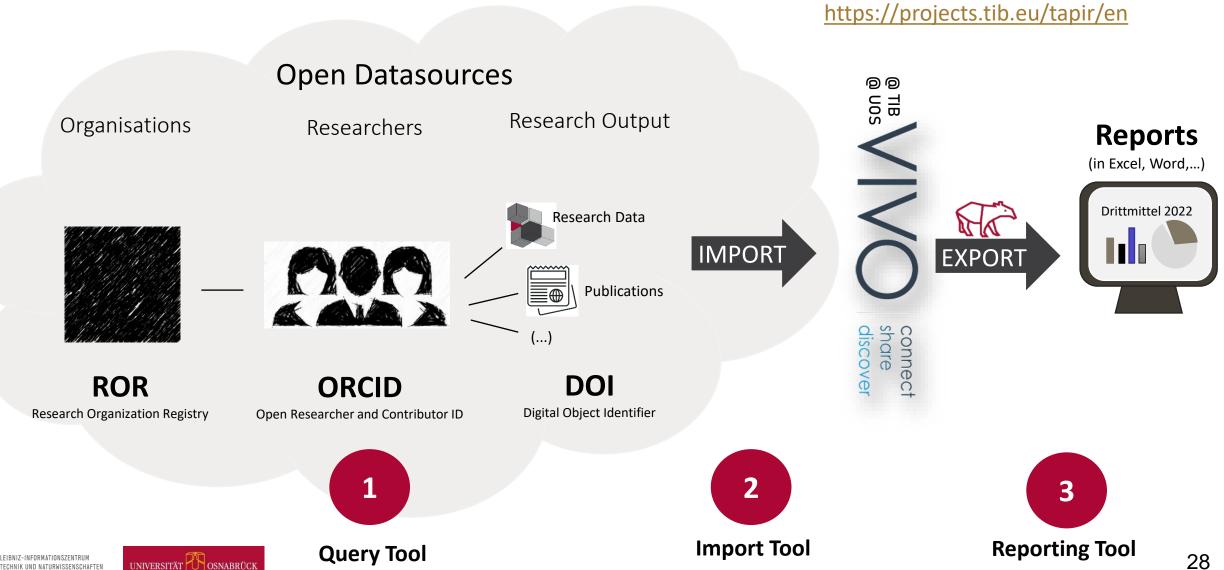
Innovation in the VIVO Community



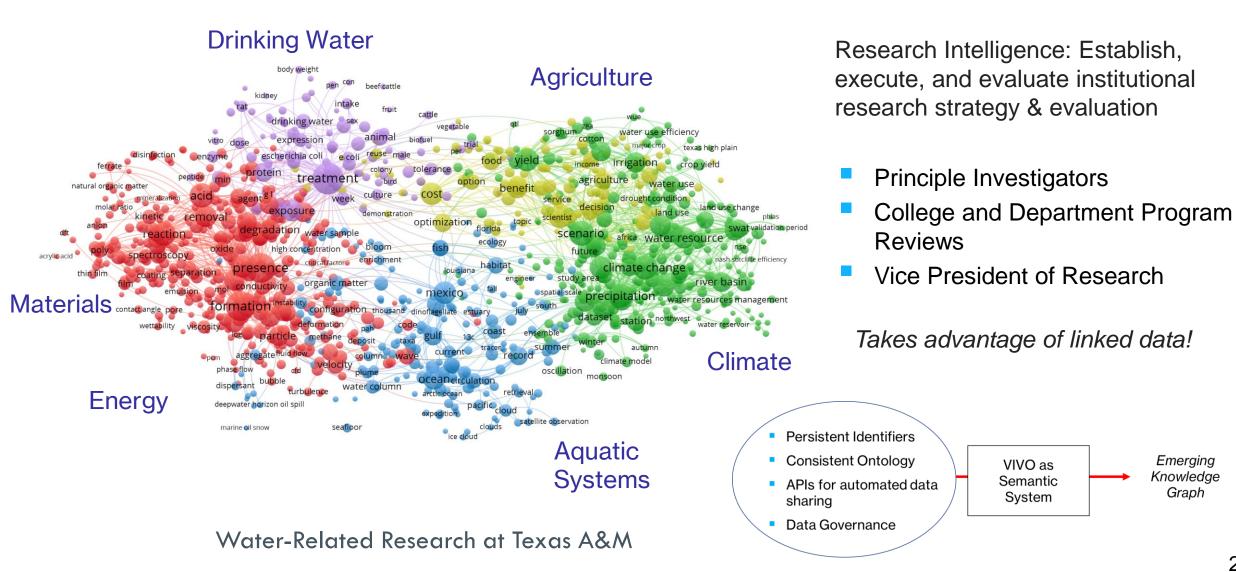
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UNIVERSITÄTSBIBLIOTHEK

