
Internal Policy No. 71

Open Science and Open Access

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Section 1 – Background and Purpose

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- 1.1. Article II (1) of the EMBL Agreement mandates the EMBL with the promotion of cooperation among European States in fundamental research, in the development of advanced instrumentation and in advanced teaching in molecular biology, as well as in other areas of research essentially related thereto, and shall concentrate its activities on work not normally or easily carried out in national institutions. To this end, the EMBL shall publish or otherwise make generally available the results of its experimental and theoretical work.
- 1.2. In order to achieve this goal, the Internal Policy No. 71 on Open Science and Open Access (“Internal Policy”) aims to: maximise the openness of outputs of EMBL’s research, services and technology development; support open research by the scientific community at large, and; make the assessment and reporting of science outcomes more accurate and transparent.
- 1.3. For the purpose of this Internal Policy, the expression “Open Science” refers to a statement of aspiration to move research to a state of being more trustworthy, more transparent, and more inclusive. There is wide agreement that open science leads to better quality research and, likely, to more efficient and more reliable research. “Open” approaches allow for low barriers to sharing and re-use of data and other information, which is deemed an important step in consolidating and amplifying investments from funders. Importantly, a package of open science mechanisms should allow better progress from basic research to useful applications.
- 1.4. EMBL has a special institutional role. As a source of cutting-edge research and world class services, EMBL already has the deserved reputation for supporting and advocating for excellent science and good practices in research. As part of this leadership, it is essential that the institute supports its staff in adopting practices to support responsible research. Open science practices fall in that category, and EMBL is committed to promulgating open science, not just as a value in and of itself, but as part of carrying out the best research and providing the most influential services for global use.
- 1.5. For the purposes of this policy, open science refers to:
 - (a) The public availability of research outputs to support transparency and quality of EMBL-funded research and services;
 - (b) The adoption of best practices for research assessment based on the merits of the research;

- (c) The adoption of best practices that support the full and unambiguous attribution of credit for EMBL outputs to: individuals (i.e. staff); EMBL as a research-performing organisation, and; EMBL scientific facilities and funding organisations.

Section 2 – Implementation

- 2.1. The EMBL will develop Guidelines for the purpose of implementing this Internal Policy (“the Implementation Guidelines”).
- 2.2. Pending the promulgation of the Implementation Guidelines, Internal Policy No. 51 on EMBL Rules of Good Scientific Practices, Internal Policy No. 63 on EMBL Publication Policy and Internal Policy No. 66 on EMBL Open Access Policy provide the applicable framework for the implementation of this Internal Policy, and the pre-existing policies shall be read and interpreted in light of this Internal Policy. In case of any discrepancy with the aforementioned pre-existing Internal Policies, this Internal Policy shall prevail.

Section 3 – Availability of Research Output and Publications

- 3.1. EMBL expects all outputs of research and all aspects of service development funded by EMBL to be made openly available without delay. This refers to research articles, data, software, hardware designs, reagents, protocols and similar outputs.
- 3.2. This Internal Policy applies to all publications issued from the promulgation date of this Internal Policy and that have been supported by EMBL:
- (a) For all publications that EMBL contributes to as an author, we expect the relevant members of personnel involved in the publications to make co-authors aware of this Internal Policy. Regardless of where the article is published and the licence assigned, all author accepted manuscripts should be deposited in Europe PMC [<https://europepmc.org>] within a maximum of six months from the earliest date of publication.
 - (b) Publications for which EMBL is the lead author/organisation should, in addition, be published with a CC-BY [<https://creativecommons.org/licenses/by/4.0/>] license and are made freely available on publication.
- 3.3. Publications should initially be made available as preprints. Possible exceptions are regulated in Section 11.

