FOSTER

Open Science in Horizon 2020

Eloy Rodrigues - eloy@sdum.uminho.pt

NCP Academy Training National Contact Points

February 22nd 2018, Lisboa

OpenAIRE

Agenda

1. Introduction to Open Science and policy context

2. Open Access in H2020
    1. Summary of requirements
    2. Practical implementation
    3. OpenAIRE support services and tools

3. Open Research Data in H2020

FOSTER

1

INTRODUCTION TO OPEN SCIENCE AND POLICY CONTEXT

Commissioner Carlos Moedas, **2015**

“Open Innovation, Open Science, Open to the World”

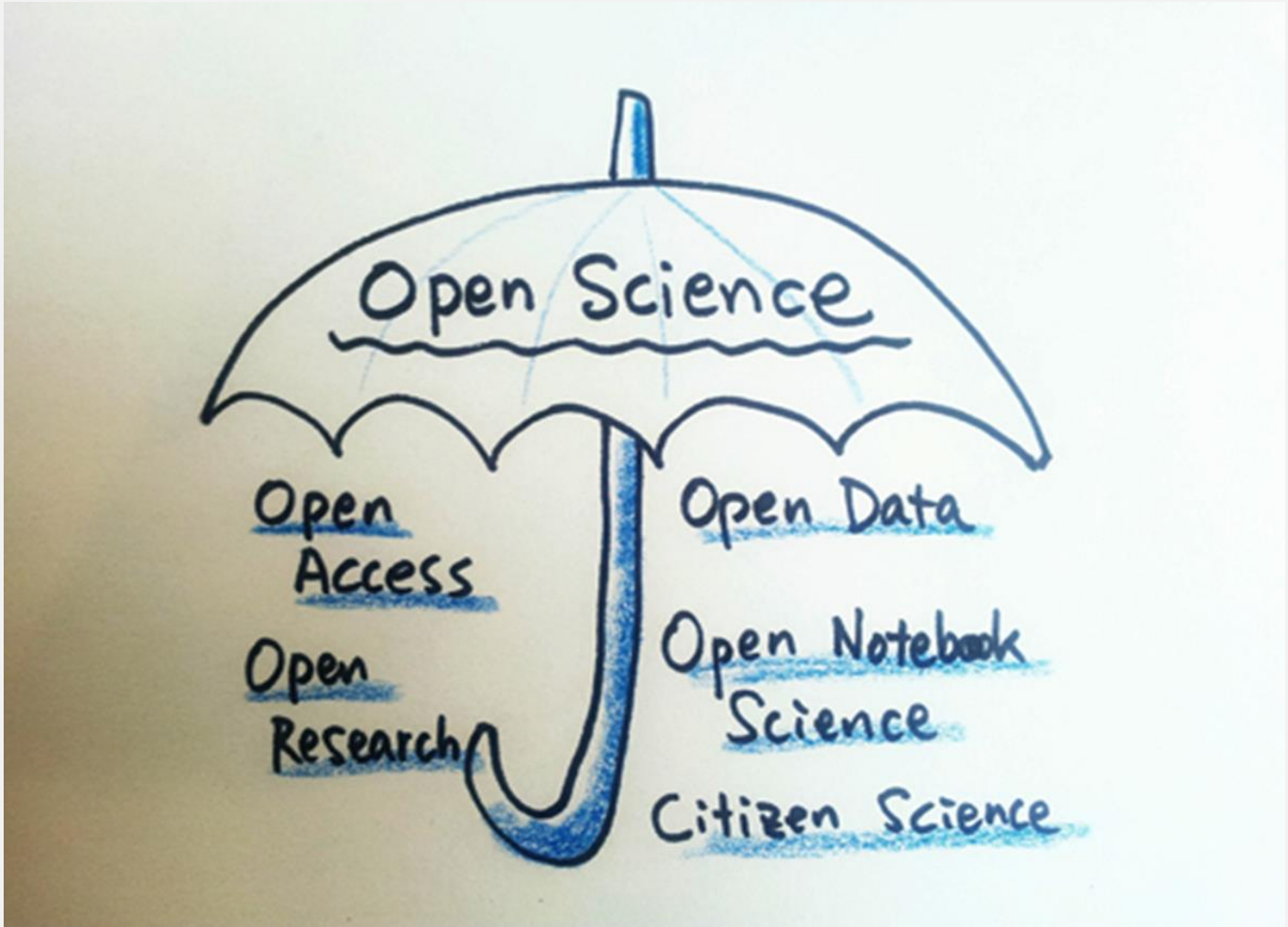
The Need to be Open

Open Science

A systemic change in the modus operandi of science and research

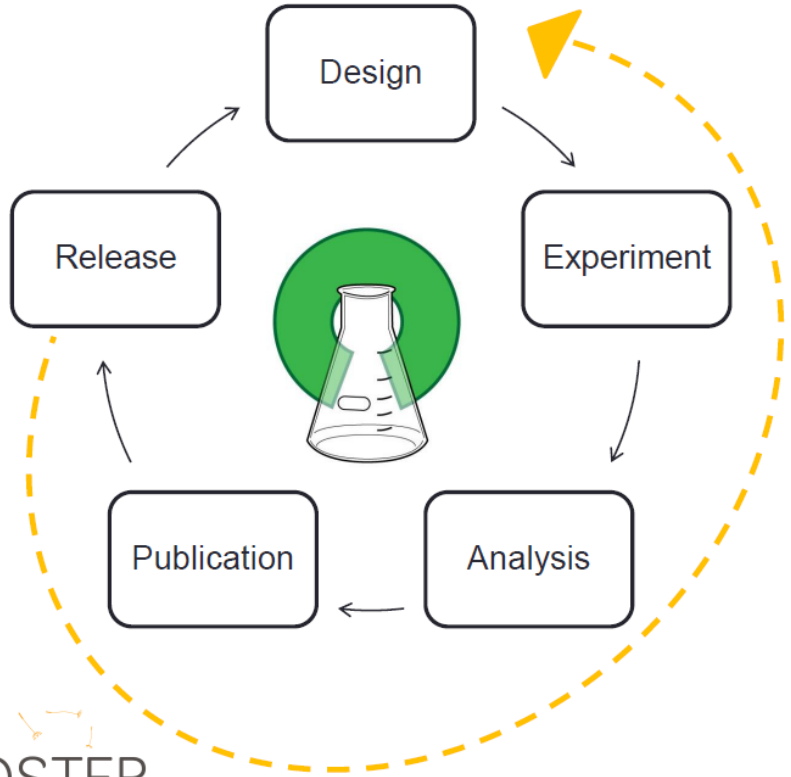
Affecting the whole research cycle and its stakeholders

Commissioner Carlos Moedas
Open Science Presidency Conference
Amsterdam, 4 April 2016


Open Science
Open Access
Open Research
Open Data
Open Notebook Science
Citizen Science

Open Science

Openness at every stage



Change the typical lifecycle

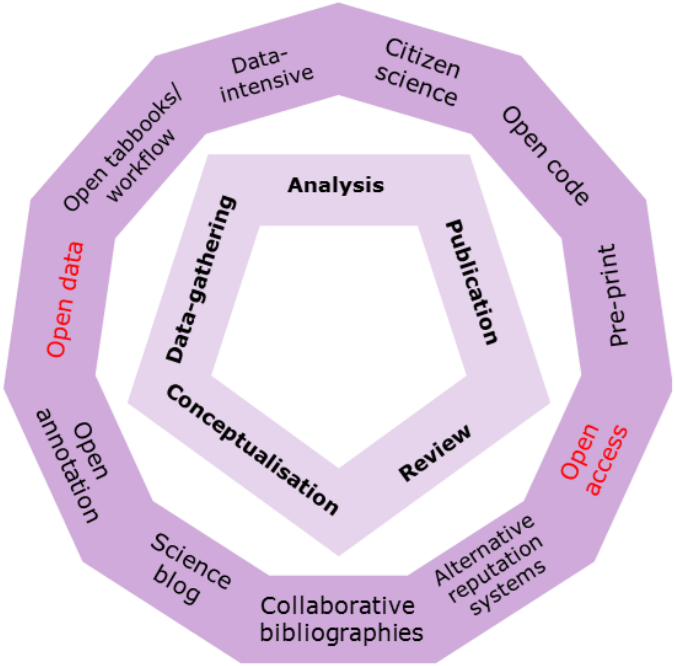
Publish earlier and release more

Papers + Data + Methods + Code…

Support reproducibility

FOSTER

Open Science – opening up the research process



OPEN SCIENCE : WHY?

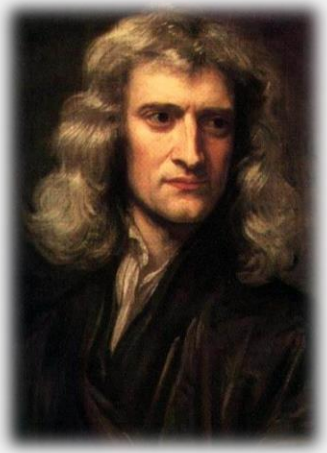
“NORMAL” SCIENCE IS CUMULATIVE

«Bernard of Chartres used to compare us to dwarfs perched on the shoulders of giants. He pointed out that we see more and farther than our predecessors, not because we have keener vision or greater height, but because we are lifted up and borne aloft on their gigantic stature.»

John of Salisbury, *Metalogicon, 1159* (III, 4)

Even the genius…

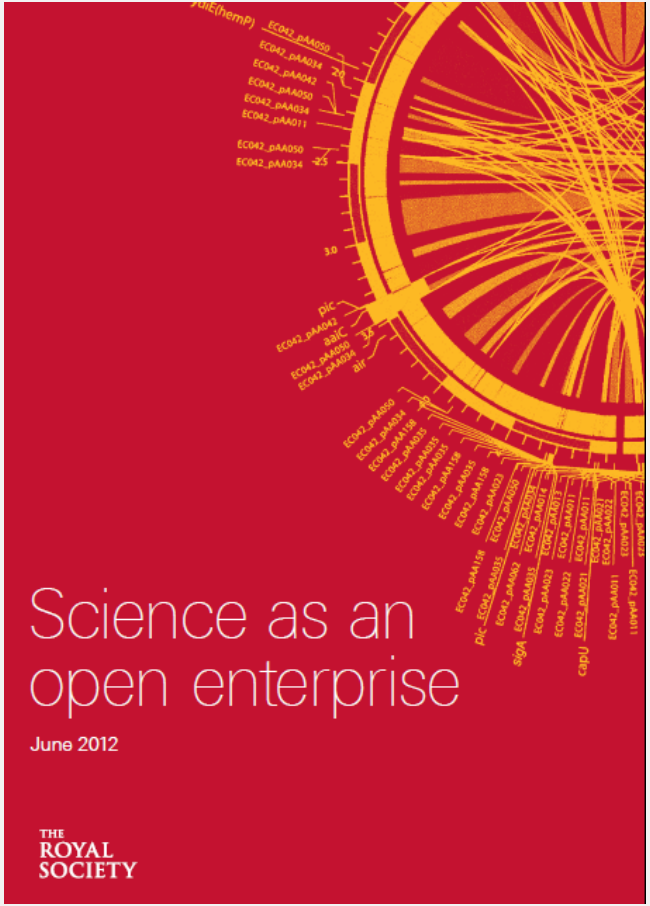
"What DesCartes did was a good step. You have added much several ways, & especially in taking ye colours of thin plates into philosophical consideration. ***If I have seen further it is by standing on ye sholders of Giants****."*



Isaac Newton - Carta para Robert Hooke
(15 de Fevereiro de 1676)

Open Science

"Much of the remarkable growth of scientific understanding in recent centuries is due to open practices; open communication and deliberation sit at the heart of scientific practice."