VIVO for Open Science







connect • share • discover

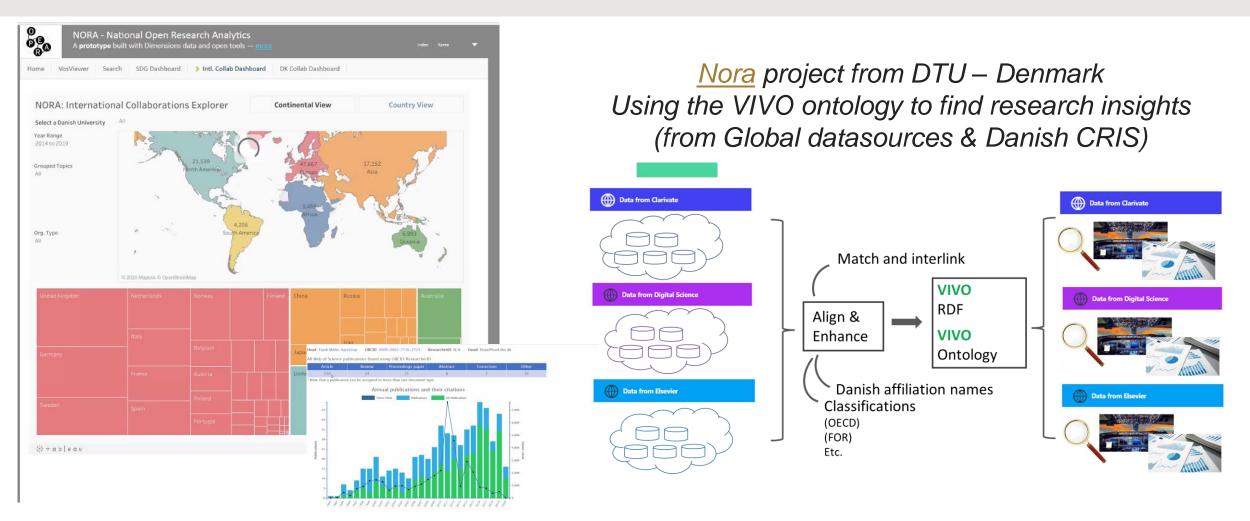
Emerging

Knowledge

Graph

Research intelligence as emerging use case

connect • share • discover



NORA, National Open Research Analytics, is a national initiative to enable robust and open insights and analytics of Danish research. NORA is focused on national level insights, and thus NORA supplements rather than replaces existing institutional systems, offering deep and detailed insights at various levels inside the institution, and existing global databases and research intelligence systems, offering insights and advanced 30 analytics at the global level.

National/regional Research Portals. BrCRIS

 BrCris - Information System on the Ecosystem of the Brazilian Scientific Research

connect • share • discover

- Aggregation of different national and international data bases.
- Lattes Platform (research profiles of more than 1.5 million Brazilian masters and doctors) and for <u>Oasisbr</u> (aggregation node of the LA Referencia Network).
- Data aggregation software used is <u>LA</u> <u>Referencia Platform(*)</u> (exports to VIVO, APIS and visualizations).
- Entities and relationships recommend by <u>the OpenAIRE</u> <u>Guidelines for CRIS Managers</u> (CERIF-based)

(*) Latin American open access science repository network.





VIVO-based Research Information Platform for the Berlin University Alliance



Humboldt-Universität zu Berlin Technische Universität Berlin Freie Universität Berlin Charité-Universitätsmedizin Berlin

GOAL

CHANCES

CHALLENGES

- Creating a platform for a structured and transparent presentation of research information using semantic web technology
- Connect researchers to their work across disciplines and institutions
- Improve visibility and discoverability of expertise
- Facilitate new research collaborations across disciplines
- Quick overview through analyses and visualization
- Protection of personal data (GDPR)
- Quality of available data
- Lack of awareness of the importance of Metadata
- Creation of representative taxonomies & ontologies
- Using the correct semantics for all partners

 One research information platform for 3 universities + Charité with VIVO

Current Runtime: 05/21 - 12/23

Current Data Sources:

3 Clusters of Excellence of the BUA

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Conclusions (I)

How interoperable or aggregated CRIS can impact the country's policies for research and innovation?

- 1 Mapping investment in Science & Technology versus Innovation results
- 2 Creating a fairer Science evaluation system, in view of Open Science precepts
- 3 Identifying over- or under-funded strategic areas
- 4 Identifying and stimulating collaborative networks and the creation of research groups in thematic areas
- 5 Generating access to open scientific information, scientific publications, research data and innovative products

6 - Connecting the entire scientific ecosystem, allowing quick visualisation of complex variables, generating information for decision-makers



Conclusions (II)

- VIVO has a great community behind it, has strengthened its governance and is working on a roadmap that will allow it to evolve in line with new trends, focused on open Science and data sharing.
- It is working on fostering partnerships with relevant organizations with which important collaborations can be made.
- The versatility and adaptability of the tool and the advantages offered by an ontology based on international standards that provides linked open data, are highlighted.
- It has important ongoing projects led by a great group of developers, coordinated by a technical leader.
- There are innovative projects in the community that offer VIVO-based solutions focused on research intelligence and knowledge graphs.
- There is a clear trend to use VIVO as a research portal at local or national level, as an aggregator of data from different RIM/CRIS systems, to provide relevant information to governments, for decision making or policy definition.

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Thank you very much!