Elizabeth Maruma Mrema
Executive Secretary, UN Assistant Secretary-General
Secretariat of the Convention on Biological Diversity
413, Saint Jacques Street, suite 800
Montreal QC H2Y 1N9
Canada
Via e-Mail secretariat@cbd.int

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Joint submission of views on document CBD/WG2020/3/4 "Digital sequence information on genetic resources"

Dear Executive Secretary Elizabeth Maruma Mrema,

We appreciate the opportunity to submit views and relevant information on DSI policy options and modalities. We are also appreciative of the Secretariat's consideration of our scientific expertise and previous contributions to this dialogue, such as, in the 2020 AHTEG on DSI (page 3, section B), the combined study on traceability and databases (CBD/AHTEG/DSI/2020/1/4, page 4, 16(a)), webinar series (see CBD/WG2020/3/4, page 4; III, 18-21), and online dialogue (page 4, III, 22-23).

In this context, we would like to draw your attention to the attached open letter from over 400 European scientists that support multilateral benefit-sharing approaches for DSI that safeguard open access. This letter resulted from two bottom-up workshops in May and June 2021 that brought together DSI and ABS experts and users. It provides constructive input on finding compromise and common ground that will enable benefit-sharing without damaging the scientific ecosystem that is so desperately needed to fulfill the goals of the Global Biodiversity Framework.

Also, as requested, we provide comments on CBD/WG2020/3/4 in section "IV. Elements of a recommendation", and Annex III "Summary points on the online discussion on Digital Sequence Information on Genetic Resources" that build on or relate to this letter.

With regard to the Elements of Recommendation on page 5, item 26, we believe it is an accurate reflection of the informal DSI dialogue to place a strong emphasis open access to DSI via openly access databases has for scientists worldwide. We strongly concur "that any approach to address DSI should not prevent access to digital sequence information or significantly hinder scientific research and innovation" (page 5; 27 (a)). We are concerned that, despite this recognition and broad support amongst parties and stakeholder, points 7 and 10 in the "Co-leads summary of the discussion of the Contact Group"[1] are contradictory and seem to regress on this area of convergence. We call for continued and integrated scientific expertise in the informal process to clarify how any regulatory elements could potentially be implemented without harming scientific integrity and reproducibility as well as generation and delivery of essential data, e.g., for biodiversity, conservation and public health.

This means if both, benefit sharing of commercial AND non-commercial users of DSI should be handled likewise through the proposed policy options, the proposed criteria need to be applicable for all sectors that use DSI.

We agree that DSI should be shared fairly and equitably by all users of DSI (page 5; 27 (b)). But, to be effective, this requires that "benefit-sharing" be decoupled from "access" to DSI. Otherwise the administrative costs for setting up and maintain respective systems will inevitably consume large parts of the envisaged monetary benefits. We think that quantification of shared benefits and increased visibility throughout the new indicators will promote the sharing of non-monetary and monetary benefits including for DSI.

DSI is of central importance to support the goals of the CBD and for the forthcoming post-2020 GBF monitoring. Scientific capacities and expertise needs to be increased, and it is worth noting that this point is explicitly referred to in section III, "Identification of Key Areas for Capacity building". The DSI study of Paul Oldham[2] commissioned by the EU is very clear that DSI is highly relevant for scientists (figure 11) and sequencing (figure 16-17) around the word. Moreover, the (i) top species of DSI datasets originate from model organisms (figure 2) and (ii) the geographic origin of the majority of DSI datasets is the US and China. The results of the combined study 2&3 on DSI databases and traceability also came to the same conclusions. This shows that the narrative of a North-South divide of DSI provision and use does not exist. This means: If a DSI mechanism focuses on individual DSI uses and transactionn than there will be many South-South users/uses that will need to be accounted for as well as south-using-North DSI where compliance will need to be considered.

We find it therefore encouraging that the importance of basic research in the sharing of non-monetary benefits for capacity-building is highlighted (page 5; item 27 (d)) and that there seems to

[1] https://www.cbd.int/doc/c/a7d7/f5cf/c99a6073666521fafe5b320b/wg2020-03-cg-05-report-en.pdf
[2] https://ec.europa.eu/environment/nature/biodiversity/international/abs/pdf/Final_Report_technical_aspects_of_DSI.pdf

be progress towards (i) de-coupled multilateral policy options (cf. draft document CBD/WG2020/3/CRP.1 of the OEWG3) and (ii) a check of possible modalities to improve the visibility of shared and delivered benefits (see page 5; 27 (c)). Although we are not yet able to support the proposal under item 16 (a) in CBD/WG2020/3/CRP.1 without more information and clarity, we appreciate this forward-looking attempt to explore how the sharing of benefits via de-coupled multilateral mechanisms can be created to support conservation and sustainable use of biodiversity while simultaneously enabling open science and research.