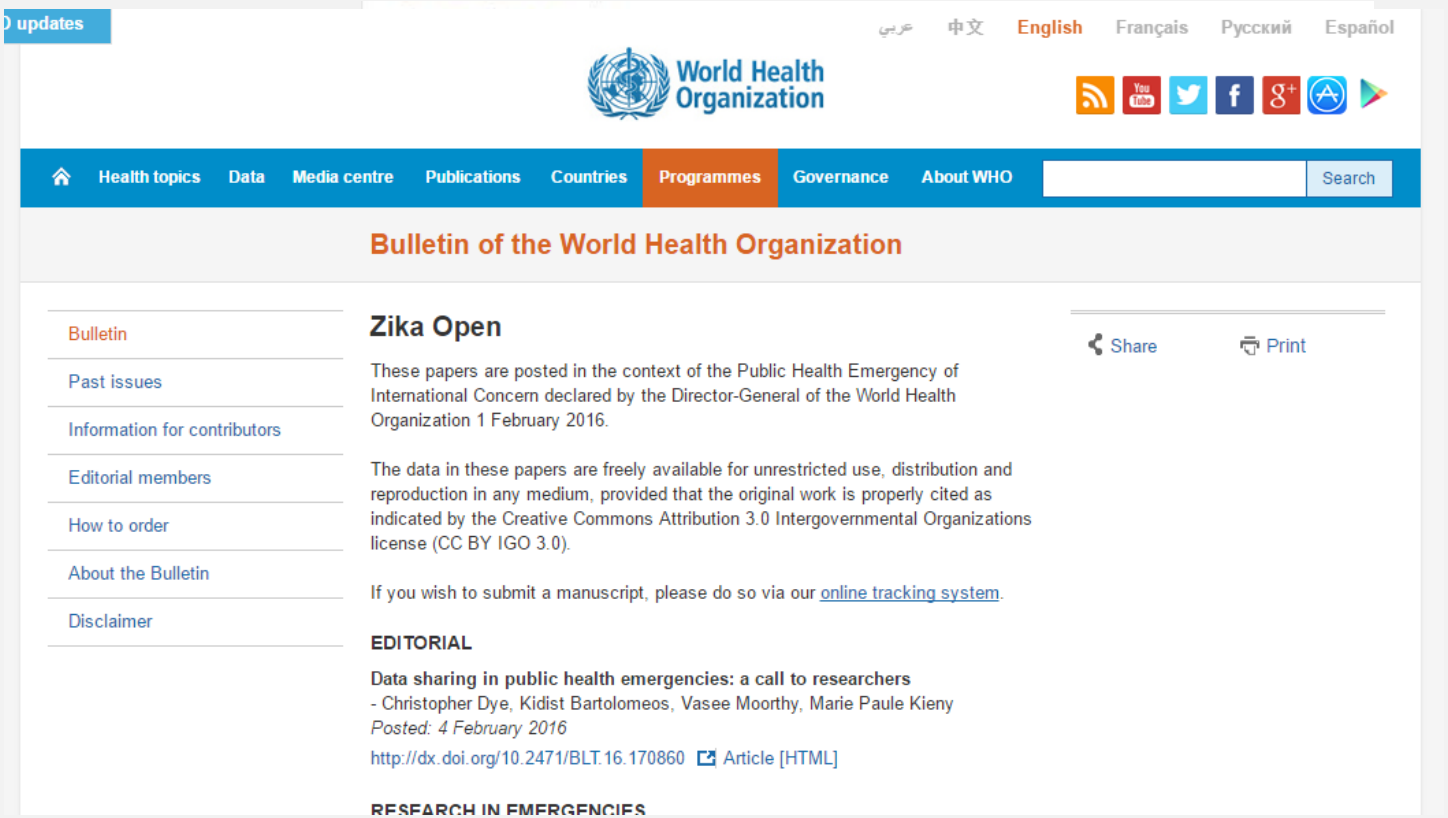


https://royalsociety.org/topics-policy/projects/science-public-enterprise/Report/

Open Science : Why?

To make science more **efficient**, **transparent**, **trustable** and **reproducible.**

Scientific progress - Emergency science



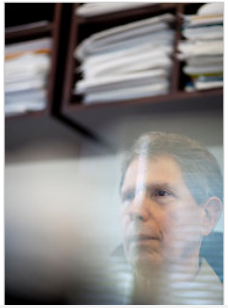
Scientific progress

Sharing of Data Leads to Progress on Alzheimer's

By GINA KOLATA
Published: August 12, 2010

In 2003, a group of scientists and executives from the National Institutes of Health, the Food and Drug Administration, the drug and medical-imaging industries, universities and nonprofit groups joined in a project that experts say had no precedent: a collaborative effort to find the biological markers that show the progression of Alzheimer's disease in the human brain.

Enlarge This Image



Now, the effort is bearing fruit with a wealth of recent scientific papers on the early diagnosis of Alzheimer's using methods like PET scans and tests of spinal fluid. More than 100 studies are under way to test drugs that might slow or stop the disease.

And the collaboration is already serving as a model for similar efforts against Parkinson's disease. A $40 million project to look for biomarkers for Parkinson's, sponsored by the Michael J. Fox Foundation, plans to enroll 600 study subjects in the United States and Europe.

www.nytimes.com/2010/08/13/health/research/13alzheimer.html?pagewanted=all&_r=0

"It was unbelievable. Its not science the way most of us have practiced in our careers. But we all realised that we would never get biomarkers unless all of us parked our egos and intellectual property noses outside the door and agreed that all of our data would be public immediately."

Dr John Trojanowski, University of Pennsylvania

Validate/Correct Results

“It was a mistake in a spreadsheet that could have been easily overlooked: a few rows left out of an equation to average the values in a column.

The spreadsheet was used to draw the conclusion of an influential 2010 economics paper: that public debt of more than 90% of GDP slows down growth. This conclusion was later cited by the International Monetary Fund and the UK Treasury to justify programmes of austerity that have arguably led to riots, poverty and lost jobs.”

The error that could subvert George Osborne's austerity programme

The theories on which the chancellor based his cuts policies have been shown to be based on an embarrassing mistake

Charles Arthur and Phillip Inman
The Guardian, Thursday 18 April 2013 21.10 BST

George Osborne says that Ken Rogoff, the man whose economic error has been uncovered, has strongly influenced his thinking. Photograph: Stefan Wermuth/PA

www.guardian.co.uk/politics/2013/apr/18/uncovered-error-george-osborne-austerity

Combat fraud

nature International weekly journal of science

comments on this story

Stories by subject
- Brain and behaviour
- Lab life

Stories by keywords
- Deiderik Stapel
- Tilburg University
- Academic fraud
- Retractions
- Social psychology

This article elsewhere
Blogs linking to this article
Add to Digg
Add to Facebook
Add to Newsvine
Add to Del.icio.us
Add to Twitter

Published online 1 November 2011 | *Nature* **479**, 15 (2011) | doi:10.1038/479015a
Updated online: 1 November 2011
Updated online: 8 December 2011

News

Report finds massive fraud at Dutch universities

Investigation claims dozens of social-psychology papers contain faked data.

Ewen Callaway

When colleagues called the work of Dutch psychologist Diederik Stapel too good to be true, they meant it as a compliment. But a preliminary investigative report (go.nature.com/tqmp5c) released on 31 October gives literal meaning to the phrase, detailing years of data manipulation and blatant fabrication by the prominent Tilburg University researcher.

Dutch psychologist Diederik Stapel.

Persbureau van Eijndhoven

"We have some 30 papers in peer-reviewed journals where we are actually sure that they are fake, and there are more to come," says Pim Levelt, chair of the committee that investigated Stapel's work at the university.

Stapel's eye-catching studies on aspects of social behaviour such as power and stereotyping garnered wide press coverage. For example, in a recent *Science* paper (which the investigation has not identified as fraudulent), Stapel reported that untidy environments encouraged discrimination (*Science* **332,** 251–253; 2011).

Retraction Watch

Tracking retractions as a w

Raw files help fix 2003 figure by heart researcher accused of fraud

without comments

A researcher accused of misconduct by an anonymous Japanese blogger has corrected a 2003 paper in *Circulation Research*, after providing a university investigation with the original source files.

Allegations of fraud have dogged Shokei Kim-Mitsuyama for years, and even caused him to step down from his position as editor in chief at another journal. However, Kim-Mitsuyama and his colleagues call the latest correction a "mistake," which didn't affect any of the paper's conclusions.

We've unearthed a total of five publications co-authored by Kim-Mitsuyama that have earned corrections, the latest of which cites an investigation by the university:

Read the rest of this entry »

Share this: Email | Facebook | Twitter

Written by Shannon Palus
April 21st, 2016 at 2:00 pm

Posted in am j physio heart circ phys, American Heart Association, cardiology retractions, cardiovascular research, circulation research, corrections, erroneous data, hypertension research, japan retractions, misconduct investigations, nature publishing group, plos, plos one, scientific reports, society journal retractions

Authors retract, replace highly cited JAMA Psych paper for "pervasive errors"

with 4 comments

JAMA Psychiatry

Authors have retracted a highly cited *JAMA Psychiatry* study about depression after failing to account for some patient recoveries, among other mistakes.

It's a somewhat unusual notice — it explains that the paper has been retracted and replaced with a new, corrected version.

The study, which included 452 adults with major depressive disorder, concluded that cognitive therapy plus medication works better to treat depression than pills alone. But after it was published, a reader pointed out that some of the numbers in a table were incorrect. The authors reviewed the data and redid their analysis, and discovered "a number of pervasive errors."

WHY OPEN ACCESS TO SCIENTIFIC PEER-REVIEWED PUBLICATIONS?

GOOD FOR SCIENCE

allows scientists to build on previous research results and avoids unnecessary duplication of effort

improved quality and greater efficiency

GOOD FOR THE ECONOMY

speeds up innovation

faster progress to market

GOOD FOR SOCIETY

makes research available to individual citizens and to non-profit organisations

greater transparency

https://ec.europa.eu/research/openscience

EC OA Mandate Progression

FP7 OA Pilot (2008)

Grant agreement SC39

20% programme areas

Deposit in Repositories

ERC's OA Guidelines: Deposit in discipline (or institutional) repositories. Cap embargo.

