NFDI4Immuno Progress Report

Consortia Progress Report Part 1 (B-1)
2026-02-28

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1 General Information

Name of the consortium

NFDI4Immuno - National Research Data Infrastructure for Immunology

Research domains or research methods addressed by the consortium

NFDI4Immuno aims to advance the research data management and the associated research data infrastructure in the field of immunology as well as neighbouring disciplines, to the extent that they utilize immunological methods and models. Therefore, NFDI4Immuno addresses primarily the DFG research domains Microbiology, Virology and Immunology (2.21) but also extends into Medicine (2.22), Basic Research in Biology and Medicine (2.11), Agriculture, Forestry and Veterinary Medicine (2.31) and Neurosciences (2.23).

URL of the consortium website and repositories used for publishing output

- Website: https://www.nfdi4immuno.de
- Technical documentation: https://docs.nfdi4immuno.de
- Zenodo community: https://zenodo.org/communities/nfdi4immuno/

2 Summary

The Consortium

NFDI4Immuno is the consortium for immunological research data within NFDI. We assemble 15 institutions across Germany, representing the full breadth of the national immunological research landscape and covering a diverse set of research questions and disease contexts. The goal of the consortium is to offer services and support for research data management (RDM) following the FAIR Principles to the whole immunological community - from basic molecular research to clinical studies, from animal models to computational simulations.

Challenges in Immunological Research Data Management

In contrast to other biomedical research fields, immunology is lacking stable, dedicated infrastructure that facilitates the deposition and reuse of relevant data sets. In addition, while some data types - e.g., flow cytometry - have seen some degree of community-based standardization, many other data types have only vendor-dependent standards if any at all. Because immunological methods are used in diverse applications, data collected with the same technique may require significantly different processing steps depending on the specific use

case. Finally, deposited data can often not be shared openly, either due to restrictions based on data privacy norms (for data from human subjects) or due to the necessity to protect IP to preserve commercialization options. Despite its central role in developing vaccines, advanced therapy medicinal products (ATMPs) and companion diagnostics, Europe lacks a robust data infrastructure capable of managing the complexity and diversity of immunological datasets.

Core Activities and Deliverables

To address these challenges, NFDI4Immuno is building a Data Hub as its main deliverable. The Data Hub will enable researchers to deposit, manage, search and retrieve data objects and their associated metadata records. The underlying data architecture is in general agnostic to data types and is therefore capable of handling arbitrary data objects. However, for data types that are known to the Data Hub, e.g., because they are represented in a community-defined format, additional services like consistency checks or automated metadata extraction can be implemented. Conceptually, the Hub presents a significant departure from the original proposal of building a federation of independent, mainly data type-specific repositories. This change became necessary due to the high volatility in the upstream projects that the original vision depended on. The new Data Hub preserves - and potentially enhances - the originally intended functionalities available to the user, while at the same time enabling the operation on infrastructure architectures with distributed storage and cloud compute, like the one available to NFDI. Despite the more complex layered structure, users and developers will be presented with a single point of access - termed “portal” - with a common API used by all applications. This approach facilitates the implementation of a thorough identity and access management, building upon the IAM4NFDI and Helmholtz ID services, provided by Base4NFDI and HIFIS, respectively. Following the legal approach successfully implemented by GHGA, the Data Hub will operate as Data Processor according to GDPR, while the depositing institution remains the Data Controller and makes the final decisions about when and whom data sets will be shared.

Other activities of the consortium include the work on an internal metadata schema, which can be used to map metadata properties between existing metadata standards. This schema is also the starting point for NFDI4Immuno's harmonization efforts with the other consortia of the NFDI BioMed Interest Group. Furthermore, a new community survey and the re-launch of our website in 2025 marked the starting point for intensified outreach activities.

