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# INSTITUT COCHIN ENTITY DMP - CYBIO Core Facility

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# INSTITUT COCHIN ENTITY DMP - CYBIO

*Plan de gestion de données créé à l'aide de DMP OPIDoR, basé sur le modèle "Science Europe: structured template for research entities" fourni par DMP OPIDoR.*

## Plan Details

<b>Plan title</b>	INSTITUT COCHIN ENTITY DMP - CYBIO				
<b>Deliverable</b>					
<b>Version</b>	First version				
<b>Plan purpose/scope</b>	<p>The aim of this DMP is to describe as precisely as possible the various research products produced by the services offered by the core facility. This DMP is part of a wider framework, that of making available all the DMPs of the 9 Institut Cochin core facilities (MOUSET'IC, PROTEOM'IC, PIV, PIME, METABOL'IC, CYBIO, IMAG'IC, GENOM'IC and HISTIM) as well as the DMP of the CID database dedicated to the transfer, storage, consultation and sometimes processing of most of the data produced by the Institut Cochin's core facilities.</p> <p>The purpose of this DMP entity is to provide drafting assistance for researchers wishing to draw up a DMP for their research projects and wishing to call on the expertise of our core facilities.</p>				
<b>Fields of science and technology (from OECD classification)</b>	1.6 Biological sciences				
<b>Language</b>	eng				
<b>Creation date</b>	2024-07-18				
<b>Last modification date</b>	2024-09-12				
<b>Identifier</b>					
<b>Identifier type</b>	DOI				
<b>License</b>	<table><tr><td><b>Name</b></td><td>Creative Commons Attribution 4.0 International</td></tr><tr><td><b>URL</b></td><td><a href="http://spdx.org/licenses/CC-BY-4.0.json">http://spdx.org/licenses/CC-BY-4.0.json</a></td></tr></table>	<b>Name</b>	Creative Commons Attribution 4.0 International	<b>URL</b>	<a href="http://spdx.org/licenses/CC-BY-4.0.json">http://spdx.org/licenses/CC-BY-4.0.json</a>
<b>Name</b>	Creative Commons Attribution 4.0 International				
<b>URL</b>	<a href="http://spdx.org/licenses/CC-BY-4.0.json">http://spdx.org/licenses/CC-BY-4.0.json</a>				

## Structure Details

<b>Entity's name</b>	Institut Cochin Core Facility - CYBIO
<b>Acronym</b>	CYBIO
<b>Identifier</b>	<a href="https://institutcochin.fr/plateformes/cybio">https://institutcochin.fr/plateformes/cybio</a>
<b>Identifier type</b>	URL
<b>Description</b>	<p>Specialising in flow cytometry and cellular immunology, the CYBIO platform provides equipment and develops, optimises and offers various tests for cellular analysis, in particular those dedicated to monitoring the cellular immune response.</p> <p>The cell analysis equipment available is mainly flow cytometers (7 analysers, including 2 spectral analysers, 3 sorters) but also a Bioplex 200 (Luminex), an MSD Quickplex station and a Simoa HD-1 (Quanterix).</p> <p>As a service provider, the platform develops and carries out biomarker assays (Luminex / MSD / Quanterix) and cell sorting.</p> <p>It can also take charge of entire immunobiology projects.</p> <p>The platform has been ISO 9001 certified since 2012 and NFX500 certified since 2023. It has been one of the platforms listed by the Cancéropole IDF since 2015.</p> <p>In 2023, 46 teams inside and outside the institute used our services (208 users) in 33 internal teams and 13 external teams (including 2 private companies). 5013 hours of analysing cytometers, 1095 hours of sorting and 6 biomarker projects (250 plates) were carried out in 2023.</p>

**Creation date** 2009-01-01

**Research outputs :**

1. FCS files (Text)

**Contributors**

Name	Affiliation	Roles
Andrieu Muriel - 0000-0003-0170-2250	Institut Cochin - 051sk4035	<ul style="list-style-type: none"> <li>• Contact Person</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's Manager</li> <li>• Entity's manager</li> </ul>
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# INSTITUT COCHIN ENTITY DMP - CYBIO

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## Data description and collection or re-use of existing data

### Research output description

<b>Name</b>	FCS files
<b>Description</b>	<p>An .FCS file (Flow Cytometry Standard) is a file format used in flow cytometry to store data resulting from cell analyses.</p> <p>These files contain information about the physical characteristics of the cells, such as size, granularity, and the intensity of fluorescent markers.</p> <p>An .FCS file includes several key elements:</p> <p>Header: Metadata about the experiment, such as the number of measured parameters and the identifiers of the instruments.</p> <p>Data: The measured values for each cell, often in the form of coordinates in a multidimensional space.</p> <p>Text: Additional textual information regarding the sample or analysis.</p>
<b>Type</b>	Text
<b>Workpackage</b>	
<b>Keywords (free-text)</b>	cytometry
<b>Language</b>	eng
<b>Issued Date</b>	
<b>Persistent identifier</b>	
<b>May contain personal data?</b>	No
<b>May contain sensible data?</b>	No
<b>May take ethical issues into account?</b>	Yes

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### Will existing data be reused?

<b>Justification</b>	Yes, the data can be reused within the context of a research project or for making the data available to the international community.
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### How new data will be collected or produced?