Section 4 – Authorship

- 4.1. An author is an individual who has made substantial intellectual contributions to a scientific investigation, and is willing to take their appropriate share of responsibility for the correctness and scientific quality of the work, the open publication of all the related research outputs, and ensuring that questions related to accuracy or integrity of the work are appropriately investigated and resolved.
- 4.2. Research teams should discuss authorship matters as early as possible in the course of their work together. The process for assigning authorship should be clear. The Implementation Guidelines to this Internal Policy will provide guidance on how to assign authorship.

Section 5 – Open Data

- 5.1. EMBL expects all data behind research articles to be made public and to adhere to the FAIR principles (Findability, Accessibility, Interoperability, and Reuse of digital assets) (<https://www.go-fair.org/fair-principles> or DOI 10.1038/sdata.2016.18).
- 5.2. Full/raw datasets, along with the appropriate metadata, should be published (rather than, e.g., only parts of data selected for discussion in the publication). Typically, data pipelines include various levels of processing, so the specification of ‘full/raw’ should reflect the current community best practice.
- 5.3. Data should be deposited in the appropriate thematic (community) database as a top priority. If no appropriate community database exists then a general database (such as BioStudies) may be used. Use of supplemental files in an article is discouraged.
- 5.4. EMBL encourages the publishing of datasets that are not accompanied by a research article when the dataset has the potential for reuse.
- 5.5. EMBL requires that all projects have a data management plan. This includes any work that is funded by grants, or is part of the PhD and postdoctoral projects, or is intended to support a scientific article.
- 5.6. The above principles even apply to data for which there are access controls imposed by regulation, or for ethical reasons. The principle of “as open as possible, as closed as necessary” applies.
- 5.7. EMBL considers itself a custodian of the data produced at its facilities, which implies the expectation that users of our infrastructure - EMBL or external users - will make the raw data publicly available, in alignment with EMBL and other funders’ policies.
- 5.8. The Implementation Guidelines will provide further details on the open data policy.

Section 6 – Software

6.1. The types of software covered by this Internal Policy are as follows:

- (a) Code that is needed to reproduce a specific data analysis result (or demonstrate a method) reported in a scientific paper, ranging from small projects to big consortium papers. The objective of making open this type of software is primarily transparency and reusability is a secondary consideration;
- (b) Software that supports EMBL services (e.g., the code behind BioStudies) or processes data generated at EMBL facilities. The objective of making open this type of software is primarily transparency and reusability is a secondary consideration;
- (c) Broad purpose tools and methods. The objective of making this type of software open is primarily reusability.
- (d) Code that is part of training material and is not in Categories a-c (e.g., exercises used in teaching courses, or exemplary client-side workflows for using EBI services).

6.2. EMBL expects all of the above types of software to be Open Source by default in both services and research, and made available in open/community software repositories.

6.3. The above does not apply to transient scripts that remain private and do not support publicly available data or protocols.

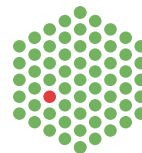
6.4. Details on implementation and EMBL support for the open software policy can be found in the Implementation Guidelines.

Section 7 – Research Assessment

7.1. EMBL is a signatory of the San Francisco Declaration on Research Assessment (DORA), which aims to challenge the role played by journal-level metrics, especially the Journal Impact Factor (JIF), as the main criteria for evaluating researchers. DORA implies measures and recommendations that are more apt in providing a fair and transparent assessment of research quality.

7.2. Members of personnel involved in recruitment and career development at EMBL or elsewhere (i.e. when acting as an external panel member at another institution), or on grant review panels, when assessing researchers, shall:

- (a) be explicit about the criteria used to evaluate scientific productivity, and clearly highlight that the scientific content of a paper is more important than publication metrics of the journal in which it is published;
- (b) recognise the value and impact of all research outputs (for example datasets and software) in addition to research publications and consider other types of contributions, such as training early-career researchers, or influencing policy and practice.