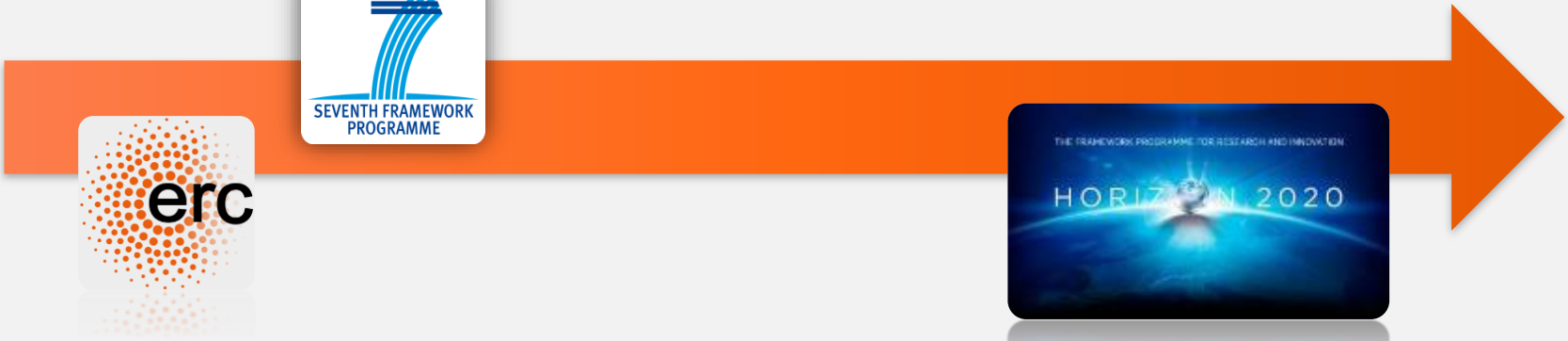
Horizon 2020 (2014)

All grant agreements

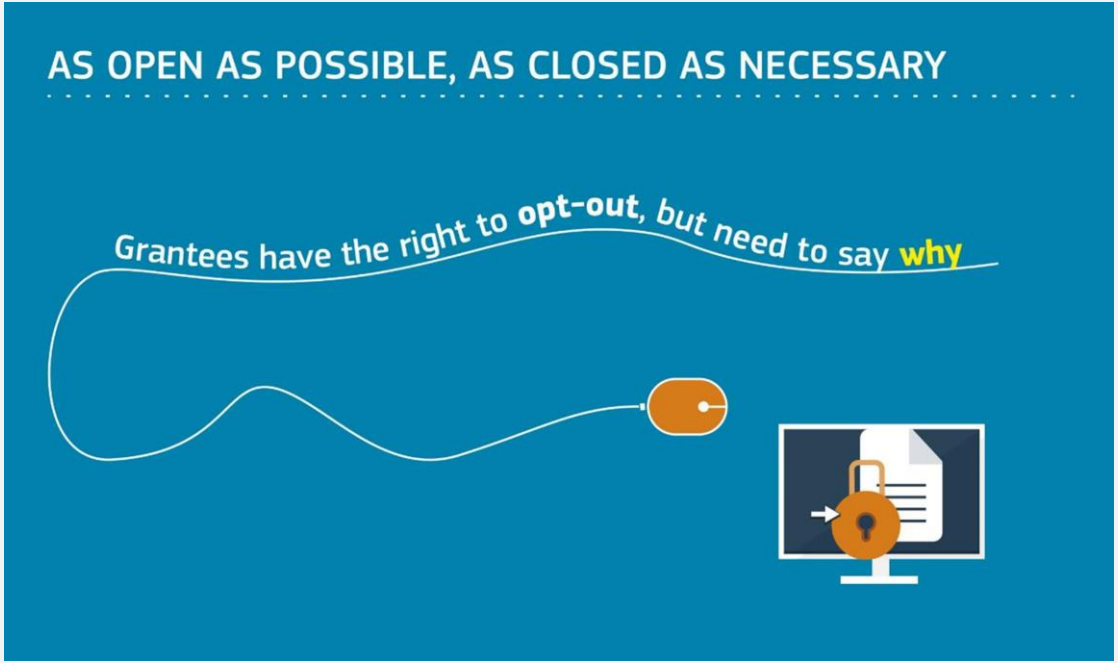
100% programme areas

Deposit in Repositories

Open Research Data Pilot



Open Research Data Pilot



2

OPEN ACCESS IN H2020

Open Access is the

DEFAULT

for research results in H2020

Multi-beneficiary General Model Grant Agreement

29.2 Open access to scientific publications

29.3 Open access to research data

http://ec.europa.eu/research/participants/data/ref/h2020/mga/gga/h2020-mga-gga-multi_en.pdf

Grant Agreement: § 29.2 Open access to scientific publications

Each beneficiary must ensure open access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results.

In particular, it must:

(a) as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;

Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b) ensure open access to the deposited publication — via the repository — at the latest:

(i) on publication, if an electronic version is available for free via the publisher, or

(ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c) ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms ["European Union (EU)" and "Horizon 2020"]["Euratom" and Euratom research and training programme 2014-2018"];
- the name of the action, acronym and grant number;
- the publication date, and length of embargo period if applicable, and
- a persistent identifier.

OA in H2020:
summary of requirements

Open Access requirements and who is covered by them?

All beneficiaries of H2020 funding must provide open access (free of charge, online access for any user) to all peer-reviewed publications by

depositing them into a repository

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

www.openaire.eu/h2020openaccess

In other words...

Authors are free to choose between the two main and non-exclusive routes toward Open Access

- Self-archiving (‚green' open access): the published article or the final peer reviewed manuscript is uploaded in an online repository – access is often delayed (‚embargo period')
- Open access publishing (‚gold' open access): the article is immediately in open access mode, through the publisher. The associated costs are covered by the author/institution/funder.

The article must always be deposited in a repository,
even if the gold route has been choosen.

Where to deposit?

Institutional repository

OR

Disciplinary repository (arXiv, Europe PubMed Central, etc.)

OR

Zenodo (www.zenodo.org) if none of the above is available.

EC-cofunded, multidisciplinary repository, for publications and data.

Remarks:

Finding a repository via registries: ROAR http://roar.eprints.org, OpenDOAR http://www.opendoar.org or via OpenAIRE www.openaire.eu

A list of publications on the project website is not sufficient.

How to bring all publications together? OpenAIRE-compatibility to enable the harvesting of metadata (more details later)

What to deposit?

The **final peer-reviewed manuscript**, accepted for publication, including all modifications from the peer-review process

OR

A machine-readable copy of the **published version** (usually a PDF document)

In principle this applies to all kinds of publications, but emphasis is on peer-reviewed journal articles.

When to deposit?

Each beneficiary must deposit as soon as possible and at the latest on publication.

When should open access be provided?

Open access must be ensured immediately or after an embargo period:

- GREEN – 6-12 months depending on the research area and the choice of journal
- GOLD – immediately

Some journals demand longer embargo periods (compare SHERPA/RoMEO database).

OA in H2020: summary of requirements

RESEARCHER DECIDES WHERE TO PUBLISH

Open Access Journals
doaj.org

Check for Article Processing Charges

IMMEDIATE OPEN ACCESS

Subscription-based journal

Self-archive in a repository
Find at: openaire.eu

IMMEDIATE OR DELAYED OPEN ACCESS

Check publishers policies on
www.sherpa.ac.uk/romeo

Are Article Processing Charges (APCs) supported?

Yes

For open access publishing, researchers can publish in open access journals, or in journals that sell subscriptions and also offer the possibility of making individual articles openly accessible (hybrid journals).

Where the case, the Article Processing Charges (APCs) incurred by beneficiaries are eligible for reimbursement during the duration of the action.

Publication costs

Dissemination costs, e.g. for publishing in open access journals/books, are eligible costs if incurred during the project period.

What budget to consider in proposals?

APC = Article Processing Charges

Budget for Publications = Average APC x number of publications

Method 1: Average APC based on list of journals used by the consortium (look up prices at publisher website and/or consult librarian)

Method 2: Average APC based on general market figures (see next slide)

Average APC?

Björk/Solomon estimated (2014) the average price of Article Processing Charges (APC)

for established open access journals at ca. 1,020 EUR and

for hybrid journals (subscription journal with OA option for individual articles) at ca. 1,980 EUR

Average APC?

Open Data on Article Charges

https://github.com/OpenAPC/openapc-de

At the moment OpenAPC provides cost data on 44,407 open access journal articles contributed by 117 institutions

for fully open access journals the average payment was 1,479 €

for hybrid journals (subscription journal with OA option for individual articles) the average fee is 2,493 €

Both types of OA publication costs can be reimbursed in H2020 projects.

Currently, there is no price-cap for APCs.

What are projects expected to do?

Projects have to start planning early on

DURING PROPOSAL WRITING PHASE

- Outline of dissemination and exploitation strategy, including OA >> impact section of the proposal (how will results be shared, data be managed and shared?)
- Include resources for publication costs (what journals, how many publications, what does it cost on average?)
- Combine GREEN/GOLD strategies to achieve maximum of OA

DURING THE PROJECT

- Additional provisions in the Consortium Agreement - where to deposit, who is responsible.
- Implementation of the dissemination strategy, report at reviews and update
- What issues occur and how can they be solved? (publisher embargos, repositories for specific material, etc.)

AFTER THE PROJECT END

- Are there publications foreseen after the ending of the project (ie which will not be covered by the budget) – for post-FP7 project publications there is a pilot.
- Who takes care of deposit in repositories after the project end?

Some issues to consider

1. Publishing *all* articles in APC based gold OA is not probably the right solution, as this can lead to a substantial amount of the overall project budget. Therefore, a mixed strategy of GREEN/GOLD open access is highly recommended.
2. The growing open access market comes with some challenges
    - Lots of new journals/publishers, some of questionable quality (‚predatory journals‘, http://scholarlyoa.com/publishers/)

Some caution is needed when publishing, this holds for all journals. Consult ‚white lists‘ such as DOAJ.

What are the consequences for non-compliance with OA requirements?

If a beneficiary breaches any of its obligations, the grant may be reduced (Article 43) and it may also lead to any of the other measures described in Chapter 6 of the General Model Grant Agreement.

http://ec.europa.eu/research/participants/data/ref/h2020/mga/gga/h2020-mga-gga-multi_en.pdf

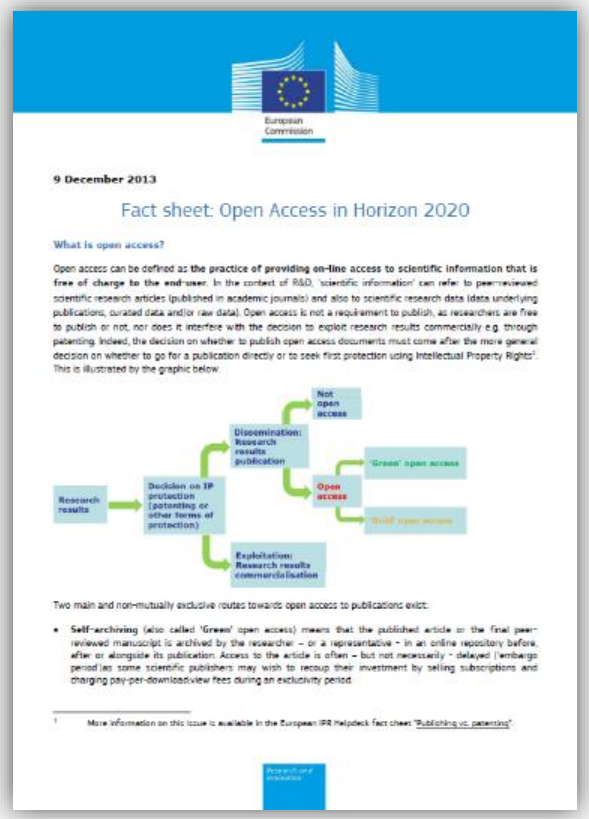
EC SUPPORT INFO

✓EC Open Access Factsheet:

https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/FactSheet_Open_Access.pdf

✓Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf



European Commission

9 December 2013

Fact sheet: Open Access in Horizon 2020

What is open access?

