The role of Helmholtz Centers in NFDI4BIOIMAGE
A national consortium enhancing FAIR data management for microscopy and bioimage analysis

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The Microscopy Data Management Challenge

Microscopy data is (often)…

- high-dimensional (X, Y, Z, Channel, Time, …)
- acquired in proprietary file formats defined by the vendors
- of large file size (often in GB-, sometimes in TB-range)
- produced with complex experimental set-ups
- used for image analysis to derive quantitative results
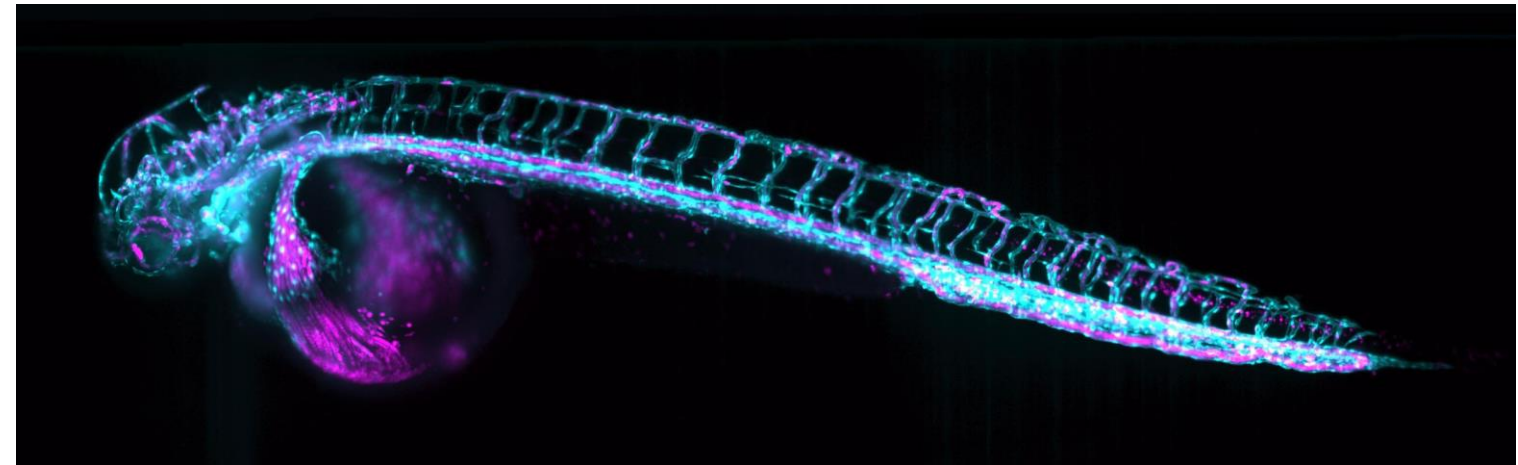
Detailed imaging of zebrafish embryo cardiovascular system using plane illumination microscopy (SPIM)
Courtesy of: Jan Huisken, University of Göttingen