Integration into the NFDI Network

The consortium actively engages in joint activities of the NFDI Association, including developing the Section International Engagement (for Germany's EOSC node) and co-leading the Research Data Act Task Force. Members of the consortium are actively engaged in working

groups and task forces of all Sections as well as Base4NFDI services (IAM4NFDI, TS4NFDI) advancing interoperability and infrastructure. In addition, the spokesperson of NFDI4Immuno is currently serving as a member of NFDI's Scientific Senate. We collaborate closely with the other four consortia of the NFDI BioMed Interest Group, i.e., GHGA, NFDI4Health, NFDI4Microbiota and NFDI4BIOIMAGE, focusing on metadata interoperability, leadership coordination, and shared helpdesk resources.

Outlook

The consortium is currently implementing a data hub prototype and has started to broaden its activities. As part of increased outreach and user support, we will soon invite selected researchers and institutions outside of the consortium as pilot users of the Data Hub, before a complete roll-out with deposited data for wider public use.

3 Composition of the consortium

Applicant institution

Applicant institution	Location	Duration
Deutsches Krebsforschungszentrum (DKFZ)	Heidelberg	03/2023 –

Spokesperson

Spokesperson	Institution, location	Duration
Christian Busse (0000-0001-7553-905X)	DKFZ, Heidelberg	03/2023 –

Co-applicant institutions

Co-applicant institutions	Location	Duration
Charité - Universitätsmedizin Berlin (Charité)	Berlin	03/2023 –
CRTD, Technische Universität Dresden (CRTD)	Dresden	03/2023 – 05/2023
Deutsches Rheuma-Forschungszentrum (DRFZ)	Berlin	03/2023 –
DKMS gGmbH (DKMS)	Tübingen	03/2023 –
Eberhard Karls Universität Tübingen (QBiC)	Tübingen	03/2023 –
Friedrich-Loeffler-Institut (FLI)	Greifswald	03/2023 –
Helmholtz-Zentrum für Infektionsforschung (HZI)	Braunschweig	03/2023 –
Ruhr-Universität Bochum (RUB)	Bochum	03/2023 –
Universitätsklinikum Münster (UKM)	Münster	03/2023 – 04/2023
Universität Münster (UM)	Münster	04/2023 –
Universitätsmedizin Essen (UME)	Essen	03/2023 –

Co-spokespersons

Co-spokespersons	Institution, location	Task area(s)	Duration
Michael Hummel (0000-0001-6717-605X)	Charité, Berlin	2	03/2023 – 09/2023
Cornelia Eckert (0000-0003-1039-2872)	Charité, Berlin	2	09/2023 –
Hyun-Dong Chang (0000-0002-7341-4533)	DRFZ, Berlin	1	03/2023 –
Johannes Schetelig	DKMS, Dresden	4	03/2023 –

(0000-0002-2780-2981)			
Sven Nahnsen (0000-0002-4375-0691)	QBiC, Tübingen	5	03/2023 –
Anca Dorhoi (0000-0003-1739-749X)	FLI, Greifswald	2, 3	03/2023 –
Michael Meyer-Hermann (0000-0002-4300-2474)	HZI, Braunschweig	5	03/2023 –
Nina Babel (0000-0003-3673-712X)	RUB, Bochum	1	03/2023 –
Nicholas Schwab (0000-0001-5494-9885)	UM, Münster	2	03/2023 –
Ralf Küppers (0000-0002-6691-7191)	UME, Essen	3	03/2023 –
Anne Eugster (0000-0001-8009-5959)	CRTD, Dresden	3	03/2023 – 05/2023

Participants

Participating institutions	Location	Duration
Bundesinstitut für Risikobewertung (BfR)	Berlin	01/2026 –
Universitätsklinikum Frankfurt (UKL-FFM)	Frankfurt am Main	02/2026 –

Participating individuals	Institution, location	Duration
Barbara M. Bröker	Universitätsmedizin Greifswald, Greifswald	03/2023 –
Cornelia Eckert	Charité, Berlin	03/2023 – 09/2023
Katharina Imkeller	Universitätsklinikum Frankfurt, Frankfurt am Main	03/2023 – 02/2026
Felix Meissner	Uni Bonn, Bonn	03/2023 –
Katherina Siewert	Bundesinstitut für Risikobewertung, Berlin	03/2023 – 01/2026
Dietmar Zehn	Technische Universität München, Freising	03/2023 –