Open access can be defined as **the practice of providing on-line access to scientific information that is free of charge to the end-user.** In the context of R&D, 'scientific information' can refer to peer-reviewed scientific research articles (published in academic journals) and also to scientific research data (data underlying publications, curated data and/or raw data). Open access is not a requirement to publish, as researchers are free to publish or not, nor does it interfere with the decision to exploit research results commercially e.g. through patenting. Indeed, the decision on whether to publish open access documents must come after the more general decision on whether to go for a publication directly or to seek first protection using Intellectual Property Rights[1]. This is illustrated by the graphic below.

Two main and non-mutually exclusive routes towards open access to publications exist:

- **Self-archiving** (also called **'Green'** open access) means that the published article or the final peer-reviewed manuscript is archived by the researcher – or a representative – in an online repository before, after or alongside its publication. Access to the article is often – but not necessarily – delayed ('embargo period'as some scientific publishers may wish to recoup their investment by selling subscriptions and charging pay-per-download/view fees during an exclusivity period.

1 More information on this issue is available in the European IPR Helpdesk Fact sheet 'Publishing vs. patenting'.

OPENAIRE SUPPORT INFO (Factsheets, Guides, etc.)

RESEARCH ADMINS

How to monitor research results. What services to use for your needs.

RESEARCHERS

Why Open Access. How to comply. What services to use.

OpenAIRE

FUNDERS

Why align policies and practices. How to monitor and analyze results.

DATA PROVIDERS

How to make your content more visible. What to do to increase quality. How to join.

www.openaire.eu

OpenAIRE's e-infrastructure Commons

KEY STAKEHOLDERS SERVICES

Funders, research admins, research communities

- Research impact
- Project reporting and monitoring
- Open Access trends

Content providers

- Repository validation
- Repository notification broker
- Repository analytics and usage stats

Researchers

- Claim publications, datasets, software
- Deposit publications, datasets, software
- Search & browse: interlinked publications, datasets, projects
- Open Access & DMP Helpdesk
- End-User feedback

TERMS OF USE

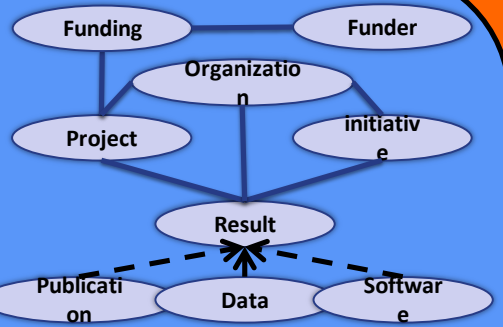
INFO SPACE SERVICES

Cleaning

De-duplication

Validation

Enrichment By inference



GUIDE LINES

CONTENT PROVIDERS

zenodo

Publications repositories

Research Data repositories

CRIS systems

Registries (e.g. projects)

OA Journals

Software Repositories


Share, deposit and publish in OA
Why Open Science. How to comply. What services to use.

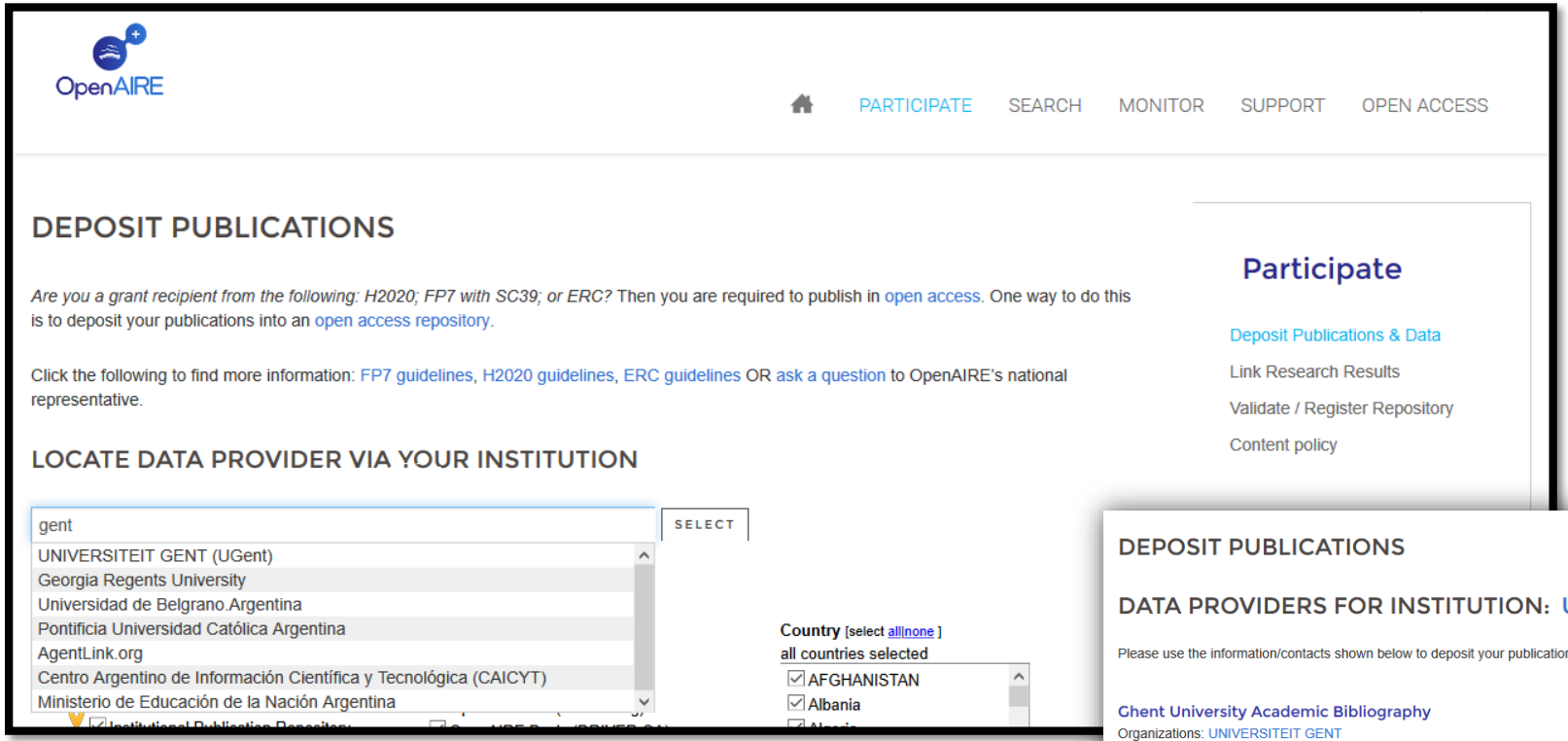
Deposit once!

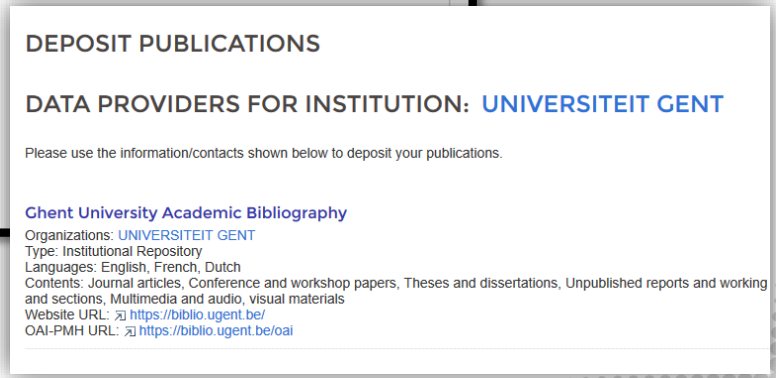
- Locate an appropriated **repository** via OpenAIRE.
  - If no repository is available: use **Zenodo** (OpenAIRE/CERN repository).
- **Acknowledge** project funding in the publication or dataset metadata record.
- Use a fully OpenAIRE compatible repository. If don't... use the OpenAIRE linking services afterwards and associate your research results (**Link/Claim** publication or datasets to projects).
- But we don't stop there! We apply cleaning, transformation, disambiguation processes, and **identify relationships** among all research entities: publications, data, funding...

- All publications accessible via OpenAIRE and linked to a project will be displayed automatically in the reporting section of the EC Participant Portal for the project.

We did it!

Find where to deposit



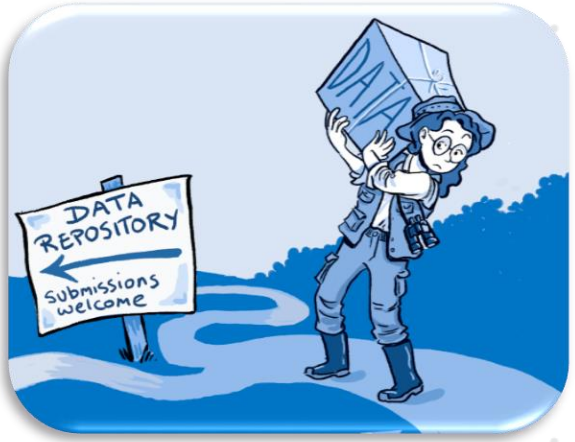


OpenAIRE

European Commission

Short Facts about Zenodo

- Catch-all repository for EU funded research
- Up to 50 GB per upload
- Data stored in the CERN Data Center
- Persistent identifiers (DOIs) for every upload
- Includes article level metrics
- Free for the long tail of Science
- Open to all research outputs from all disciplines
- Easily add EC funding information and report via OpenAIRE