For queries and further information, we are happy to provide additional input.

Yours sincerely.

Prof. Dr. Thomas Borsch
Vice Speaker Consortium "German Scientific Research Collections" (DNFS)

Prof. Dr. Karl-Josef Dietz
President German Life Sciences Association (VBIO e. V.)

Prof. Dr. Jörg Overmann
Leibniz Research Network Biodiversity

Contact
- DNFS: Dirk Neumann(neumann@snsb.de)
- Leibniz Leibniz Research Network Biodiversity: Amber H. Scholz (amber.h.scholz@dsmz.de) & Nike Sommerwerk (Nike.Sommerwerk@mfn.berlin)
- German Life Sciences Association/VBIO: Kerstin Elbing (elbing@vbio.de)

ATTACHMENT:
Open Letter "Keep digital sequence information a common good" (July 2nd 2021)

Keep digital sequence information a common good

Summary: The EU scientific community supports de-coupled multilateral options for access and benefit-sharing from digital sequence information.

July 2, 2021

The political debate surrounding digital sequence information (DSI) on genetic resources under the Convention on Biological Diversity (CBD) has garnered immense interest and raised concern across the international scientific community. At the last CBD Conference of the Parties (COP 14), parties formally "agreed to resolve their differences" and, thus, with COP 15 set for October 2021, a decision on DSI and access and benefit-sharing (ABS) approaches.

Scientific perspectives on the evolving DSI policy discussions

Disrupting the flow of open DSI has the potential to not only severely hinder basic research and biodiversity conservation, but also innovation more broadly. This includes science and technology that addresses challenges in food security, health, biodiversity loss, and climate change worldwide, which could ultimately undermine progress on the Sustainable Development Goals (SDGs). What's at stake is best highlighted by the global SARS-CoV-2 pandemic: diagnostic kits within weeks of virus discovery, vaccines ten months later, and ongoing surveillance for variants, all possible thanks to rapid DNA sequencing and open DSI.

A number of initiatives have highlighted the concerns of the international scientific community and explained why DSI must remain openly accessible (see references). However, maintaining open access to DSI and benefit-sharing are not necessarily mutually exclusive and can even become reinforcing objectives. **Our recommendation to policymakers is to pursue multilateral options supplemented by international scientific cooperation:**

1. **Multilateral and decoupled.** Benefit-sharing for DSI must be multilateral rather than bilateral and decoupled from access to DSI. This significantly reduces the transaction costs that make bilateral options unworkable, maintains open access, and facilitates legal certainty. It is also an opportunity to redirect investment in regulatory compliance towards scientific capacity building. Additionally, opt-in mechanisms for genetic resources (GR) could be offered for countries wishing to simplify their current GR access procedures.
2. **Universal.** Biodiversity monitoring as well as many scientific questions can only be answered by analysing DSI from multiple countries or outside of national jurisdictions. From a scientific perspective, a "universal DSI solution" is needed which harmonizes ABS arrangements for DSI under the Convention on Biological Diversity and all other relevant international policy fora (terrestrial, marine, plant, pathogen, etc.). Coordination at the highest level is necessary to avoid excessive regulatory burden and create a level playing field for compliance.
3. **Existing infrastructure.** To be viable, policy options must synergize and work with the existing technical infrastructure (i.e., the International Nucleotide Sequence Database Collaboration, INSDC). Data must continue to flow and the amount and visibility of non-monetary benefit sharing needs to increase. The DSI "wheel" should not be re-invented.
4. **Biodiversity.** DSI policy must support biodiversity research and global biodiversity targets. DSI policy should incentivize rather than complicate the generation of

biodiversity data and directly support the goals of the post-2020 Global Biodiversity Framework (GBF) and the SDGs.

5. **Future-proof.** Because of the relentless pace with which DSI-based science evolves, any policy option for DSI must be sustainable, fit for purpose, and future-proof, meaning that it can evolve to meet technical requirements to 2050 and beyond.

The scientific community supports benefit-sharing from DSI

The ABS status quo can be improved to better align with the third objective of the CBD. Yet scientists are cautious after experiencing significant challenges in recent years during the implementation of the Nagoya Protocol (including EU Regulation 511/2014). The fragmented regulatory framework for ABS globally and the unresolved status of DSI creates legal uncertainty for scientists worldwide that needs to be resolved. However, we do not support benefit-sharing from DSI at all costs.

