

Webinar Series

Feb 16, 2023

Moderator: Sanchita Bhattacharya,
Science Program Lead, ImmPort

Selecting ImmPort for Open-access Immunological Data Sharing: Tools and Resources for Data Management and Sharing Plan Creation

ImmPort Overview & Data Management and Sharing Plan Resources

Kate Hypes, ImmPort

Q&A

DMPTool.org: A Free Open-Source Application for Data Management & Sharing Plan Creation

Maria Praetzellis, California Digital Library

Q&A



ImmPort Overview & Data Management and Sharing Plan Resources

Kate Hypes, ImmPort



IMMPORT

BIOINFORMATICS FOR THE FUTURE OF IMMUNOLOGY



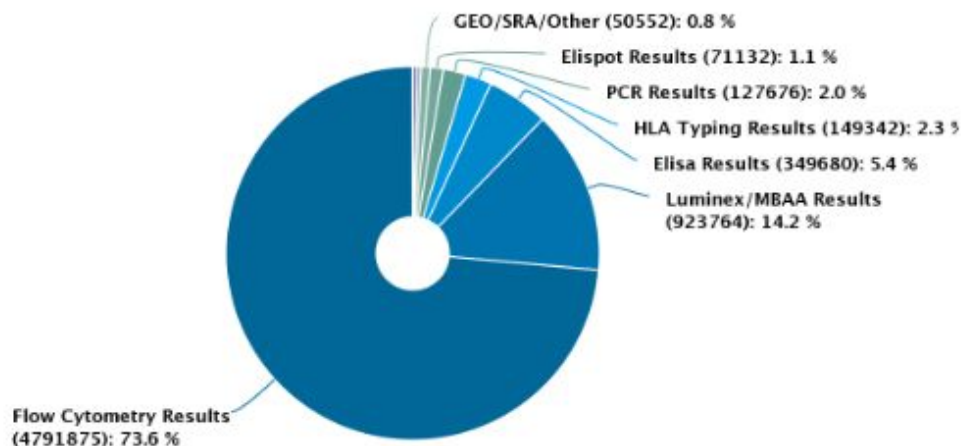
**FAIR-sharing Immunology
Data for over 20 Years**

Over 6 Million Experimental Results

Across 152 Diseases & Conditions

From 600+ Studies, 150+ Clinical Trials &

Over 1,000 Publications



Studies	Subjects	Diseases
648	88398	152
Experiments	Total Results	Lab Tests
2486	6514037	1268311



Upload Data

Online Study Registration
Upload Templates
Search Private Data



Shared Data

Data Model
Search/Download
Gene Lists



Data Analysis

Analysis Workflow
Automated Clustering
Tutorials



Resources

Tutorials
Documentation
Publications

Sponsored by:

National Institute of Allergy and Infectious Diseases (NIAID)

National Institutes of Health (NIH)

Health and Human Services (HHS)

Nature Scientific Data's
Recommended Data Repository
Cytometry & Immunology

PLOS ONE
Recommended
Data Repository



Core
Trustworthy
Data
Repository

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES
<http://doi.org/10.17616/R30J3F>
ImmPort



ImmPort Shares Data from Major NIAID-funded Programs and External Organizations



Human Immunology Project Consortium



COVID-19 - ImmPort

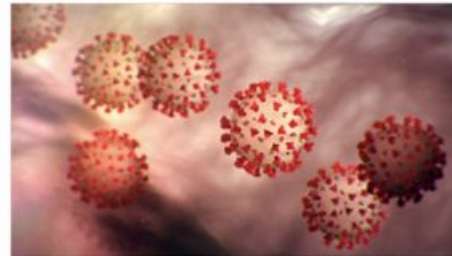


Image CDC Coronavirus Disease 2019 – COVID 19, Alissa Eckert

Coronavirus Disease 19

Powered by ImmPort



BILL & MELINDA GATES foundation
Powered by ImmPort



Immunophenotyping Assessment in a COVID-19 Cohort (IMPACC)

Serological Sciences Network (SeroNet)

Multisystem Inflammatory Syndrome in Children (MIS-C)

Impact of Initial Influenza Exposure on Immunity in Infants (U01)

Atopic Dermatitis Research Network (ADRN)