OpenAIRE

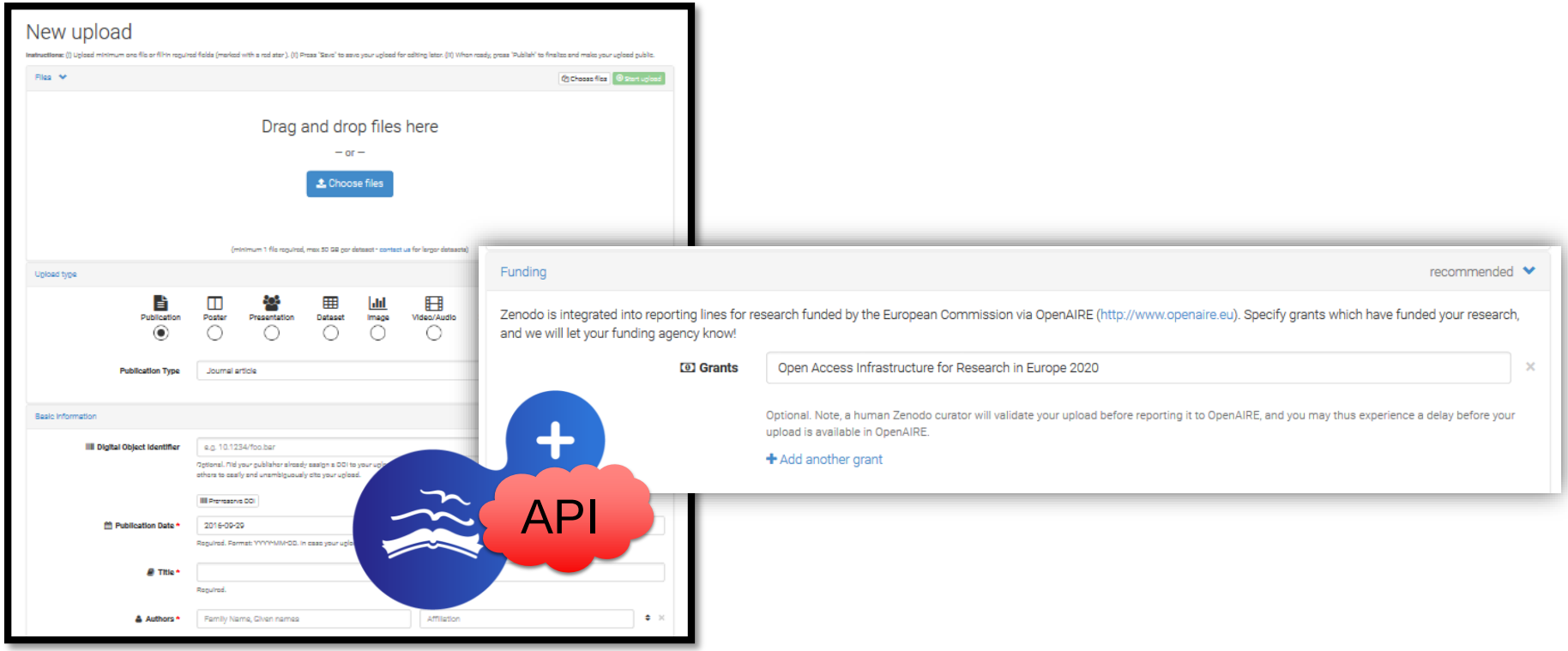
European Commission

zenodo

Acknowledge

PROJECT FUNDING IN THE PUBLICATION OR DATASET METADATA RECORD

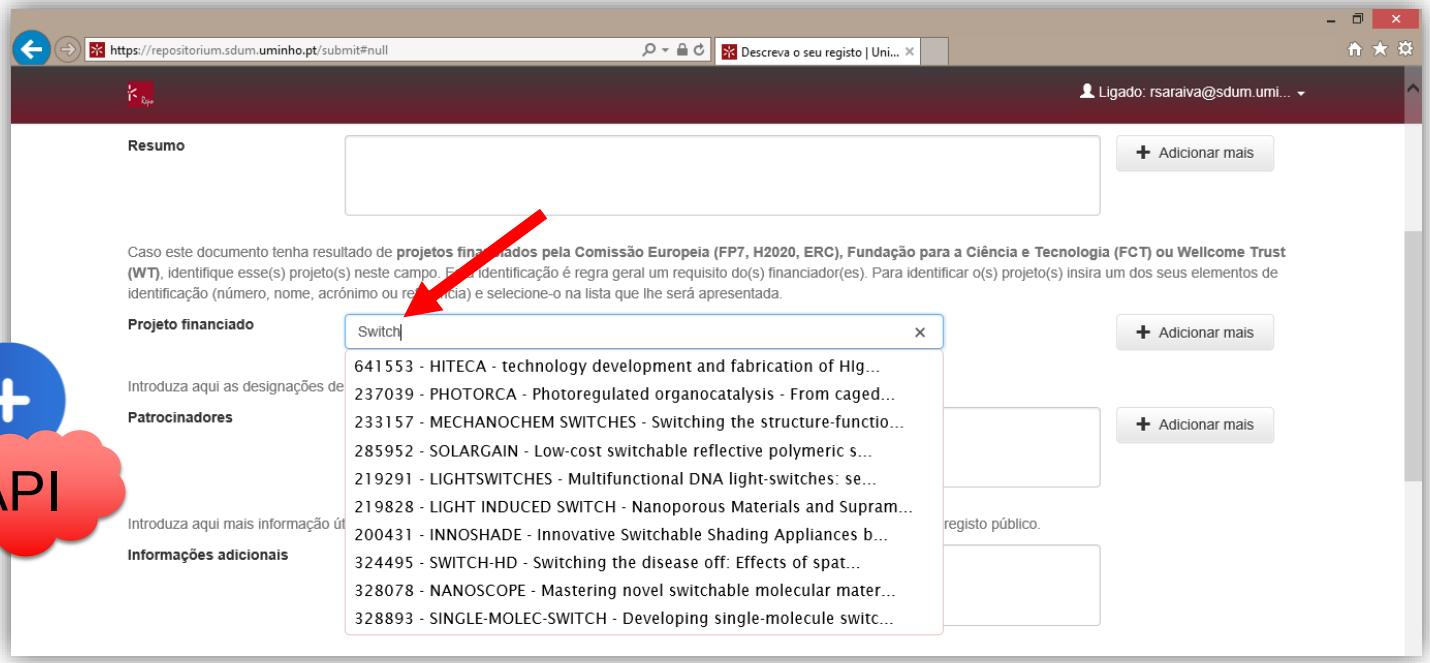
Acknowledge project funding: e.g. ZENODO



OpenAIRE Funders Projects List

REPOSITORIES DEPOSIT WORKFLOW:

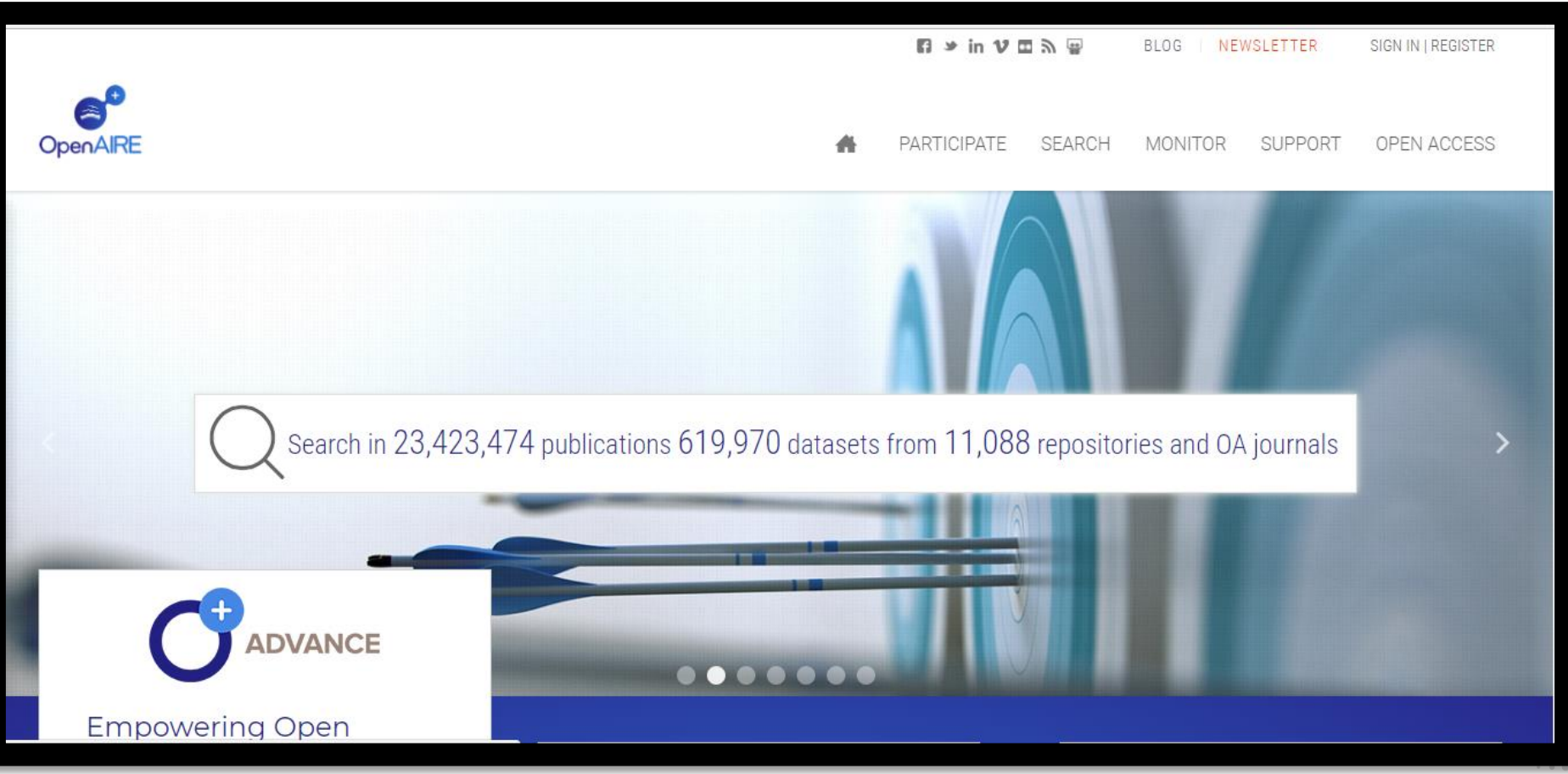
Searching by the name, acronym or the project id number… Select the project and accept