Bilateral mechanisms have enormous transaction costs and huge complexity

Any mechanism that requires an access permit or benefit-sharing arrangement to be negotiated on a bilateral basis for DSI, or which requires tracking and tracing, is unworkable on the basis of the transaction costs this would generate. The DSI data ecosystem is huge: composed of 1.5 billion sequences in the core DSI infrastructure, downloaded 34 million times per year, used by 10-15 million unique users, and connected to nearly 2,000 databases downstream of the INSDC that pull and push data in and out of the system. The dataset doubles in size roughly every two years and is linked to hundreds of thousands of publications that, on average, cite 44 sequences per publication. DSI use will continue to increase (exponentially) and touch new fields of research. Bilateral systems that require permission for *individual* sequences and transactions would be prohibitively complex for users and providers, ill-suited for generating knowledge, result in significant friction amongst databases, affect data interoperability, and have transaction costs that could paralyze the scientific ecosystem.

Bilateralism also creates competition between providers of DSI

Even simplified bilateral systems (e.g. standardized licenses where more than one option is available) will incentivize jurisdiction shopping where users preferentially use DSI from more favourable access jurisdictions and avoid less favourable conditions elsewhere. Any handling of DSI in subsets (free data vs. conditioned data) will create perverse incentives to avoid researching with some countries' DSI. This is an under-appreciated challenge given that the conserved nature of biodiversity means that for any given genetic material of interest, alternative sources are typically readily available. This means that ultimately our understanding of biological diversity in more restrictive countries would significantly decrease (in opposition to the GBF). From the scientific perspective, all options that include bilateral mechanisms for benefit sharing must be taken off the table during international discussions.

Multilateral options should prioritize maximal benefits with minimal transaction costs

From our viewpoint, multilateral options that establish de-coupled, globally standardized DSI access and benefit-sharing conditions must be prioritized. Critical for the scientific community will be to avoid point-of-service charges that create a "paywall" and thus cause significant data friction for users, disrupt thousands of downstream databases, and disadvantage scientists in low- and middle-income countries. Monetary benefit generation does not need to be linked to *access* to DSI at all. It can and should be de-coupled. Monetary benefits could

be collected, for example, via charges to ancillary services to DSI or downstream on bio-based commercial products.

DSI capacity-building should be an integral component of any multilateral option

Finally, DSI capacity-building must be integrated into multilateral options to maximize non-monetary benefit sharing. Such efforts must be practical, directly relate to the goals of the CBD and the GBF, and should attempt to "match-make" technical/scientific cooperation in a standardized, quantifiable manner, partnering with existing scientific bodies such as national academies for agenda-setting.

As the policy process evolves and decisions are made in the next few months, exchange between scientific and policy experts is essential to avoid unintended consequences.

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Signatories

Naturalis Biodiversity Center

NFDI4 BIODIVERSITY

MUSEUM FÜR NATURKUNDE BERLIN

ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI · IRCCS

IPK LEIBNIZ-INSTITUT

agAP INSTITUTE
Genetic Improvement and Adaptation of Mediterranean and Tropical Plants

1. Dr. Denis Jerome, Académie des Sciences, France
2. Dr. Christophe Lejeusne, Aix-Marseille University, France
3. Prof. Gaël Erauso Aix-Marseille University, France
4. Prof. Pierre-Edouard Fournier, Aix-Marseille University, France
5. Prof Dr. J.A. Romijn, Amsterdam UMC, UvA, Netherlands
6. Sari Cogneau, BCCM, ITM, Belgium
7. Dr. Fabienne Van Rossum, Bontaic Garden Meise, Belgium
8. Professor Ole Seberg, Botanic Garden, Natural History Museum of Denmark, Copenhagen University, Denmark
9. Dr. Eric Pelletier, CEA, CNRS, Université Paris Saclay, France
10. Dr. Jean-Michel Bellanger, CEFE, CNRS, Univ. Montpellier, EPHE, IRD, INSERM, France
11. Dr. Philippe Jarne, CEFE-CNRS, France
12. Dr. Roland Marmeisse, Centre National de la Recherche Scientifique, France
13. Ignacio Bravo, Centre National de la Recherche Scientifique (CNRS), France
14. Dr. Olivier Duron, Centre National de la Recherche Scientifique CNRS, France
15. Dr. Joël Bried, Centro Okeanos, Departamento de Oceaografia e pascas, Universidade dos Açores, Portugal
16. Dr. Claire Billot, CIRAD, France