Population Genetics Analysis Program

Protective Immunity for Special Populations

HLA Region Genomics in Immune-mediated Diseases

Modeling Immunity for Biodefense

Reagent Development for Innate Immune Receptors

Adjuvant Development Program

Immunity in Neonates and Infants

Asthma and Allergic Diseases Cooperative Research Centers

HLA and KIR Region Genomics in Immune-Mediated Diseases

Cooperative Study Group for Autoimmune Disease Prevention

Immunobiology of Xenotransplantation

Centers for Medical Countermeasures against Radiation Consortium

Inner City Asthma Consortium

Systems Approach to Immunity and Inflammation

Innate Immune Receptors and Adjuvant Discovery Program

Non-human Primate Transplantation Tolerance Cooperative Study Group

Consortium for Food Allergy Research

Development of Sample Sparing Assays for Monitoring Immune Responses (U24)

Asthma and Allergic Diseases Clinical Research Consortium (AACRC)

The Clinical Islet Transplantation (CIT) Consortium

Autoimmunity Centers of Excellence (ACE)

Accelerating Medicines Partnership (AMP)

Clinical Trials in Organ Transplantation (CTOC)

Human Immunology Project Consortium (HIPC)

Collaborative Influenza Vaccine Innovation Centers (CIVICS)

Centers for Research in Emerging and Infectious Diseases (CREID)

Cooperative Centers on Human Immunology

Impact of Initial Influenza Exposure on Immunity in Infants (U01)

A Multidisciplinary Approach to Study Vaccine-elicited Immunity and Efficacy Against Malaria (MVIE)



LEVERAGING BIG DATA FOR PRETERM BIRTH RESEARCH





Article | Published: 12 July 2021

Systems vaccinology of the BNT162b2 mRNA vaccine in humans

Prabhu S. Arunachalam, Madeleine K. D. Scott, [...]Bali Pulendran

Nature 596, 410–416 (2021) | Cite this article

61k Accesses | 1109 Altmetric | Metrics

PMID: 34252919 PMCID: PMC8761119 DOI: 10.1038/s41586-021-03791-x

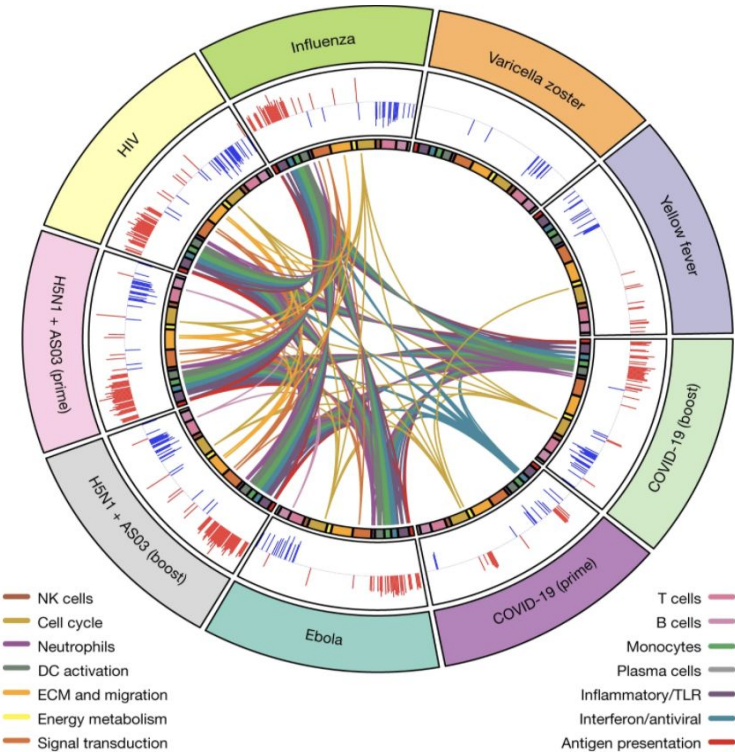
Online attention



- 2602 tweeters
- 64 news outlets
- 1 Video uploaders
- 295 Mendeley
- 5 blogs
- 11 Redditors
- 2 Facebook pages
- 1 F1000

Fig. 5: Comparison of transcriptional responses with other vaccines.