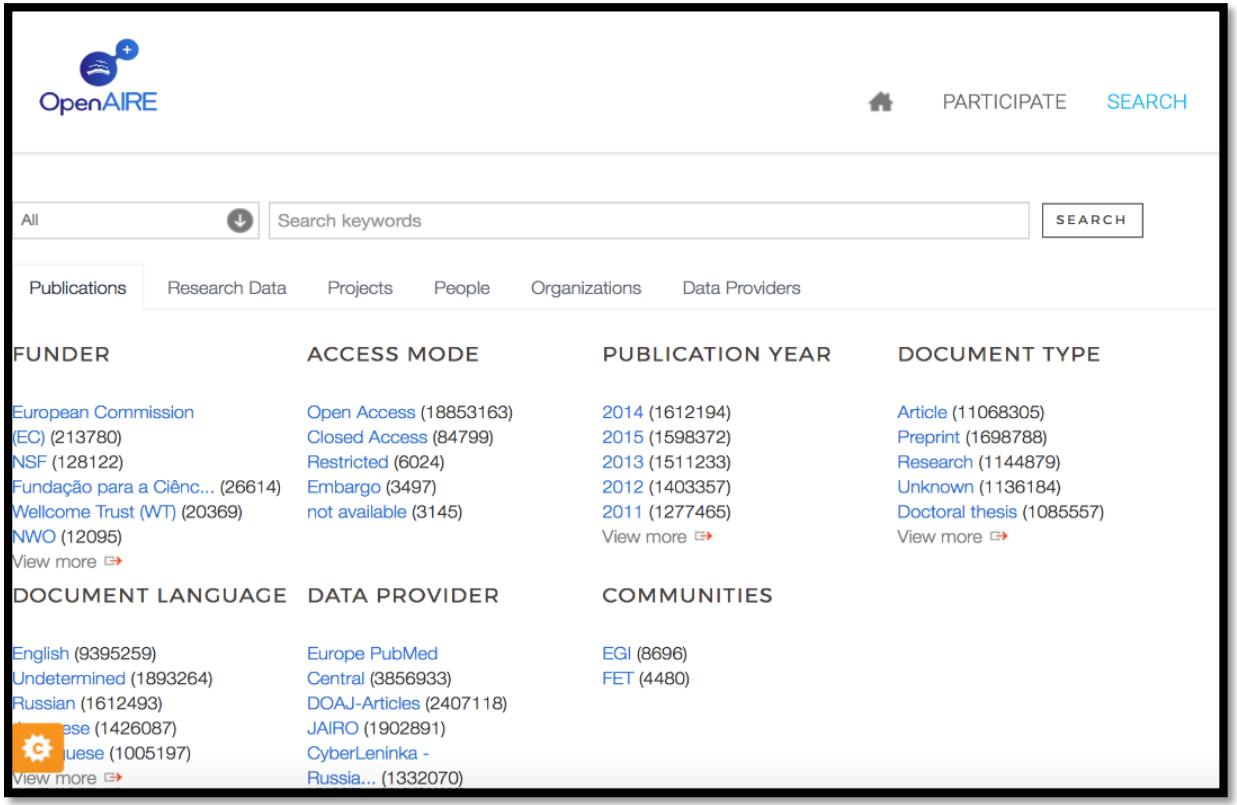


OpenAIRE

European Commission


Discover, Access
and Reuse
For all OpenAIRE stakeholders...


BLOG
NEWSLETTER
SIGN IN | REGISTER
OpenAIRE
PARTICIPATE
SEARCH
MONITOR
SUPPORT
OPEN ACCESS
Search in 23,423,474 publications 619,970 datasets from 11,088 repositories and OA journals
ADVANCE
Empowering Open


OpenAIRE
PARTICIPATE
SEARCH
All
Search keywords
SEARCH
Publications
Research Data
Projects
People
Organizations
Data Providers
FUNDER
European Commission (EC) (213780)
NSF (128122)
Fundação para a Ciênc... (26614)
Wellcome Trust (WT) (20369)
NWO (12095)
View more
ACCESS MODE
Open Access (18853163)
Closed Access (84799)
Restricted (6024)
Embargo (3497)
not available (3145)
PUBLICATION YEAR
2014 (1612194)
2015 (1598372)
2013 (1511233)
2012 (1403357)
2011 (1277465)
View more
DOCUMENT TYPE
Article (11068305)
Preprint (1698788)
Research (1144879)
Unknown (1136184)
Doctoral thesis (1085557)
View more
DOCUMENT LANGUAGE
English (9395259)
Undetermined (1893264)
Russian (1612493)
ese (1426087)
uese (1005197)
View more
DATA PROVIDER
Europe PubMed Central (3856933)
DOAJ-Articles (2407118)
JAIRO (1902891)
CyberLeninka - Russia... (1332070)
COMMUNITIES
EGI (8696)
FET (4480)

Purification and characterization of an extracellular β-xylosidase from Pseudozyma hubeiensis NCIM 3574 (PhXyl), an unexplored yeast

Mhetras, Nutan; Liddell, Susan; Gokhale, Digambar (2016)

Publisher: Springer Berlin Heidelberg

Journal: AMB Express

Languages: English

Types: Article

Subjects: Unexplored yeast, Pseudozyma hubeiensis, β-Xylosidase, Original Article, Metal and ethanol tolerant enzyme

Identifiers: pmc:PMC5023640, doi:10.1186/s13568-016-0243-7

This paper reports on the production of β-xylosidase from an unexplored yeast, Pseudozyma hubeinsis. The expression of this enzyme could be induced by beech wood xylan when the yeast was grown at 27 °C. The enzyme was purified to homogeneity as a glycoprotein with 23 % glycosylation. The purification protocol involved ammonium sulphate precipitation, QAE-Sephadex A50 ion exchange chromatography and sephacryl-200 column chromatography which resulted in 8.3-fold purification with 53.12 % final recovery. The purified enzyme showed prominent single band on SDS-PAGE. It is a monomeric protein of 110 kDa molecular weight confirmed by SDS-PAGE followed by MALDI-TOF mass spectrometry (112.3 kDa). The enzyme was optimally active at 60 °C and pH 4.5 and stable at pH range (4–9) and at 50 °C for 4 h. Chemical modification studies revealed that active site of the purified enzyme comprised of carboxyl, tyrosine and tryptophan residues. The carboxyl residue is involved in catalysis and tryptophan residue is solely involved in substrate binding. The best match from the search of the NCBInr database was with gi|808364558 glycoside hydrolase of Pseudozyma hubeiensis SY62 with 26 % sequence coverage confirming that it is a glycoside hydrolase/beta-glucosidase. From the search of customized SWISSPROT database, it was revealed that SWISSPROT does not contain any entries that are similar to the purified enzyme. Electronic supplementary material The online version of this article (doi:10.1186/s13568-016-0243-7) contains supplementary material, which is available to authorized users.

LINK TO PROJECT | LINK TO RESEARCH DATA

References (39) | Related Research Data (1) | Similar Publications (2)

view all 39

The results below are discovered through our pilot algorithms. *Let us know how we are doing!*

- Adsul, MG, Bastawde, KB, Gokhale, DV. Biochemical characterization of two xylanases from Pseudozyma hubeinensis producing only xylooligosaccharides. Bioresour Technol. 2009; 100: 6488-6495
- Andrade, SV, Polizeli, MLTM, Terenzi, HF, Jorge, JA. Effect of carbon source on the biochemical properties of β-xylosidases produced by Aspergillus versicolor. Process Biochem. 2004; 39: 1931-1938
- Bao, L, Huang, Q, Chang, L, Sun, Q, Zhou, J, Lu, H. Cloning and characterization of two beta-glucosidase/xylosidase enzymes from yak rumen metagenome. Appl Biochem Biotechnol. 2012; 166: 72-86
- Basaran, P, Ozcan, M. Characterization of beta-xylosidase enzyme from a Pichia stipitis mutant. Bioresour

Purification and characterization of an extracellular β-xylosidase from Pseudozyma hubeiensis NCIM 3574 (PhXyl), an unexplored yeast

Mhetras, Nutan; Liddell, Susan; Gokhale, Digambar (2016)

Publisher: Springer Berlin Heidelberg

Journal: AMB Express

Languages: English

Types: Article

Subjects: Unexplored yeast, Pseudozyma hubeiensis, β-Xylosidase, Original Article, Metal and ethanol tolerant enzyme

Identifiers: pmc:PMC5023640, doi:10.1186/s13568-016-0243-7

This paper reports on the production of β-xylosidase from an unexplored yeast, Pseudozyma hubeinsis. The expression of this enzyme could be induced by beech wood xylan when the yeast was grown at 27 °C. The enzyme was purified to homogeneity as a glycoprotein with 23 % glycosylation. The purification protocol involved ammonium sulphate precipitation, QAE-Sephadex A50 ion exchange chromatography and sephacryl-200 column chromatography which resulted in 8.3-fold purification with 53.12 % final recovery. The purified enzyme showed prominent single band on SDS-PAGE. It is a monomeric protein of 110 kDa molecular weight confirmed by SDS-PAGE followed by MALDI-TOF mass spectrometry (112.3 kDa). The enzyme was optimally active at 60 °C and pH 4.5 and stable at pH range (4–9) and at 50 °C for 4 h. Chemical modification studies revealed that active site of the purified enzyme comprised of carboxyl, tyrosine and tryptophan residues. The carboxyl residue is involved in catalysis and tryptophan residue is solely involved in substrate binding. The best match from the search of the NCBInr database was with gi|808364558 glycoside hydrolase of Pseudozyma hubeiensis SY62 with 26 % sequence coverage confirming that it is a glycoside hydrolase/beta-glucosidase. From the search of customized SWISSPROT database, it was revealed that SWISSPROT does not contain any entries that are similar to the purified enzyme. Electronic supplementary material The online version of this article (doi:10.1186/s13568-016-0243-7) contains supplementary material, which is available to authorized users.

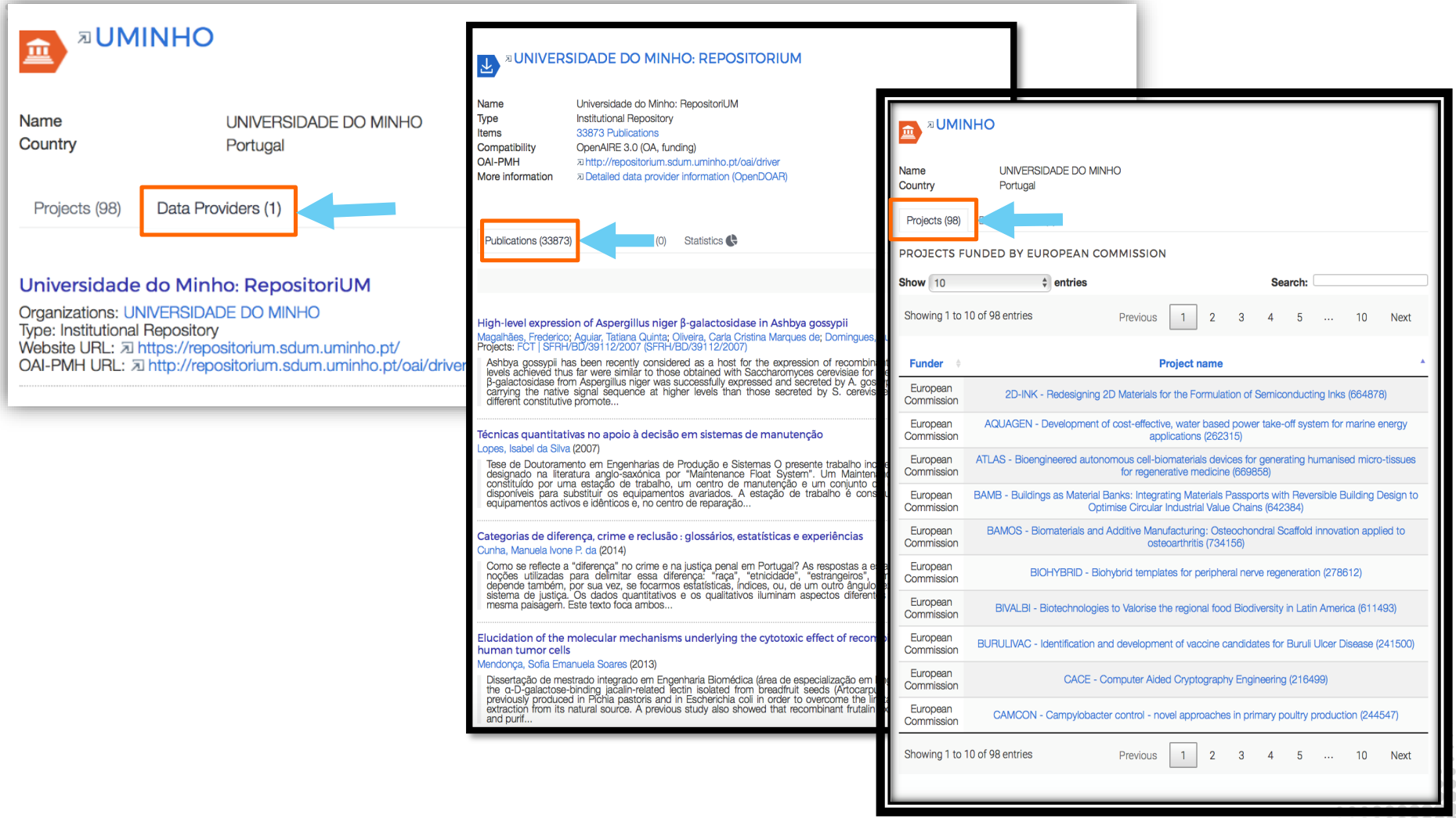
LINK TO PROJECT | LINK TO RESEARCH DATA

(39) | Related Research Data (1) | Similar Publications (2)