17. Dr. Jean Christophe Glaszmann, CIRAD, France
18. Dr Hervé Sanguin, CIRAD, France
19. Dr. Hana Chaïr, CIRAD, France
20. Dr. Virginie Ravigné, CIRAD, France
21. Dhont, CIRAD, France
22. Serafin Gutierrez, CIRAD, France
23. Dr. Raphael Morillon, CIRAD, France
24. Dr. Hugues De Verdal, CIRAD, France
25. Dr. Michel Roux-Cuvelier, CIRAD, France
26. Dr. David Pot, CIRAD, France
27. Dr. Simon Rio, CIRAD, France
28. Dr. Arnaud Bataille, CIRAD, France
29. Valérie Rodrigues, CIRAD, France
30. Dr. Marlène Dupraz, CIRAD, France
31. Dr. Lionel Gagnevin, CIRAD, France
32. Kodjo Tomekpé, CIRAD, France
33. Dr. Fabrice Pinard, CIRAD, France
34. Dr. Michel de Garine-Wichatitsky, CIRAD, France
35. Adama Diallo, CIRAD, Senegal
36. Chantal Hamelin, CIRAD, France
37. Dr. Dominique Dessauw, CIRAD, France
38. Dr. Xavier Perrier, CIRAD, France
39. Dr. Christopher-Robin Viot, CIRAD, France
40. Dr. Fabrice Not, CNRS, France
41. Dr. Sylvie Nazaret, CNRS, France
42. DR. Catherine Leblanc, CNRS, France
43. Dr Marie Charlotte ANSTETT, CNRS, France
44. Dr. Violaine Llaurens, CNRS, France
45. Dr. Nicolas Bierne, CNRS, France
46. Dr. Anne-G Bagnères, CNRS, France
47. Dr. Christine Chevillon, CNRS, France
48. Dr. Pierre-Alexandre Gagnaire, CNRS, France
49. Dr. Jonathan Romiguier, CNRS, France
50. Dr. Nicolas Gallois, CNRS, France
51. Claire Daguin-Thiebaut, CNRS, France
52. Dr. Pierre-Marc Delaux, CNRS, France
53. Mathé-Hubert, CNRS, France
54. Dr. Pierre André Crochet, CNRS, France
55. Dr. Elizabeth Ficko-Blean, CNRS, France
56. Dr. Frederic Delsuc, CNRS, France
57. Dr. Claire Sergeant, CNRS, France
58. Dr. Elisabeth Herniou, CNRS, France

59. Dr. Virginie Rougeron, Cnrs, France
60. Dr. Christelle Tougard, CNRS, France
61. Dr. Jean-Christophe Auguet, CNRS, France
62. Dr. Cecile Herve, CNRS, France
63. Dr. Marcel KOKEN, CNRS, France
64. Dr. Aline Muyle, CNRS, France
65. Dr. Laurence Walch, CNRS, France
66. Céline Arnathau, CNRS, France
67. Dr. Catherine Damerval, CNRS, France
68. Delay Bernard CNRS, France
69. Dr. Simon Chamaillé-Jammes, CNRS, France
70. Dr. Franck Prugnolle, CNRS, France
71. Dr. Emilie LEJAL, CNRS, France
72. Dr. Benoit Pujol, CNRS, France
73. Dr. Mery Frederic, CNRS, France
74. Dr. Frédérique Viard, CNRS, France
75. Dr. Christelle Fraïsse, CNRS, France
76. Dr. Marianne Elias, CNRS, France
77. Dr Jeanne Ropars, CNRS, France
78. Dr. Cornille Amandine, CNRS, France
79. Dr Katell Guizien, Cnrs, France
80. Dr. Dominique Marguerie, CNRS, France
81. Dr. Benjamin Marie, CNRS, France
82. Dr. Sylvain Glémin, CNRS, France
83. Dr. Jean-François Le Galliard, CNRS, France
84. Stéphane Mauger, CNRS, France
85. Dr. Philippe Béarez, CNRS, France
86. Dr. Françoise Hennion, CNRS, France
87. Dr Francesca Rossi, CNRS, France
88. Dr. Sandrine Costamagno, CNRS, France
89. Dr. Bénédicte Charrier, CNRS, France
90. Dr. Thomas Broquet, CNRS, France
91. Dr. Thomas Perrin, CNRS, France
92. Dr. Pascale Chevret, CNRS, France
93. Dr. Natacha Kremer, CNRS, France
94. Dr. Laetitia Minguez, CNRS – LIEC, France
95. Dr Colomban De Vargas, CNRS, Research Federation Tara GOSEE (FR2022), France
96. Dr. Gavin Connor Fox, CNRS, Station Biologique de Roscoff, France
97. Dr. Diego Santos-Garcia, CNRS, University Lyon 1, France
98. Dr. Philippe Grandcolas, CNRS (Institut de Systématique, Evolution, Biodiversité), France
99. Dr. Rita Adriano Batista, CNRS, University of Lille, France
100. Dr. Yvon Le Maho, CNRS and University of Strasbourg, France