From: Systems vaccinology of the BNT162b2 mRNA vaccine in humans



Extended Data Table 3 Vaccine meta-analysis datasets

From: Systems vaccinology of the BNT162b2 mRNA vaccine in humans

Vaccine	Pathogen	Vaccine Type	Adjuvant/ Vector	Timepoints used	N	GEO/ ImmPort
BNT162b2	SARS-CoV-2	mRNA	mRNA-LNP	0,1,7,21,22,28	31	GSE169159
TIV	Seasonal Influenza	Inactivated	None	0,1,7	19	GSE74813/SDY56
VZV	Varicella zoster	Live attenuated	VZV	0,1,7	31	GSE79396/SDY984
YF17D	Yellow fever	Live attenuated	YF17D	0,1,7	25	GSE13486/SDY1264
rVSV-ZEBOV (high dose)	Ebola	Recombinant viral vector	VSV	0,1,7	7	GSE97590/SDY1373
MRKAd5/HIV	HIV	Recombinant viral vector	Ad5	0,1,7	10	GSE22768/SDY1291
H5N1+AS03	H5N1 Influenza	Inactivated	AS03	0,1,7,21,22,28	33	GSE102012
MPSV4	Meningococcus	Polysaccharide	None	0,7	13	GSE52245/SDY1260
MCV4	Meningococcus	Conjugate	None	0,7	17	GSE52245/SDY1260

ImmPort supports your Immunological Data Sharing Needs for the 2023 NIH Policy for Data Management and Sharing

NOT-OD-21-013: Final NIH Policy for Data Management and Sharing *Effective Date: January 25, 2023*



ImmPort is a NIH supported Open Domain-Specific Data Sharing Repository

Institute or Center	Repository Name	Repository Description	Open Data Submission	Data Submission Policy	Open Time Frame for Data Deposit
All		immunology			
NIAID	The Immunology Database and Analysis Portal (ImmPort)	ImmPort is a public data sharing repository funded by DAIT. The data sources are primarily DAIT-funded clinical trials, associated mechanistic studies, and other basic and applied immunology research programs.	Yes	How to submit data to ImmPort	Yes

**Source: Trans-NIH BioMedical Informatics Coordinating Committee (BMIC), [Data Sharing Resources](#)*

NIH Resources:

[Selecting a Data Repository | Data Sharing \(nih.gov\)](#)

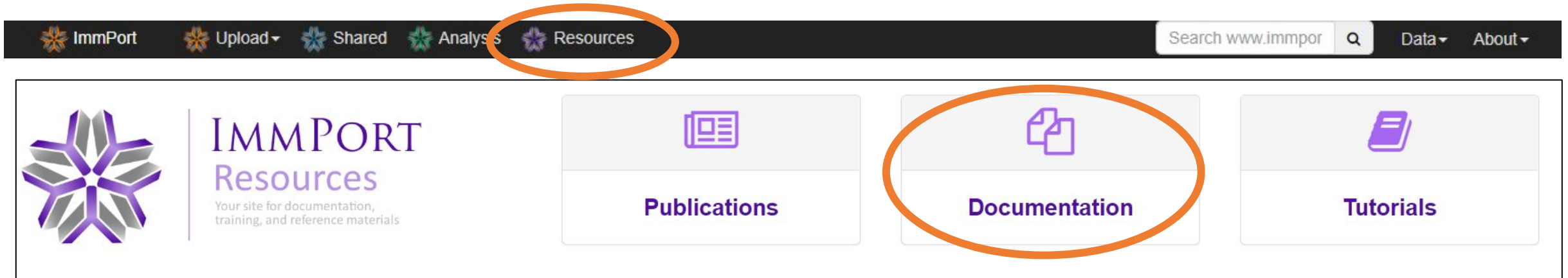
[BMIC Home \(nih.gov\)](#)

[Open Domain-Specific Data Sharing Repositories \(nih.gov\)](#)