INFERRED RESEARCH DATA

The results below are discovered through our pilot algorithms. *Let us know how we are doing!*

Title	Trust
Purification and characterization of an extracellular β-xylosidase from Pseudozyma hubeiensis NCIM 3574 (PhXyl), an unexplored yeast (2016)	65%

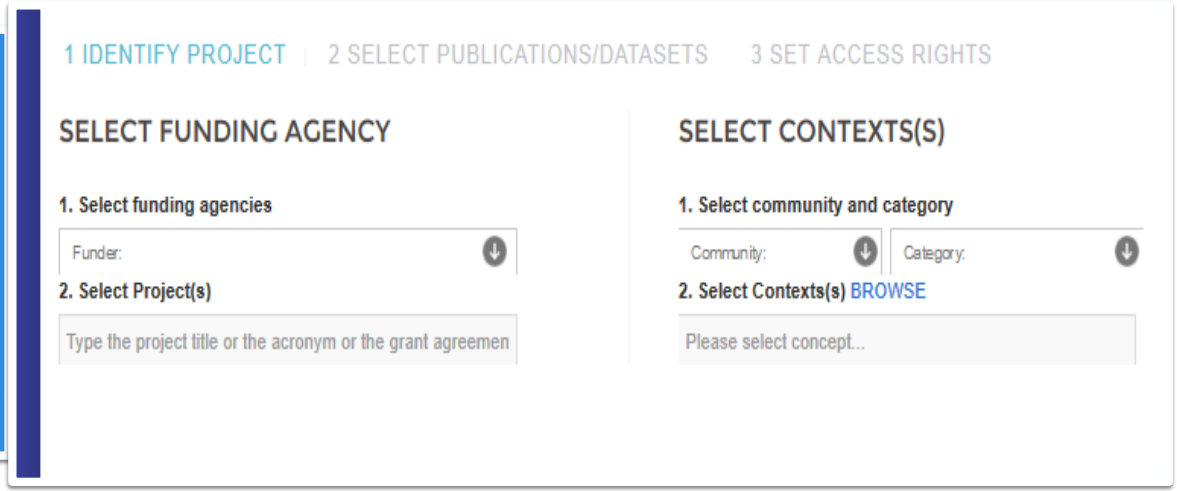

UMINHO
Name UNIVERSIDADE DO MINHO
Country Portugal
Projects (98)
Data Providers (1)
Universidade do Minho: RepositoriUM
Organizations: UNIVERSIDADE DO MINHO
Type: Institutional Repository
Website URL: https://repositorium.sdum.uminho.pt/
OAI-PMH URL: http://repositorium.sdum.uminho.pt/oai/driver
UNIVERSIDADE DO MINHO: REPOSITORIUM
Name Universidade do Minho: RepositoriUM
Type Institutional Repository
Items 33873 Publications
Compatibility OpenAIRE 3.0 (OA, funding)
OAI-PMH http://repositorium.sdum.uminho.pt/oai/driver
More information Detailed data provider information (OpenDOAR)
Publications (33873)
(0)
Statistics
High-level expression of Aspergillus niger β-galactosidase in Ashbya gossypii
Magalhães, Frederico; Aguiar, Tatiana Quinta; Oliveira, Carla Cristina Marques de; Domingues,
Projects: FCT | SFRH/BD/39112/2007 (SFRH/BD/39112/2007)
Técnicas quantitativas no apoio à decisão em sistemas de manutenção
Lopes, Isabel da Silva (2007)
Categorias de diferença, crime e reclusão : glossários, estatísticas e experiências
Cunha, Manuela Ivone P. da (2014)
Elucidation of the molecular mechanisms underlying the cytotoxic effect of recom
human tumor cells
Mendonça, Sofia Emanuela Soares (2013)
UMINHO
Name UNIVERSIDADE DO MINHO
Country Portugal
Projects (98)
PROJECTS FUNDED BY EUROPEAN COMMISSION
Show 10 entries
Search:
Showing 1 to 10 of 98 entries
Previous 1 2 3 4 5 … 10 Next
Funder
Project name
European Commission 2D-INK - Redesigning 2D Materials for the Formulation of Semiconducting Inks (664878)
European Commission AQUAGEN - Development of cost-effective, water based power take-off system for marine energy applications (262315)
European Commission ATLAS - Bioengineered autonomous cell-biomaterials devices for generating humanised micro-tissues for regenerative medicine (669858)
European Commission BAMB - Buildings as Material Banks: Integrating Materials Passports with Reversible Building Design to Optimise Circular Industrial Value Chains (642384)
European Commission BAMOS - Biomaterials and Additive Manufacturing: Osteochondral Scaffold innovation applied to osteoarthritis (734156)
European Commission BIOHYBRID - Biohybrid templates for peripheral nerve regeneration (278612)
European Commission BIVALBI - Biotechnologies to Valorise the regional food Biodiversity in Latin America (611493)
European Commission BURULIVAC - Identification and development of vaccine candidates for Buruli Ulcer Disease (241500)
European Commission CACE - Computer Aided Cryptography Engineering (216499)
European Commission CAMCON - Campylobacter control - novel approaches in primary poultry production (244547)
Showing 1 to 10 of 98 entries
Previous 1 2 3 4 5 … 10 Next

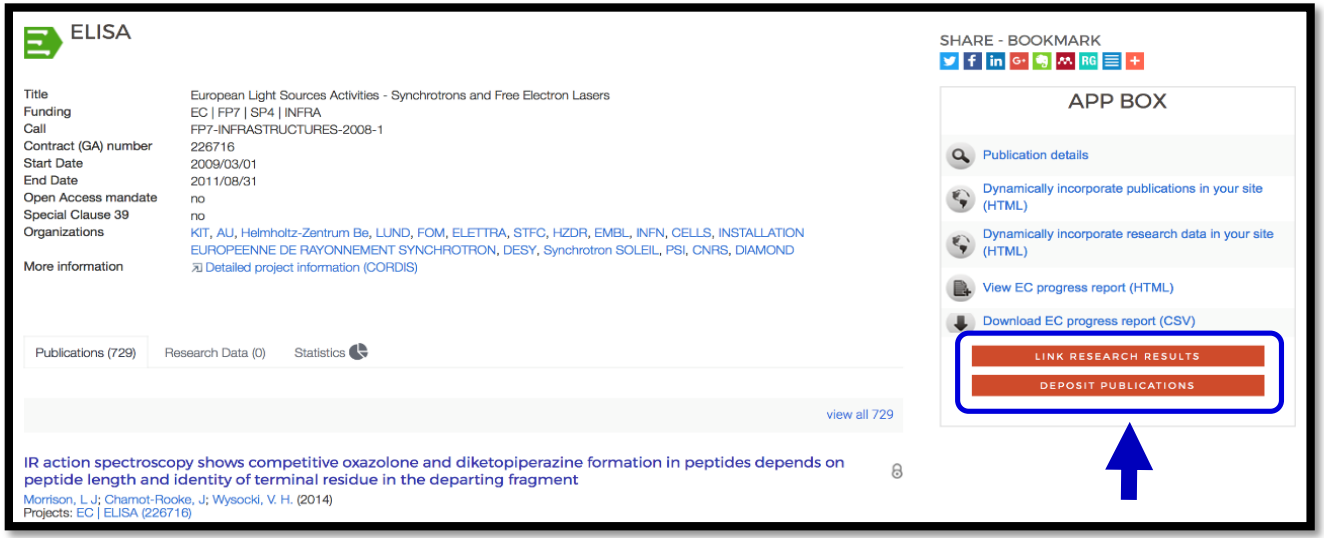

Link your research results
Services for researchers, project coordinators and research managers

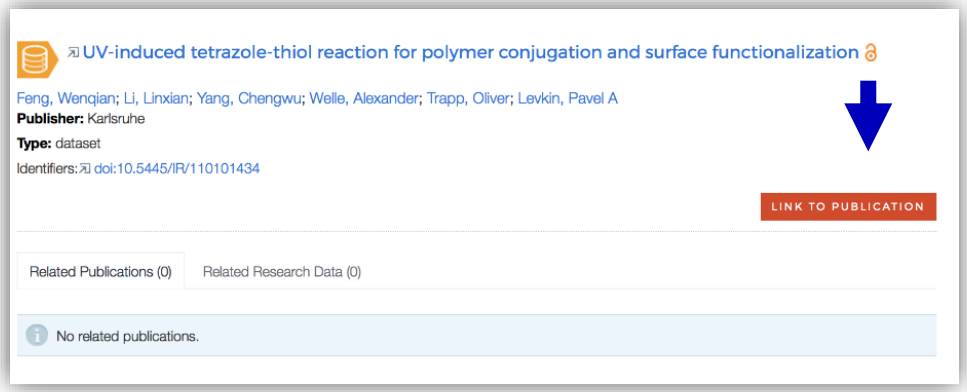
LINK RESEARCH RESULTS TOOL

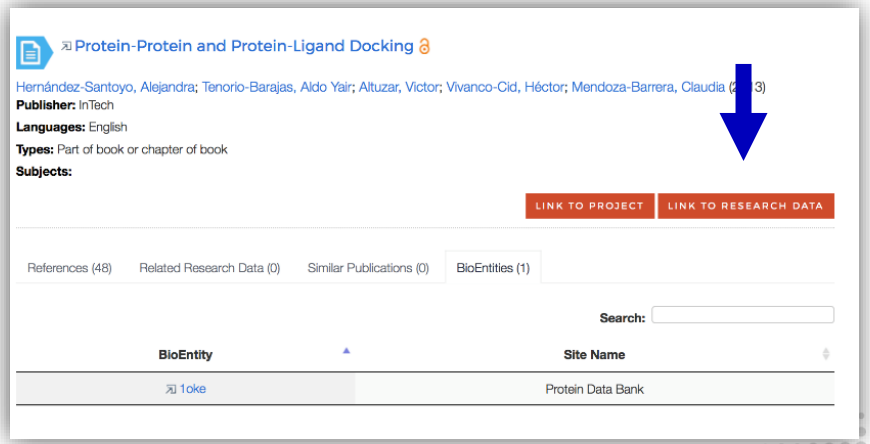
https://www.openaire.eu/participate/claim

Link publication or datasets to projets.
Identify the project, select publications or datasets and set the access rights.