101. Liza Dadu, CNRS CEFE, France
102. Dr. Thierry Boulinier, CNRS CEFE, OSU OREME, France
103. Dr. Paillard Christine, CNRS LEMAR, France
104. PhD Fanny Degrugillier, CNRS MiVEGEC, France
105. Dr. Jean-Patrice ROBIN, CNRS UMR 7178, IPHC, France
106. Dr. Philippe Potin, CNRS UMR 8227, Station Biologique de Roscoff, France
107. Dr. Thomas Lacoue-Labarthem CNRS UMR7266 LIENS, La Rochelle University, France
108. Dr. Pierre Saumitou-Laprade, CNRS UMR8198, France
109. Dr. Bastien Boussau, CNRS, LBBE, France
110. Dr. Daniel Vaulot, CNRS, UMR7144, France
111. Dr. Bert Van Bocxlaer, CNRS, Univ. Lille, UMR 8198, Evo-Eco-Paleo, France
112. Dr. Christian Braendle, CNRS, Université Côte d'Azur, Inserm, France
113. Dr. Laurent Duret, CNRS, Université de Lyon, France
114. Dr Tatiana Giraud, CNRS, Université Paris Saclay, French Academy of Science, France
115. Dr. Christian Jeanthon, CNRS, Station Biologique de Roscoff, France
116. Professor Xavier Vekemans, CNRS, Universite de Lille - UMR8198 Evo-Eco-Paleo, France
117. Violaine Dolfo, CRIOBE, EPHE, France
118. Cristina M. Rodrigues, DataPLANT, Albert-Ludwigs-Universität Freiburg, Germany
119. Dr. Andreas Förster, DECHEMA e.V., Germany
120. Dr. Hendrik Schewe, DECHEMA-Forschungsinstitut, Germany
121. Prof. Antoine Danchin, Section Molecular and Cellular Biology, Genomics, Académie des Sciences, France
122. Dr. Laurent Moulin, Eau de Paris, France
123. Dr. Jens Krüger, Eberhard-Karls-Universität Tübingen, Germany
124. Dr. Jie Hu, Ecobio, France
125. Pr Claude Miaud, Ecole Pratique des hautes Etudes, France
126. Dr. Stefano Mona, Ecole Pratiques des Hautes Etudes, Museum National d'Histoire Naturelle, France
127. Prof.. Didier Bouchon, Ecologie et Biologie des Interactions - UMR CNRS 7267, France
128. Dr. Eric J. Petit, Ecology and Ecosystem Health, Institut Agro, INRAE, France
129. Dr. Nicolas Pade, EMBRC-ERIC, France
130. Dr. Warren Albertin, ENSCBP, Bordeaux INP, France
131. Dr. Romain David, ERINHA AISBL (European Research Infrastructure on Highly Pathogenic Agents), France
132. Dr. Carmen Bessa-Gomes, ESE Ecologie Systématique Evolution, AgroParisTech, CNRS, Université Paris-Saclay, France
133. Mrs Marie-Ange Watson, Former GlaxoSmithkline research scientist, United Kingdom
134. Prof. Wolfang Wiechert, Forschungszentrum Jülich, IBG-1 (Biotechnology), Germany
135. Dr. Caroline Zanchi, Free University of Berlin, Germany
136. Anton Güntsch, Freie Universität Berlin, Botanic Garden and Botanical Museum Berlin, Germany
137. Dr. Christophe Piscart, French CNRS, France

138. Dr. Marie Leys, French National Research Institute for Agriculture, Food and Environment (INRAE), France
139. Dr. Denis Fournier, FRS-FNRS Université libre de Bruxelles, Belgium
140. Edwin van Huis, General Director Naturalis Biodiversity Center, Netherlands
141. Dr. Patrick Wincker, Genoscope, CEA, France
142. Prof. Dr. Karl-Josef Dietz, German Life Sciences Association (VBIO e. V.), Germany
143. Dr. Barbara Ebert, GFBio - German Federation for Biological Data e.V., Germany
144. Prof. Anne Willems, Ghent University, Belgium
145. Prof. Dr. Klaus Mayer, Helmholtz Center Munich, Germany
146. Dr. Rhinaixa Duque-Thues, Herbarium HOH, University of Hohenheim, Germany
147. Dr. Björn Usadel, HHU Düsseldorf, Forschungszentrum Jülich, Germany
148. Martin Golebiewski, HITS gGmbH, Germany
149. Prof. Dr. Jeroen den Hertog, Hubrecht Institute, Netherlands
150. Dr. Christelle Batiot-Guilhe, HydroSciences Montpellier, France
151. Dr. François Andre, I2BC, University Paris-Saclay, France
152. Dr. Robin Guilhot, IAEA, Austria
153. Dr. Aïda Nitsch, IAST, France
154. Dr Marie-Agnès Travers, IFREMER, France
155. Dr. Jeremie Vidal-Dupiol, IFREMER, France
156. Prof. Christoph Grunau, IHPE, France
157. PD Dr.-Ing. habil. Martin Thomas Horsch, Inprodat e.V., Germany
158. Dr. Françoise Irlinger, INRAE, FRANCE
159. Dr. Stephane Uroz, INRAE, FRANCE
160. Dr. Perrier Charles, INRAE, France
161. Dr. Jonas Durand, INRAE, France
162. Dr. Pierre Roumet, INRAE, France
163. Dr Raphael Leblois, INRAE, France
164. Dr. Sebastien Leclercq, INRAE, France
165. Dr. Marc Vandeputte, INRAE, France
166. Dr. E. Jousselin, INRAe, France
167. Dr. Agnès Doligez, INRAE, France
168. Dr. Jérôme Hamelin, INRAE, France
169. Dr. Bruno Fady, INRAE, France
170. Dr. Sylvie Dallot, INRAE, FRANCE
171. Dr. Nicolas Sauvion, INRAE, France
172. Dr. Laurence Malandrin, INRAE, France
173. Dr. Emmanuelle d'Alençon, INRAE, France
174. Karine Huber, PHD, INRAE, France
175. Dr. Kiwoong Nam, INRAE, France
176. Dr. Catherine Juste, INRAE, France
177. Dr. Evelyne Costes, Inrae, France
178. Dr. Laurent Penet, INRAE, France