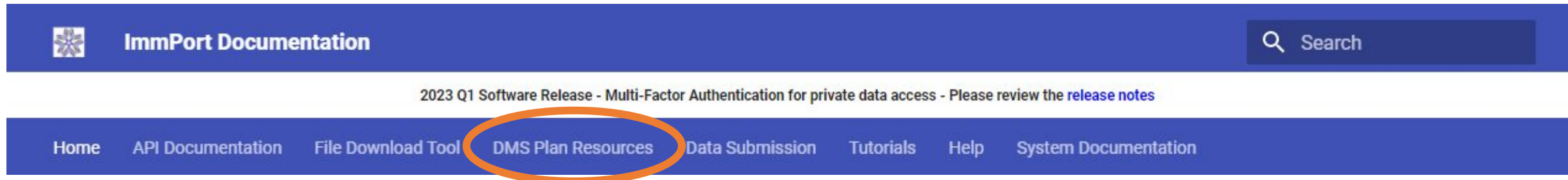
New ImmPort Data Management & Sharing Plan Page

<https://docs.immport.org/dmsp/>


All ImmPort documentation can be accessed via *Resources* ➔ *Documentation*



Select *DMS Plan Resources* from the documentation ribbon



ImmPort Data Management & Sharing Plan Resources


 ImmPort Data Management and Sharing (DMS) Plan Resources


Search


DMS Plan Resources


- ImmPort Data Management and Sharing (DMS) Plan Resources**
- ImmPort Data Management and Sharing Plan Template
- NIH Data Management & Sharing Plan Guidance
- ImmPort Data Submission Introduction
- ImmPort Webinars

Ready to get started? View the ImmPort Data Management and Sharing Plan Template, along with additional links below, for helpful information about DMS plan creation and ImmPort data submission.

ImmPort Data Management and Sharing Plan Template 

NIH Data Management & Sharing Plan Guidance 

ImmPort Data Submission Introduction 

ImmPort Webinars 

We are continually adding new resources and information to the ImmPort website about DMS plans and data sharing. Follow us at any of the methods below to stay updated on new content and other happenings at ImmPort.
[Linkedin](#) | [Twitter](#) | [YouTube](#) | [Subscribe to our Newsletter](#)

<https://docs.immport.org/dmsp/>

ImmPort Data Management & Sharing Plan Template

Form OMB No. 0925-0001 and 0925-0002 (Rev. 07/2022) with ImmPort Content

ImmPort Comments and Example Text are provided to aid researchers considering ImmPort for Data Management and Sharing (DMS). In order to draft a robust DMS plan, researchers should consider all applicable NIH guidance, university-specific guidance, and/or other best practices and regulations in addition to repository-specific information. NIH guidance for writing a DMS plan is located [here](#).

DATA MANAGEMENT AND SHARING PLAN

If any of the proposed research in the application involves the generation of scientific data, this application is subject to the NIH Policy for Data Management and Sharing and requires submission of a Data Management and Sharing Plan. If the proposed research in the application will generate large-scale genomic data, the Genomic Data Sharing Policy also applies and should be addressed in this Plan. Refer to the detailed instructions in the application guide for developing this plan as well as to additional guidance on [sharing.nih.gov](#). The Plan is recommended not to exceed two pages. Text in italics should be deleted. There is no "form page" for the Data Management and Sharing Plan. The DMS Plan may be provided in the format shown below.

Public reporting burden for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering, and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: NIH, Project Clearance Branch, 6705 Rockledge Drive, MSC 7974, Bethesda, MD 20892-7974, ATTN: PRA (0925-0001 and 0925-0002). Do not return the completed form to this address.

Element 1: Data Type

A. Types and amount of scientific data expected to be generated in the project:

Summarize the types and estimated amount of scientific data expected to be generated in the project.

ImmPort Comments:

- ImmPort is designed to accommodate the preservation of large data sets
- Up to 512 MB of data can be uploaded directly to the ImmPort system in a single upload
- A no-cost tool, [Aspera Connect](#), is utilized for uploads larger than 512 MB
- A listing of data types and formats that ImmPort accepts is located [here](#)

B. Scientific data that will be preserved and shared, and the rationale for doing so:

Describe which scientific data from the project will be preserved and shared and provide the rationale for this decision.

ImmPort Comments:

- ImmPort does not receive HIPAA designated content or protected genetic data
- All human subject data should be de-identified in accordance with federal, state, local, and any university-specific regulations prior to submitting to ImmPort
- If scientific data will be deposited in multiple repositories, ImmPort supports linkages to associated data stored in outside repositories to enhance findability

C. Metadata, other relevant data, and associated documentation:

Briefly list the metadata, other relevant data, and any associated documentation (e.g., study protocols and data collection instruments) that will be made accessible to facilitate interpretation of the scientific data.

