

Maintain open, free and fair access to DSI to harness technological innovation for new solutions to global challenges

We, the undersigned, ask negotiators at COP 16 in October 2024:

Please support that open, free and fair access to Digital Sequence Information (DSI) is maintained. We fully support the principle that DSI users should share benefits. However, the mechanism to share benefits must be obligatory, enable open science principles and be legally and technically practical. Therefore, we call for a multilateral and decoupled DSI benefit-sharing system. This means no payments at the point of access to DSI-data nor mandatory registration of users. The multilateral mechanism should also allow and bring visibility to non-monetary benefit sharing from scientific research. We also ask you to support cross-sectoral, harmonized and therefore future-proofed approaches.

I. Why is the open, free and unrestricted access to DSI needed?

It is essential to research and promote solutions to shared global challenges, such as:

- **Environmental monitoring and invasive species**
DSI are necessary to implement the Kunming-Montreal Global Biodiversity Framework including the detection and monitoring of complex ecosystems, invasive species, wildlife trade and genetic diversity within populations (Goal A, Target A.5, indicator A.1.1.48; Target 3-6; Goal B, indicator B.1.1.1), and to achieve the UN Sustainable Development Goals (SDGs).
- **One Health**
Particularly in the transdisciplinary One Health area, rapid data exchange across all sectors - animals, humans and the environment. Open and free access to DSI is essential and necessary. Free-flowing DSI is the only way to ensure efficient early detection of pathogens on regional and global levels in order to trigger effective sanitary, animal and plant health measures.
- **Future therapies**
The detailed comparison of many DSI, e.g. within global archives, forms the basis for discovering novel biological compounds in the sea, on land and in water, which in turn can serve as a basis for new medications and vaccines.
- **Climate change and nutrition**
DSI makes it possible to assess and mitigate the consequences of climate change effects. For example, DSI is key in the breeding of resilient plants that can withstand climate change and effects such as heat extremes or drought conditions. DSI is also widely used in research and development of measures to ensure long-term soil fertility and food security. DSI is similarly used to design nutritionally optimized foods and ingredients (including functional foods).
- **Bioeconomy**
DSI is a core tool to promote new approaches to bio-based and circular economies. For example, DSI promotes the development and establishment of biocatalysts and new functional biomaterials.

II. How should DSI be handled?

Open, free and unrestricted access to DSI must be maintained. The possible regulation of access to DSI is still being discussed internationally. From a scientific perspective, the design of a mechanism for benefit sharing that is mandatory, practicable and open for all users is essential. The mechanism must function independently of national legislation.

The DSI multilateral mechanism, which allows the development of solutions to these existing global challenges and basic research, must fulfill four principles:

- **Multilateral and decoupled**

DSI refer to universal building blocks of life that cannot be assigned exclusively to any nation or state. A multilateral and decoupled approach must be pursued for globally accessible, collaborative and equitable science¹. This means that benefit sharing, to which the signatories are explicitly committed, must remain decoupled from access to DSI. This approach allows benefits to be shared (both monetary and non-monetary), regardless of the origin or source of the data. This is critical for the achievement of the UN SDGs.

- **Open and free access and use**

To ensure maximum scientific output, access to and use of DSI must be open and free. The prerequisites for this are: (i) no payment for access and (ii) no mandatory registration of users for access. These requirements ensure maximum data flow and interoperability between thousands of databases.

- **Mandatory benefit sharing**

There is no question that all DSI users must share benefits. The forms of benefit sharing, however, vary. Science is and will continue to share non-monetary benefits, via international research collaboration, training, capacity building and technology transfer. Commercial use of DSI for-profit should trigger monetary benefit sharing, handled through a global fund.

- **Cross-sectoral, harmonized and future-proof**

DSI is currently the subject of various parallel international negotiation processes (within the framework of CBD, FAO/ITGRFA, BBNJ, WHO CA+) with very different actors and regulatory models. In order to leverage the potential of DSI, a cross-sectoral, harmonized approach to DSI is required at the international level. Open scientific knowledge, open science infrastructures, open engagement of societal actors and an open dialogue with other knowledge systems are key pillars of the UN Open Science approach². A future-oriented, existing, harmonized, decoupled approach for handling obligations resulting from DSI usage under instruments of the CBD, NP, FAO/ITGFRA, BBNJ or WHO is outlined in the EU guidelines.³

The implementation of these four principles is crucial for scientific discoveries and technological innovations to solve global problems globally across all knowledge cultures. In

¹ UNESCO Recommendation on Open Science (<https://www.unesco.org/en/open-science/about?hub=686>)

² Adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) at its 41st session in Paris, from 9 to 24 November 2021 (<https://unesdoc.unesco.org/ark:/48223/pf0000381148>)

³ [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021XC0112\(02\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021XC0112(02))

contrast, restricting the open and free use of DSI hinders innovation and scientific collaboration to create concrete solutions to urgent global challenges at regional, national and global level.

We thank you for your attention and are available to discuss further matters at any time.

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	<p>EMBL-EBI - European Molecular Biology Laboratory - European Bioinformatics Institute</p>	<p>Guy Cochrane</p>	<p>Joint Head of European Nucleotide Archive (ENA)</p>	<p>https://www.ebi.ac.uk/</p>
	<p>EPSO - European Plant Science Organisation</p>	<p>Dr Karin Metzloff</p>	<p>Executive Director</p>	<p>https://epsoweb.org/</p>
	<p>FEMS - Federation of European Microbiological Societies</p>	<p>Dr Antonio Ventosa</p>	<p>FEMS President</p>	<p>https://fems-microbiology.org/</p>
	<p>GBC - Global Biodata Coalition</p>	<p>Chuck Cook</p>	<p>Program Manager</p>	<p>https://globalbiodata.org/</p>
	<p>IUMS - International Union of Microbiological Societies</p>	<p>Rino Rappuoli</p>	<p>President</p>	<p>https://iums.org/</p>
	<p>MNHN - Muséum National d'Histoire Naturelle</p>	<p>Dr Gilles Bloch</p>	<p>President</p>	<p>www.mnhn.fr</p>