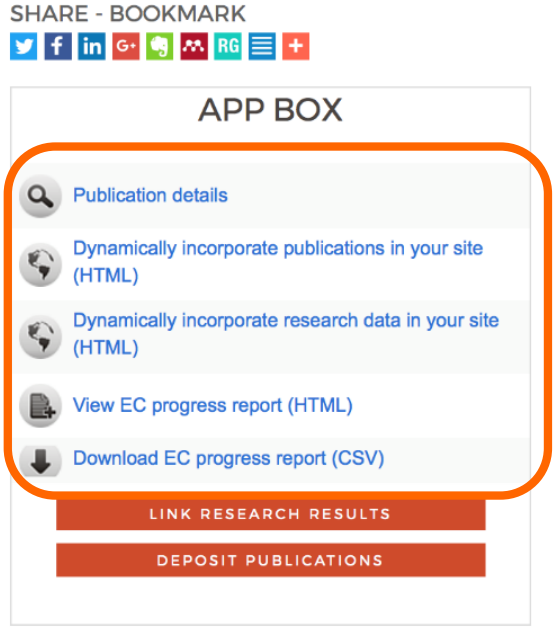

ELISA
Title
European Light Sources Activities - Synchrotrons and Free Electron Lasers
Funding
EC | FP7 | SP4 | INFRA
Call
FP7-INFRASTRUCTURES-2008-1
Contract (GA) number
226716
Start Date
2009/03/01
End Date
2011/08/31
Open Access mandate
no
Special Clause 39
no
Organizations
KIT, AU, Helmholtz-Zentrum Be, LUND, FOM, ELETTRA, STFC, HZDR, EMBL, INFN, CELLS, INSTALLATION EUROPEENNE DE RAYONNEMENT SYNCHROTRON, DESY, Synchrotron SOLEIL, PSI, CNRS, DIAMOND
More information
Detailed project information (CORDIS)
Publications (729)
Research Data (0)
Statistics
view all 729
IR action spectroscopy shows competitive oxazolone and diketopiperazine formation in peptides depends on peptide length and identity of terminal residue in the departing fragment
Morrison, L J; Chamot-Rooke, J; Wysocki, V. H. (2014)
Projects: EC | ELISA (226716)
SHARE - BOOKMARK
APP BOX
Publication details
Dynamically incorporate publications in your site (HTML)
Dynamically incorporate research data in your site (HTML)
View EC progress report (HTML)
Download EC progress report (CSV)
LINK RESEARCH RESULTS
DEPOSIT PUBLICATIONS


UV-induced tetrazole-thiol reaction for polymer conjugation and surface functionalization
Feng, Wenqian; Li, Linxian; Yang, Chengwu; Welle, Alexander; Trapp, Oliver; Levkin, Pavel A
Publisher: Karlsruhe
Type: dataset
Identifiers: doi:10.5445/IR/110101434
LINK TO PUBLICATION
Related Publications (0)
Related Research Data (0)
No related publications.


Protein-Protein and Protein-Ligand Docking
Hernández-Santoyo, Alejandra; Tenorio-Barajas, Aldo Yair; Altuzar, Victor; Vivanco-Cid, Héctor; Mendoza-Barrera, Claudia
Publisher: InTech
Languages: English
Types: Part of book or chapter of book
Subjects:
LINK TO PROJECT
LINK TO RESEARCH DATA
References (48)
Related Research Data (0)
Similar Publications (0)
BioEntities (1)
Search:
BioEntity
Site Name
1oke
Protein Data Bank


Gather outputs.
View progress and
report. Monitor.
Services for researchers, project
coordinators and research managers

Projects: publications and data

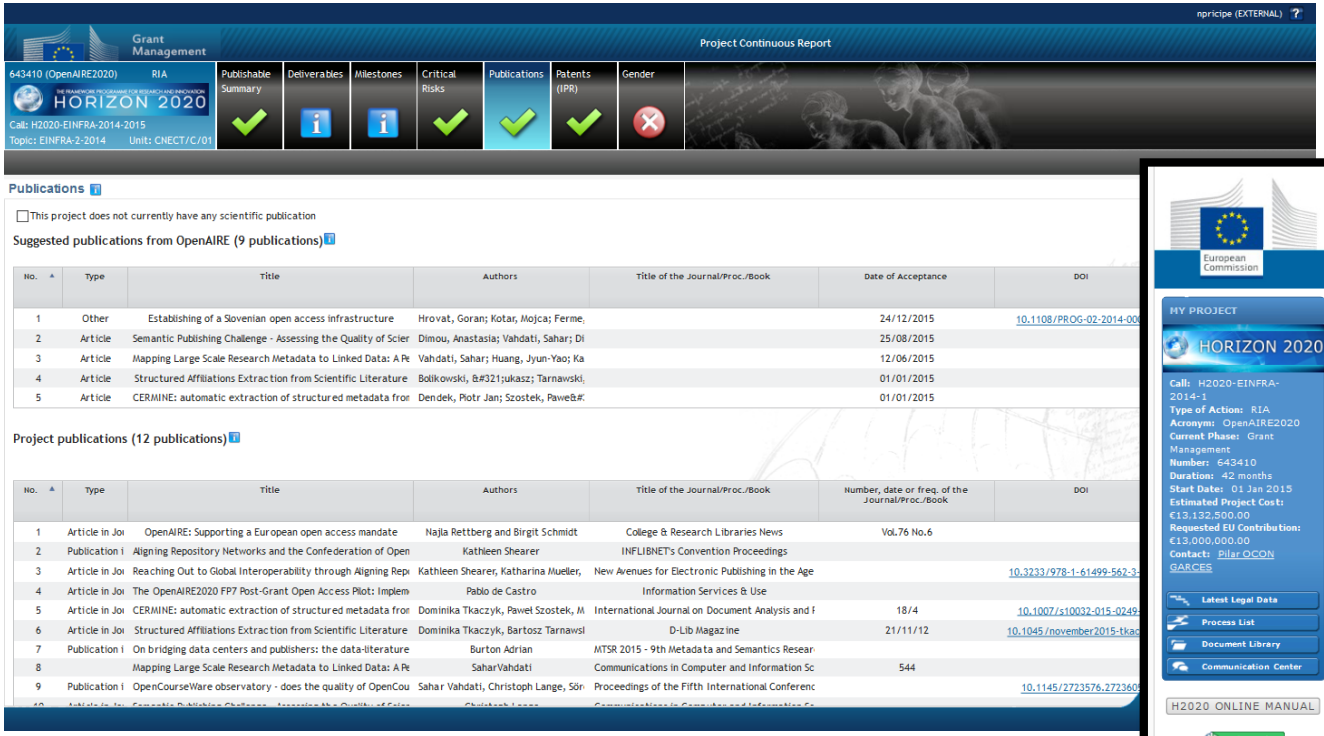


PROJECT PUBLICATIONS AND DATASETS

OpenAIRE

Automatically

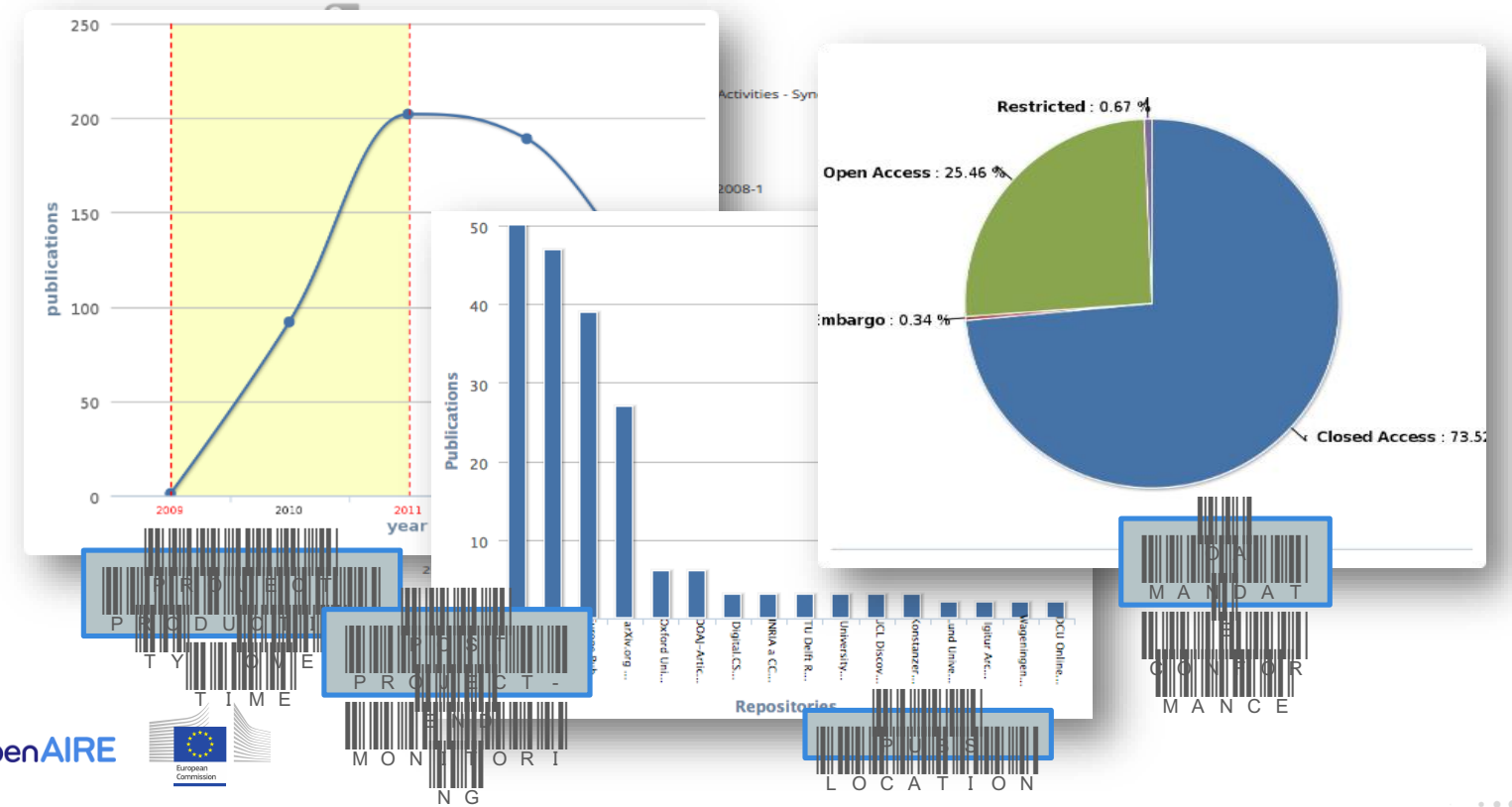
EC's participant portal



OpenAIRE

European Commission

Project overview



Questions?