ImmPort Example Text:

Descriptive metadata will be captured in accordance with the ImmPort data submission templates (repository where scientific data and metadata will be archived) and preserved within the ImmPort record associated with the scientific data. Any documentation or other relevant data required to interpret the scientific data will be associated via link or attached file within the ImmPort record.

Element 2: Related Tools, Software and/or Code:

State whether specialized tools, software, and/or code are needed to access or manipulate shared scientific data, and if so, provide the name(s) of the needed tool(s) and software and specify how they can be accessed.

ImmPort Comments:

Form OMB No. 0925-0001 and 0925-0002 (Rev. 07/2022) with ImmPort Content

- ImmPort supports the preservation of applicable links and attached files which are preserved along with the scientific data in the associated ImmPort record

Element 3: Standards:

State what common data standards will be applied to the scientific data and associated metadata to enable interoperability of datasets and resources, and provide the name(s) of the data standards that will be applied and describe how these data standards will be applied to the scientific data generated by the research proposed in this project. If applicable, indicate that no consensus standards exist.

ImmPort Comments:

- ImmPort utilizes multiple data standards and ontologies within the [data model](#) to enhance interoperability and reusability of scientific data
- Researchers are also encouraged to format their data in accordance with other applicable data standards specific to their research or scientific data type

ImmPort Example Text:

The following data standards and ontologies within the ImmPort data model will be used wherever possible to enhance the reusability and interoperability of scientific data: Cell Ontology (CO), Clinical Data Interchange Standards Consortium Study Data Tabulation Model (CDISC SDTM), Clinical Measurement Ontology (CMO), Disease Ontology (DO), Gene Ontology (GO), Human Immunology Project Consortium (HIPC), Human Phenotype Ontology (HPO), Immuno Polymorphism Database-ImmunoGeneTics/Human Leukocyte Antigen Database (IPD-IMGT/HLA), Medical Dictionary for Regulatory Activities (MedDRA), National Cancer Institute Thesaurus (NCIT), National Center for Biotechnology Information (NCBI) Taxonomy, Ontology for Biomedical Investigations (OBI), Protein Ontology (PRO), Uber-Anatomy Ontology (Uberon), and Vaccine Ontology (VO).

Element 4: Data Preservation, Access, and Associated Timelines

A. Repository where scientific data and metadata will be archived:

Provide the name of the repository(ies) where scientific data and metadata arising from the project will be archived; see [Selecting a Data Repository](#).

ImmPort Example Text:

Data resulting from this research will be shared via the Immunology Database and Analysis Portal (ImmPort), a NIH-supported domain-specific repository.

B. How scientific data will be findable and identifiable:

Describe how the scientific data will be findable and identifiable, i.e., via a persistent unique identifier or other standard indexing tools.

ImmPort Example Text:

The ImmPort repository provides standardized metadata, assigns unique persistent identifiers (DOIs), and follows FAIR data principles to ensure data is findable and identifiable for long-term access. Additionally, ImmPort integrates with PubMed and NCBI via LinkOut records and supports linkage to applicable related data within other repositories for enhanced findability. The ImmPort repository is supported by NIH and datasets are available via free registration upon acceptance of the Data Use Agreement.

C. When and how long the scientific data will be made available:

Describe when the scientific data will be made available to other users (i.e., no later than time of an associated publication or end of the performance period, whichever comes first) and for how long data will be available.

ImmPort Example Text:

Data will be shared as soon as possible and will be deposited in ImmPort prior to submission of a manuscript for publication or before performance end, whichever comes first, to allow time for curation

Form OMB No. 0925-0001 and 0925-0002 (Rev. 07/2022) with ImmPort Content

and sharing in alignment with publication and performance timelines. ImmPort is a CoreTrust Seal certified repository and employs best practices for long-term preservation and persistence of data.

Element 5: Access, Distribution, or Reuse Considerations

A. Factors affecting subsequent access, distribution, or reuse of scientific data:

NIH expects that in drafting Plans, researchers maximize the appropriate sharing of scientific data. Describe and justify any applicable factors or data use limitations affecting subsequent access, distribution, or reuse of scientific data related to informed consent, privacy and confidentiality protections, and any other considerations that may limit the extent of data sharing. See [Frequently Asked Questions](#) for examples of justifiable reasons for limiting sharing of data.