179. Dr. Olivier Plantard, INRAE, France
180. AI Véronique VIADER, INRAE, France
181. Dr. Vincent Calcagno, INRAE, France
182. Maggy JOUGLIN, INRAE, France
183. Dr. Thomas Kroj, INRAE, FRANCE
184. Mélodie Schmidt, INRAE, France
185. Dr. Pauline Garnier-Géré, INRAE UMR BIOGECO, France
186. Alain Franc, INRAE, BioGeCo, France
187. Dr. Gaël Thébaud, INRAE, PHIM, France
188. Dr. Niklas Tysklind, INRAE, UMR Ecologie des Foret de Guyane, France
189. Dr. Alexandre Dos Santos, INSERM, France
190. Dr. Nicolas Hubert, Insitut de Rechercher pour le Developpement, France
191. Dr Muriel Tavaud-Pirra, Institut Agro, France
192. Dr. Jean-Louis Zeddam, Institut de recherche pour le développement, France
193. Dr. Thierry De Meeûs, Institut de Recherche pour le Développement, France
194. Dr. Nicolas Galtier, Institut des Sciences del 'Evolution – CNRS, France
195. Dr. Martine Hossaert-Mckey, Institut Ecologie Environnement, CNRS, France
196. Dr Sylvain Brisse, Institut Pasteur, France
197. Eduardo Rocha, Institut Pasteur, France
198. Dr. Guillaume Borrel, Institut Pasteur, France
199. Dr. Raquel Hurtado-Ortiz, Institut Pasteur, France
200. Dr. David Couvin, Institut Pasteur de Guadeloupe, France
201. Prof. dr. Tatjana Avšič Županc, Institute of Microbiology and Immunology, Faculty of Medicine, University of Ljubljana, Slovenia
202. B.Eng. Michał Waleron, Intercollegiate Faculty of Biotechnology of University of Gdańsk and Medica University of Gdańsk, Poland
203. Dr. Myriam Valero, International Research Lab, 3614 CNRS, Sorbonne University, France
204. Dr. Jens Freitag, IPK Gatersleben, Germany
205. Dr. Jean-François Agnèse, IRD, France
206. Dr. Laurent Cournac, IRD, France
207. Dr. Carine Brouat, IRD, France
208. Dr. Lionel Moulin, IRD, France
209. Dr. Jean-Dominique Durand, IRD, France
210. Dr. Ambroise Dalecky, IRD – LPED, France
211. Dr. Diana FERNANDEZ, IRD Institut de Recherche pour le Développement, France
212. Dr. Muriel Gros-Balthazard, IRD Montpellier, France
213. Dr. Didier Jouffre, IRD, France
214. Dr. Odile Bruneel, IRD, Laboratoire HydroSciences Montpellier, France
215. Dr. Frederic Veyrunes, ISEM, CNRS, Université de Montpellier, France
216. Dr. Emira CHERIF, ISEM/IRD, France
217. Maddalena Fratelli, Instituto di Ricerche Farmacologiche Mario Negri IRCCS, Italy
218. Professor Marianne Graber, La Rochelle University, France