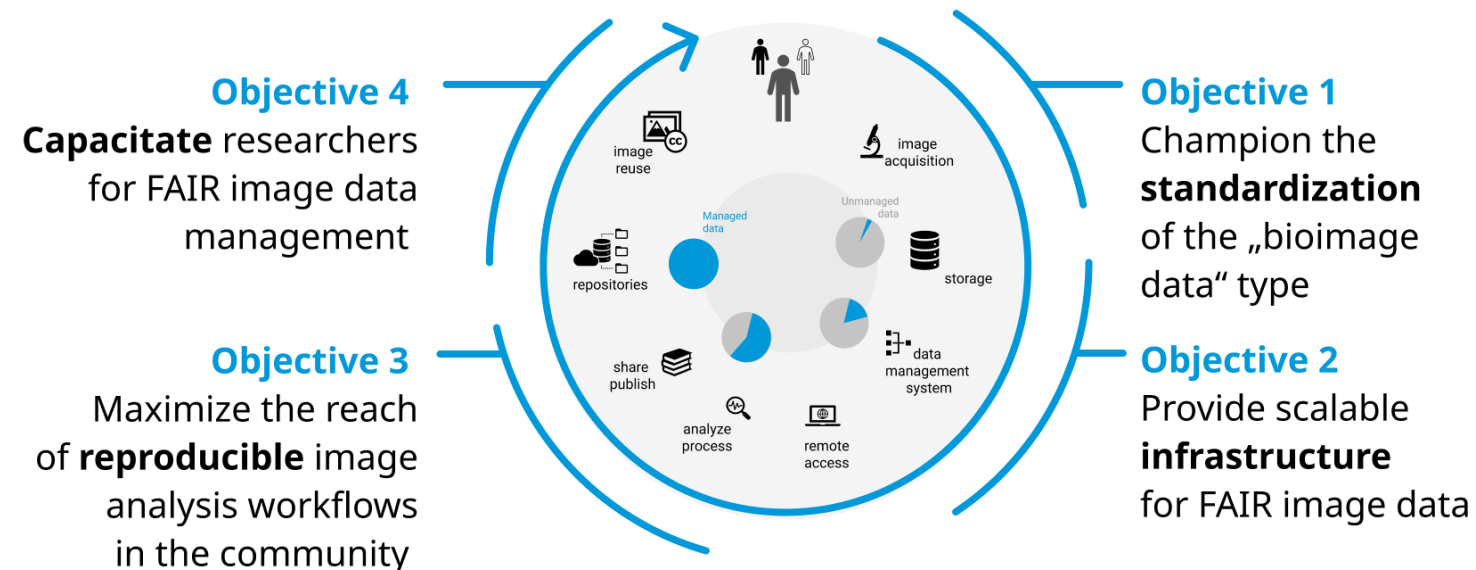### … i.e., cumbersome to handle, store, and share?

NFDI4BIOIMAGE
A consortium of the National Research Data Infrastructure (NFDI)

The NFDI4BIOIMAGE Consortium is a collaboration project comprising

- 23 members in Germany (lead: Heinrich Heine University Dusseldorf)
- multiple supporters and partners
- international partners like Euro-BioImaging ERIC, OME, Galaxy, etc.

Main Goals and Objectives:

Objective 4
Capacitate researchers for FAIR image data management

Objective 3
Maximize the reach of **reproducible** image analysis workflows in the community

Objective 1
Champion the **standardization** of the „bioimage data" type

Objective 2
Provide scalable **infrastructure** for FAIR image data

Services by the NFDI4BIOIMAGE Help Desk

The NFDI4BIOIMAGE Data Stewards Team can support you to manage your bioimaging data according to the FAIR principles. They help you navigate through the Bioimaging Data Life Cycle from image acquisition up to archiving and long-term storage.

Consult our **Help Desk!**

https://nfdi4bioimage.de/help-desk

helpdesk@nfdi4bioimage.de

Receive direct support with your bioimaging data management challenges, e.g.:

- How do I write a **Data Management Plan** for bioimaging research?
- How do I handle microscopy data to comply with the **FAIR principles**?
- With which **metadata** and how should I annotate my **bioimage data**?
- How do I **publish image data** in trusted repositories?
- How do I organize a **workshop or course** in my institution?

What is the National Research Data Infrastructure (NFDI)?

"The aim (…) is to systematically manage scientific and research data, provide long-term data storage, backup and accessibility, and network the data both nationally and internationally."

Network of
26 collaborating
Consortia
and a cross-consortium project (BASE4NFDI)

Consortia Assembly
NFDI Directorate
Scientific Senate

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Roles of the Helmholtz Centers in NFDI4BIOIMAGE

German Cancer Research Center (DKFZ)

- Governance, Management, Organization (E. May, C. Schmidt)
- Multimodal data integration & spatial omics (P. Mallm, M. Bortolomeazzi)

Helmholtz Center for Environmental Research (UFZ)

- Handling, management, and metadata of high-content screening data
  (J. Bumberger, R. Massei)

Forschungszentrum Jülich (FZJ)

- Brain Imaging Data, Large image data handling
  (T. Dickscheid, J. Thönnißen)

References

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- Massei, R., NFDI4BIOIMAGE - National Research Data Infrastructure for Microscopy and BioImage Analysis, The Pelagic Imaging Consortium meets Helmholtz Imaging, Hamburg, Germany. Zenodo. DOI: 10.5281/zenodo.8414319
- Schmidt, C., et al., Research data management for bioimaging: the 2021 NFDI4BIOIMAGE community survey. F1000Research, 2022. 11: p. 638. DOI: 10.12688/f1000research.121714.2.

https://nfdi4bioimage.de