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- 7.3. Journal-level metrics shall not be relied upon as a proxy for excellence (e.g., assume one paper is better than another because it is published in a journal with a higher journal impact factor).
 - 7.4. Publication records shall be considered in conjunction with research statements and other indicators, such as software, data, preprints and/or peer review contributions.
 - 7.5. For EMBL internal promotion processes specifically, adherence with this Internal Policy shall also be taken into consideration.
 - 7.6. The practices in this Section are applicable to the recruitment process, promotion and other decisions on career advancement. The practices shall be reflected in job advertisements and other documents setting criteria for the assessment processes.

Section 8 – Attribution of Credit

- 8.1. The EMBL affiliation must be used for all works carried out when an individual is a member of personnel of EMBL, independently of whether the publication date is within the timescale of their employment at EMBL. All published works need to be approved by the relevant Group or Team Leader.
- 8.2. The EMBL affiliation must not be used for work not endorsed by EMBL.
- 8.3. EMBL affiliations should be represented consistently, as outlined in the Implementation Guidelines.
- 8.4. Co-authors of EMBL works should be appropriately acknowledged when those works are cited elsewhere (for example, in grant applications).

Section 9 – Use of ORCIDs

- 9.1. An ORCID ID is a persistent digital identifier and community standard to identify a researcher and distinguish them from every other researcher. ORCID is a not-for-profit global organisation that maintains the core ORCID infrastructure, but each ORCID record is maintained by the individual researcher. Publications and other scientific outputs can be linked to the researcher in an unequivocal way via the ORCID. ORCID IDs are used by EMBL to track and document its research outputs.
- 9.2. All staff who publish works (for example, papers, data, software) are required to:
 - (a) get an ORCID; and
 - (b) ensure their ORCID record is open/public and is updated at least annually with article publications, and preferably also data and software.

Section 10 – Acknowledgement of Funding Support

- 10.1. All funding and other types of support should be acknowledged in line with funders' or providers' requirements in the Acknowledgement section of publications.
- 10.2. Common sources of funding or support include:
- (a) EMBL;
 - (b) Specific EMBL core facilities, including IT, that provided substantial support. Funding received by the facility must also be included, as per their guidance;
 - (c) External funding (grants, industry) needs to be acknowledged as detailed in funders' terms and conditions and/or funding agreements.

Section 11 – Derogations

- 11.1. The Director General can authorize derogations to the rules in this Internal Policy, on a case-by-case basis, on request. The process for derogations is outlined in the Implementation Guidelines.
- 11.2. Criteria for derogations may include, for example, security issues, a business case, or legacy code. Derogations will typically be time-limited and re-evaluated periodically, as appropriate to the particular context of the derogation in question.
- 11.3. Derogations are explicit and must be clearly identified as such by reference to this Internal Policy. Their exact scope must be specifically defined. They cannot be implicit. A derogation needs to have been formally authorised under the provisions of this section prior to the derogatory actions being taken.

Section 12 – Enforcement

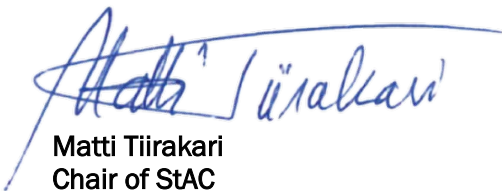
- 12.1. The matters covered in this Internal Policy are of central importance to EMBL's mission, good standing, and the future careers of EMBL employees.
- 12.2. All members of personnel are required to comply with this Internal Policy in carrying out their duties for EMBL.
- 12.3. EMBL personnel found to have violated this Policy may be subject to disciplinary action.
- 12.4. Compliance with this Internal Policy is also considered as part of the assessment of EMBL members of personnel's performance.

Section 13 – Final Provision

13.1. This Internal Policy enters into force on the day of its promulgation. It shall be posted on the EMBL intranet.

Date and signatures

Endorsed by



Matti Tiirakari
Chair of StAC

Date: 02.12.2021



María Cerezo
Vice-Chair of StAC

Date: 30/11/2021

Approved by



Edith Heard, FRS
Director General

Date: 03/12/2021