NFDI4Immuno - All-Hands Meeting 2025

Tuesday 22 April 2025 - Thursday 24 April 2025

frizzforum

Book of Abstracts

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Life Science Ontologies

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The number of available ontologies is daunting, and some are clearly more complete than others and some are better than others (what ever 'better' means).

A break out session on ontologies could address one or more of the questions:

- What is the overlap in needed ontologies between our close-friends consortia?

- How does interoperability between ontologies work?
- How can 'good' and 'better' be defined for ontologies?

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Metadata interoperability within NFDI

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Synthesis (see below for original proposals): Interoperability of metadata across consortia is one of the key tasks of NFDI. Therefore the work of TA1/TA2 needs to be in line with various other NFDI activites:

- BioMed Interoperability group
- Section Metadata, its working groups and Task Force Metadata
- Base services relating to metadata (e.g. TS4NFDI)

In this session we will first collect where things stand in these various groups and what they aim to solve (or not to solve). Then we will have a look at how we can bring connect this with the activities within NFDI4Immuno.

Ulrik: How can we be of benefit to the working groups of Sektion Metadata, how can they benefit us? The break out session would discuss how to better utilize and contribute to the work done by different working groups of the sektion-metadata. What are the intersection points between tasks of 4Immuno and the working groups?

Sebastian & Katherina: At the last BioMed Meeting in Heidelberg in November 2024, we identified the need to work together to establish the necessary interoperability across BioMed consortia. This Breakout-session is to give a short overview of the current state of the established BioMed Interoperability group, discuss NFDI-Base Service access and cooperation, as well as critically ask where we see the need to cooperate and find an agreement on the metadata, and where to go our own way.

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Test dataset

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We may benefit from having minimal yet complete datasets for different use cases. The aim of the breakout session would be to open a discussion on a centralized set of test data, that are **not** based

on the developed schemas, but stem from actual laboratory work and will be used to capture any obvious shortcomings as we develop NFDI4Immuno.

The breakout session could address the questions:

- What are the most likely use cases?
- What is complete?
- Where would the data come from?
- How do deal with human data?

Workshop / 20

API needs and development

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As we will move closer towards a MVP, we will need an API for submission and later for search and retrieval - first for non-human data. The breakout session could discuss:

- Which stages would the API development move through
- What is required of the model/schema for each stage
- What is required for end-2-end testing of the API at the different stages
- When does it make sense to start working on an API

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Integration of validated JSON files, the database and web portal

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Which software is intended for the database and the web portal and whether specific requirements for the JSON formats can be derived from it. Do we need to define specifications for JSON, the web portal, and the database in advance to ensure smooth integration later?

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Intensification of collaboration between the individual TAs?

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Are there any needs for stronger collaboration between the individual TAs?
For example, does TA3 require information from TA1/TA2 to develop training sessions or update our website? Or should TA1/TA2 work more closely with TA4 to ensure that the transpiled and validated metadata is better integrated into the database?

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How is our hardware architecture structured?

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On which servers are the different data types stored, and who is responsible for this? On which server should the search portal operate?

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Thinking from the end: Design and interoperability of a user interface

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In this session we want to create/discuss mockups for a user interface and run through certain use cases from the user's perspective.
Interfaces between the TAs and the user interface will also be specified.
In other words: Which data exactly should be transferred between the TAs, in which format, using which technology, and who is responsible for delivering which part, and how exactly.

Breakout / 25

Connecting data analysis tools to the Data portal

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During this session, we would like to present our current tools and discuss their integration into the future website and portal. We will present a use case of Hyphasma and showcase how nf-core/airrflow operates. nf-core/airrflow is a bioinformatics pipeline dedicated to the analysis or B or T-cell repertoire sequencing data. Hyphasma is a computational tool which allows the simulation of immune responses. We will discuss how you can use these tools, their functionalities and why

integration to our platform is beneficial. Additionally, we'll outline the required data to make these tools operational.

Plenary / 26

Defining a limited set of impactful data analysis tools to implement

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Resulting from our internal survey about the user needs, we were unable to derive a clear answer on which tools shall be implemented to tackle the main pain points of the community. With this virtual session, we would like to run a follow up survey in which we intend to identify a set of 4-5 most valuable and impactful tools according to our consortium.

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TS4NFDI: Harmonizing Terminology Services within NFDI

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Goal of TS4NFDI

An overarching research data management across all domains is built upon metadata describing research data and their generation. To make sure that disciplines can create and share a common understanding of the concepts and relations used to describe data, we need terminologies as a formal representation of domain knowledge. Terminology Services 4 NFDI (TS4NFDI) provides unified access to terminologies across all disciplines. TS4NFDI integrates or connects existing terminology services and, most importantly, reduces the efforts to integrate terminologies in any service or tool to manage research data. It provides a central access point to all terminologies and a suite of widgets that can be added to existing applications of the users. TS4NFDI supports cross-domain application, harmonization, and curation of terminologies.

TS4NFDI Terminology Service Suite

The TS4NFDI Terminology Service Suite (TSS) offers reusable and modular graphical user interface (GUI) widgets that can be integrated into existing terminology services or used to develop a domain-specific terminology service web interface. Additionally, these widgets can be incorporated into other web applications that provide semantic search functionality for data or facilitate data annotation in accordance with the FAIR principles. We will demonstrate how these widgets could be integrated to web services provided by NFDI4Immuno.

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Workshop - Workflow integration

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NFDI4Biodiversity

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Plenary - Tool survey

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How to coordinate TAs' work around the data flow

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(This has been split-off from contribution #24)
As the interfaces cannot be completely specified in the short time available, contact is established between a responsible person from the respective TA so that these two people can coordinate the jointly used interface at short notice at any time.