219. Dr. Guy Woppelmann, La Rochelle University, France
220. Pr Francoise Lucas, Laboratoire Leesu, Université Paris-Est Créteil, France
221. Chloé Haberkorn, LBBE Lyon, France
222. Prof. Dr. Karsten Wesche, Leibniz Insitute Senckenberg, Germany
223. Dr. Amber Hartman Scholz, Leibniz Institute DSMZ, Germany
224. Dr. Jonathan Brassac, Leibniz Institute für Pflanzengenetik und Kulturpflanzenforschung, Germany
225. Prof. Dr. Hans-Peter Grossart, Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Potsdam University, Germany
226. Prof. Dr Andreas Graner, Leibniz Institute of Plant Genetics and Crop Plant Research, Germany
227. Dr. Uwe Scholz, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Germany
228. Prof. Dr. Jörg Overmann, Leibniz-Institut DSMZ-Deutsche Sammlung von Mikroorganismen und Zellkulturen, Germany
229. Dr. Cécile Nouet, Liège University, Belgium
230. Dr. Valery Malecot, L'Institut Agro - Agrocampus Ouest, France
231. Dr. Daniel Grzebyk, MARBEC – CNRS, France
232. Prof. Detlef Weigel, Max Planck Institute for Developmental Biology, Germany
233. Prof. Paul Schulze Lefert, Max Planck Institute for Plant Breeding Research, Germany
234. Dr. Krzysztof Waleron, Medical University of Gdansk, Poland
235. Heimo Müller, Medical University of Graz, Austria
236. Dr. Olivier Lachenaud, Meise Botanic Garden, Belgium
237. Dr. Quentin Groom, Meise Botanic Garden, Belgium
238. Dr. Marc Reynders, Meise Botanic Garden, Belgium
239. Dr. Patricia Mergen, Meise Botanic Garden, Belgium
240. Dr. André De Kesel, Meise Botanic Garden, Belgium
241. Dr. Porter P. Lowry II, Missouri Botanical Garden, United States of America
242. Dr. Michael C. Fontaine, MIVEGEC, U. Montpellier, CNRS, IRD, France
243. Marie Buysse, MIVEGEC, University of Montpellier, France
244. Dr. Christiane Denys, MNHN, France
245. Dr. Coralie Martin, MNHN, France
246. Professor I. Florent, MNHN, France
247. Pr Isabelle Florent, MNHN, FRANCE
248. Dr. Tony Robillard, MNHN, France
249. Dr. Florian Jabbour, MNHN, France
250. Dr. Nicolas Puillandre, MNHN, France
251. Professor Gomez Elena, Montpellier University, France
252. Dr. Christoph Häuser, Museum für Naturkunde - Leibniz Institut für Evolutions- und Biodiversitätsforschung, Germany
253. Professor Johannes Vogel, Ph.D., Museum für Naturkunde Berlin, Germany
254. Dr. Thomas Haevermans, Muséum National d'Histoire Naturelle, France
255. Prof. Thierry Bourgoin, Muséum national d'Histoire Naturelle, France
256. Dr. HDR Nathalie Becker, Museum National d'Histoire Naturelle, France

257. Dr. Tony Robinet. Museum National d'Histoire Naturelle, France
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277. Dr. York Sure-Vetter, Nationale Forschungsdateninfrastruktur (NFDI) e.V., Germany
278. Prof. Dr. Thierry Wirth, Natural History Museum Paris, France
279. Dr. Katrin Vohland, Natural History Museum Vienna, Austria
280. Dr. Gregory M. Plunkett, New York Botanical Garden, United States of America
281. Dr. Stefaniya Kamenova, NTNU University Museum Trondheim, Norway
282. Dr. Albert Agoulon, Oniris Chantrerie Nantes, France
283. Dr. Jean-Renaud Boisserie, PALEVOPRIM, a research unit of CNRS and University of Poitier, France
284. Dr. Ibon Cancio, Plentzia Marine Station (PiE-UPV/EHU), University of the Basque Country, Spain
285. Dr. Patricia GIBERT, Conseil Scientifique de l'InEE, France
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288. Dr. Hélène Magalon, Reunion Island University, France
289. Pr. Celine Boulange-Lecomte, Sebio, Universite Le Havre Normandie, France
290. Dr. Arnold H. Staniczek, State Museum of Natural History Stuttgart, Germany
291. Monnet François, SMRE - UMR 8198, France
292. Prof Marcelino Suzuki, Sorbonne U - CNRS Laboratory of Microbial Biodiversity and Biotechnology, France
293. Prof. François Lallier, Sorbonne Université, France
294. Dr. Jean-Charles Leclerc, Sorbonne Université, France
295. Dr. Thierry Robert, Sorbonne Université, France

