pharmas and academia join forces to make data FAIR

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University of Oxford,
Professor of Data Readiness
Authored by almost 100 data professionals from industry and academia, led by ELIXIR Nodes, with participation of USA NIH

https://faircookbook.elixir-europe.org
What it is?

An online, open and live resource for the Life Sciences with recipes that help you to make and keep data Findable, Accessible, Interoperable and Reusable; in one word FAIR.

A collection of recipes that cover the operation steps of FAIR data management.
Who is it for?

- Introductory material
- Hands-on, technical step-by-step examples

- A venue to document and share existing and new approaches or services to support FAIRification
- A way to promote a participatory culture that enables sharing of expertise by getting exposure and credit

- Practical examples to recommend in policies
- To use in educational material to incentivize and guide FAIR in practice.
Who developed it?
Almost 100 life sciences professionals, researchers and data managers
Coverage and learning objectives

- Over 70 recipes released and more content available
- Covering over 20 data types, incl:
  - omics
  - pre-clinical
  - clinical areas
- But not limited to it!

1. Learn how to improve the FAIRness with exemplar datasets
2. Understand the levels and indicators of FAIRness
3. Discover open source technologies, tools and services
4. Find out the required skills
5. Acknowledge the challenges
## Search the cookbook recipes

### Filters:
- **Search recipes names**
- **Search recipes by type**
- **Search recipes by audience**
- **Reading Time**
- **Executable code**
- **Maturity Level**

### Recipes Table

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Recipe Name</th>
<th>Recipe Type</th>
<th>Reading Time</th>
<th>Executable Code</th>
<th>Audience</th>
<th>Maturity Level</th>
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</thead>
<tbody>
<tr>
<td>FC0015</td>
<td>Downloading data with Aspera</td>
<td>Hands-on</td>
<td>15 min</td>
<td>✅</td>
<td>Principal Investigator, Data Manager, Data Scientist</td>
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<tr>
<td>FC0014</td>
<td>Transferring data with SFTP</td>
<td>Hands-on</td>
<td>15 min</td>
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<tr>
<td>FC0044</td>
<td>EHDEN OHDSI discovery with Schema.org</td>
<td>Experience Report/Applied Example</td>
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<td>FC0042</td>
<td>eTox - omics datasets</td>
<td>Experience Report/Applied Example</td>
<td>20 min</td>
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<tr>
<td>FC0017</td>
<td>FAIR High-Content Screening data deposition</td>
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<td>FC0037</td>
<td>Making omics data matrix FAIR</td>
<td>Hands-on</td>
<td>30 min</td>
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<td>FC0038</td>
<td>FAIR Data Matrices</td>
<td>Hands-on</td>
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<td>FC0039</td>
<td>Structuring data matrices</td>
<td>Hands-on</td>
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<td>Exploring data with SPARQL</td>
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<td>30 min</td>
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<td>Integrating data</td>
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<td>FC0002</td>
<td>FAIR Computational Workflows</td>
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<td>ND4BB - chemical activities datasets</td>
<td>Experience Report/Applied Example</td>
<td>20 min</td>
<td>✗</td>
<td>Data Manager, Data Curator</td>
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[https://faircookbook.elixir-europe.org/content/search-wizard.html](https://faircookbook.elixir-europe.org/content/search-wizard.html)
Maturity level and indicators

Provide insights into FAIR Maturity reached by applying a specific recipe to improve a dataset

https://fairplus.github.io/Data-Maturity
Anatomy of a recipe: components

Ingredients
An idea of tools/skills needed

<table>
<thead>
<tr>
<th>Tool Name</th>
<th>Tool Location</th>
<th>Tool function</th>
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<tbody>
<tr>
<td>ROBOT</td>
<td><a href="http://robot.obollo.org/">http://robot.obollo.org/</a></td>
<td>ontology management cli</td>
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</table>

Step by step process
Guidelines, process, description

Conclusions
What should I read next?

Practical elements, code snippets

#Python3
#zooma-annotator-script.py
file
def get_annotations(propertyType, propertyValues, filters = ""):

Examples

7.12.1. Competency questions for the Ontology ROBOT use case
7.12.2. Application ontology for metabolomics
Links complementary resources

- 7.1. Main Objectives
- 7.2. Graphical Overview
- 7.3. Capability & Maturity Table
- 7.4. FAIRification Objectives, Inputs and Outputs
- 7.5. Table of Data Standards
- 7.6. Ingredients
- 7.7. Step by step process
- 7.8. Conclusions
- 7.9. References
- 7.10. Supplementary material
- 7.11. Authors
- 7.12. License

Current links with and references to:

- **FAIR cookbook**
- **ds-wizard.org**
- **RDMkit**
- **FAIR Toolkit**
- **Pistoia Alliance**

**FAIRsharing.org**

standards, databases, policies
Credit and citability: because all contributions matters!

Unique, persistent identifiers

Recipe Type
Background information

Audience
Principal Investigator, Data Manager, Data Scientist

Maturity Level & Indicator
[F+MM-1.1C] [F+MM-1.2C]

Cite me with FCB006

w3id.org/faircookbook/FCB006

CreDiT attribution ontology

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The FAIR Cookbook - the essential resource for and by FAIR doers

Philipppe Rocca-Serra; Wei Gu; Vassilios Ioannidis; Tooba Abbassi Daloli; Salvador Capella-Gutierrez; Ishwar Chandramouliswaran; Andrea Splendiani; Tony Burdett; Robert T. Giessmann; David Henderson; Dominique Batista; Allyson Lister; Ibrahim Ernam; Yojana Gadiya; Lucas Giovanni; Egon Willighagen; Chris Evelo; Alasdair J. G. Gray; Philip Gribbor; Nick Juty; Danielle Welte; Karsten Quast; Paul Peeters; Herman van Vlijmen; Tom Plasterer; Dorothy Reilly; Eelke van der Horst; Susanna-Assunta Sansone; the FAIR Cookbook Recipes' Authors

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