ImmPort Comments:

- ImmPort does not receive HIPAA designated content or protected genetic data
- All human subject data should be de-identified in accordance with federal, state, local, and any university-specific regulations prior to submitting to ImmPort
- ImmPort templates and processes are designed to accept only de-identified human subject data
- Users of ImmPort are required to register and agree to a [Data Use Agreement](#) prior to uploading or downloading shared data

B. Whether access to scientific data will be controlled:

State whether access to the scientific data will be controlled (i.e., made available by a data repository only after approval).

ImmPort Comments:

- ImmPort shared data sets are available for users to download after a free registration process and agreement to the Data Use Agreement
- Please contact ImmPort_Helpdesk@immport.org if you have controlled access requirements

C. Protections for privacy, rights, and confidentiality of human research participants:

If generating scientific data derived from humans, describe how the privacy, rights, and confidentiality of human research participants will be protected (e.g., through de-identification, Certificates of Confidentiality, and other protective measures).

ImmPort Comments:

- ImmPort does not receive HIPAA designated content or protected genetic data
- ImmPort only accepts de-identified human subject data

Element 6: Oversight of Data Management and Sharing:

Describe how compliance with this Plan will be monitored and managed, frequency of oversight, and by whom at your institution (e.g., titles, roles).

ImmPort Comments:

- ImmPort provides private workspaces in an access controlled environment for data upload
- Researchers may request access for others within their team or institution to support data upload or monitoring of activity within the private workspace

https://docs.immport.org/documents/dmsp/ImmPort_Data_Management_and_Sharing_Plan_Template_v1.pdf

New ImmPort Data Submission Documentation

The screenshot shows the ImmPort Documentation website. On the left, three orange callout boxes point to specific sections of the documentation:

- Overview** points to the **Data Submission** section in the left sidebar.
- Step by Step Process Guide** points to the **Data Submission Process Guide** link in the left sidebar.
- Study Registration Wizard Tutorial & FAQ** points to the **Template Documentation** link in the left sidebar.

The main content area displays the **Data Submission Introduction** page. It includes a navigation bar at the top with links: Home, API Documentation, File Download Tool, DMS Plan Resources, **Data Submission**, Tutorials, Help, and System Documentation. Below the navigation bar, a banner reads: "2023 Q1 Software Release - Multi-Factor Authentication for private data access - Please review the [release notes](#)".

The **Data Submission Introduction** page contains the following text:

Data Submission Introduction

This page reviews the background information needed to submit data, and an overview of the steps to complete the process.

The major steps in the data submission process are as follows:

```
graph LR; A[Create an ImmPort Account] --> B[Access a Workspace]; B --> C[Register a New Study]; C --> D[Complete, Validate, And Upload Data]; D --> E[Share Study In Data Release]
```

For details on each data submission step, please see: [Data Submission Process Guide](#)

Data Submission is a step in the overall process of data curation and sharing in ImmPort. The goal of submitting data through ImmPort is to publicly share the data and help advance scientific discovery in the immunology research community.

For additional questions on Data Submission, please contact the ImmPort team: ImmPort_Helpdesk@import.org

What is an ImmPort Study?

A study is a collection of data generated based on a research or clinical study protocol. A study may be focused on data referenced in a manuscript and should be sufficient for the data consumer to fully understand the conclusions presented in the manuscript and conduct a reanalysis.

<https://docs.import.org/datasubmission/general/>

ImmPort Webinar Slide & Recording Archive

Webinars

- December 2022 - **Topic: DMSP - ImmPort Data Submission**

Materials used during the webinar presentation are located below:

- Selecting ImmPort for Open-access Immunological Data Sharing: Data Management & Sharing Plan and Data Submission Highlights. Slides:  Video: 

- August 2022 - **Topic: ImmPort Tutorials and Resources for Data Analysis**

Materials used during the webinar presentation are located below:

- ImmPort Resources and Tutorials: An Introduction to Leveraging ImmPort Shared Data 
- ImmPort Data Resources and Tutorials 

<https://docs.immport.org/home/webinars/>

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<https://www.linkedin.com/company/import/>

Questions? Contact ImmPort_Helpdesk@import.org

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**Data
Providers!**