<b>Name of the method</b>	Flow Cytometry
<b>Description</b>	<p>Flow cytometry is a powerful technique used to analyze the physical characteristics of suspended cells. Here are the main steps in the collection and acquisition of data in flow cytometry:</p> <ol style="list-style-type: none"> <li>1. Sample Preparation <p>Cell Collection: Cells can be obtained from various tissues, cell cultures, or biological samples.</p> <p>Cell Detachment: If necessary, adherent cells must be detached using enzymes or specific solutions.</p> <p>Labeling: Cells are typically labeled with fluorochromes, which bind to molecules of interest (such as specific antibodies) to enable detection.</p> </li> <li>2. Sample Dilution <p>The sample must be diluted to prevent aggregation and ensure that cells pass through the laser beam one by one.</p> </li> <li>3. Sample Loading <p>The diluted sample is introduced into the flow cytometer via a sample tube.</p> </li> <li>4. Analysis in the Flow Cytometer <p>Passage through the Laser Beam: Cells pass through a laser beam. Fluorochromes emit light when excited by the laser.</p> <p>Signal Detection: Detectors capture the emitted and scattered light from the cells. The signals are converted into digital data.</p> </li> <li>5. Data Acquisition <p>The raw data collected includes information on the size, complexity, and fluorescence intensity of the cells.</p> <p>Associated software analyzes this data and converts it into histograms and dot plots.</p> </li> <li>6. Result Analysis <p>The acquired data is interpreted to determine cellular characteristics, such as cell population, marker expression, and other relevant parameters.</p> <p>Statistical methods and visualization tools may be used to interpret the data.</p> </li> <li>7. Validation and Control <p>Appropriate controls (for example, unlabeled cells, isotype antibodies) must be included to validate the results.</p> <p>Flow cytometry is used in various fields, including biomedical research, immunology, and clinical medicine, due to its ability to provide detailed information about complex cell populations.</p> </li> </ol>
<b>Data Nature</b>	Experimental Data
<b>Equipments, technical platforms used</b>	<ul style="list-style-type: none"> <li>• CYBIO : <a href="https://cat.opidor.fr/index.php/CYBIO">https://cat.opidor.fr/index.php/CYBIO</a></li> </ul>
<b>Related references</b>	<ul style="list-style-type: none"> <li>• Proposed New Data File Standard for Flow Cytometry, Version FCS 3.0 : FCS files</li> <li>• Data File Standard for Flow Cytometry, Version FCS 3.1 : FCS files</li> </ul>

## Documentation and data quality

**What metadata and documentation (for example way of organising data) will accompany the data?**

**Description**

FCS file format is a dedicated format that include all the acquisition settings usefull to the reproducibility of the experiments.  
Each user has to log on the acquisition computers and create its own folder inside a dedicated folder tree.

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**What methods will be used to ensure their scientific quality?****Description**

We carry out quality checks on all the equipment on the platform in order to monitor the performance of our instruments.  
The aim is to ensure that the system is fully operational (lasers switched on, PMTs working). The aim is to identify and correct any equipment drift.

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**Legal and ethical requirements, codes of conduct****How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?****Description**

All the generated Data belong to the users.

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**What ethical issues and codes of conduct are there, and how will they be taken into account?****Description**

none

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**Data processing and analysis****How and with what resources will the data be processed / analyzed?****Description**

Many different softwares are used to generate and process data, sometime on the fly: DIVA, Spectroflo, Attune software, FlowJo, Omiq, scripts for unsupervised analysis.

**Equipments, technical platforms**

- CYBIO : <https://cat.opidor.fr/index.php/CYBIO>
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## Storage and backup during the research process

### How will data be stored and backed up during the research?

<b>Storage needs</b>	<p>1 - On Aurora and Attune, users must back up their data after acquisition using their Cochin CID database account. Maintenance data and daily quality control data of the cytometer are stored on the acquisition computer.</p> <p>2 - On LSR II, Fortessa and Aria, data are stored on the acquisition computer main disk at the end of the acquisition. Every month, they are backed up by the core facility onto the external LaCie hard drive and deleted from the acquisition computer main disk . They are stored on the LaCie hard drive for 3 months, then deleted.</p> <p>In parallel, immediately after' acquisition, users can export their data onto the external LaCie hard drive, or personnel USB stick.</p> <p>Maintenance data, daily and trimestrial quality control data of the cytometers are save after acquisition on the acquisition computer main disk, backed up every month by the core facility onto the external LaCie hard drive and transfered on a local network drive for long term storage or on the CID</p> <p>The core facility disclaims any responsibility in the event of loss.</p> <p>Storage requirements are indicated for an average year of data generation.</p>
<b>Estimated volume of data</b>	1
<b>Unit</b>	TB
<b>Equipments, technical platforms</b>	<ul style="list-style-type: none"><li>• CID : <a href="https://cat.opidor.fr/index.php/CID">https://cat.opidor.fr/index.php/CID</a></li></ul>
<b>Measures taken for data security</b>	Login and password access.

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## Data sharing and long-term preservation

### How will data be shared?

<b>Modalities of sharing</b>	<p>Files are shared to the users by local network copy, or online sharing storage (FileSender).</p> <p>Data are also shared via CID database (see the CID DMP).</p>
<b>Reusability</b>	Reuse possibility for reproducibility purpose.

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### How will data be long-term preserved? Which data?



**Justification**

Quality control data are saved on local network or on the CID.  
If a collaboration is set up, the data are saved on local network or on the CID.

**Start date****End date****Final dispositions**