296. Professor Dominique Higuet, Sorbonne Université, France
297. Joost Mansour, Sorbonne University, France
298. Dr. Patrick Cormier, Sorbonne University, France
299. Pr. Jean-Christophe Lata, Sorbonne University, France
300. Dr. Dagmar Triebel, Staatliche Naturwissenschaftliche Sammlungen Bayerns, Germany
301. Dr. Ursula Eberhardt, Staatliches Museum f. Naturkunde Stuttgart, Germany
302. Dr. Joachim Holstein, Staatliches Museum für Naturkunde Stuttgart, Germany
303. Dipl. Biol. Ingo Wendt, Staatliches Museum für Naturkunde Stuttgart, Germany
304. Dr. Sebastian Lotzkat, Staatliches Museum für Naturkunde Stuttgart, Germany
305. Dr. Ronald Fricke, Staatliches Museum für Naturkunde Stuttgart, Germany
306. Dr. Ira Richling, Staatliches Museum für Naturkunde Stuttgart, Germany
307. Dr. Friederike Woog, State Museum of Natural History Stuttgart, Germany
308. Jonah Michael Ulmer, State Museum of Natural History Stuttgart, Germany
309. Dr. Stefan Merker, State Museum of Natural History Stuttgart, Germany
310. Dr. Laurence Garczarek, Station Biologique (CNRS and Sorbonne Université), UMR7144, France
311. Dr Catherine Boyen, Station Biologique de Roscoff, France
312. Dr. Florian de Bettignies, Station Biologique de Roscoff, France
313. Dr. Elham Karimi, tation Biologique de Roscoff, CNRS/Sorbonne Universite, France
314. Dr. J. Mark Cock, Station Bioologique de Roscoff, France
315. Mr Romain Troublé, Tara Ocean Foundation, France
316. Prof. Chris Bowler, Tara Oceans Consortium, France
317. Prof. Aurelien Tellier, Technical University of Munich, Germany
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319. Bsc A. Ingrid Voskamp-Visser, TNO, Netherlands
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327. Dr. Sandrine Moja, UJM - LBVpam UMR CNRS 5079, France
328. Prof. Mohamed Jebbar, UMR 6197 Laboratory of Microbiology of Extreme Environments, France
329. Dr. Violaine Nicolas-Colin, UMR 7205 ISYEB, France
330. Dr. Stephane Hourdez, UMR 8222 CNRS - Sorbonne Université, France
331. Dr. Sara Moutailler, UMR BIPAR, ANSES, INRAE, ENVA, Animal Health Laboratory, Maisons-Alfort, France
332. Prof Tarik Meziane, UMR BOREA, France
333. Dr. Etienne Bezault, UMR BOREA, Université des Antilles. France
334. Dr. Eve Afonso, UMR CNRS 6249 Chrono-environnement, France
335. Dr. Philippe Paul Emile Vernet, UMR CNRS 8198, France
336. Dr Claudia Gérard, UMR ECOBIO 3553, University of Rennes 1, France

337. Prof. Genevieve Prevost, UMR EDYSAN, CNRS, UPJV, France
338. Dr. Ben H. Warren, UMR ISYEB, Museum National d'Histoire Naturelle, France
339. Dr. Béatrice Cauuet, UMR5608, TRACES, CNRS, France
340. Pr Philippe Grellier, UMR7245 CNRS MCAM National Museum Natural History, France
341. Dr. Gael Denys, UMS Patrinat (OFB - MNHN - CNRS), France
342. Pr. Evelyne Heyer, Unit Eco-Anthropology - CNRS and Museum National d'Histoire Naturelle, France
343. Flavia Pavan, Unité evolution ecologie paleontologie de Lille UMR8198, France
344. Pr. Nicolas Negre, Univ Montpellier, France
345. Prof. François Pompanon, Univ. Grenoble Alpes, France
346. Dr. Anne Duputié, Univ. Lille, CNRS, UMR 8198, Evo-Eco-Paleo, France
347. Dr. David Velazquez, Universidad Autonoma de Madrid, Spain
348. Pr Christophe J. Douady, Université Claude Bernard Lyon 1, France
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367. Prof Olivier Gros, Université des Antilles, FRANCE
368. Dr. Ludovic Pruneau, Université des Antilles, France
369. Cambrone Christopher, Université des Antilles, UMR BOREA, France
370. Dr. Laurence Despres, Universite Grenoble Alpes, France
371. Dr. Laurent Guéguen, Université Lyon 1, France
372. Dr. Gilles Bourgoin, Université Lyon 1, France
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381. Dr. Mark Doerr, University Greifswald, Inst. f. Biochemistry, Germany
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390. PhD student Charly Robert, University of Liège, Belgium
391. Prof. Denis Baurain, University of Liège, Belgium
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400. Dr Marisol Goñi Urriza, University of Pau, IPREM, France
401. Prof. Joan van Baaren, University of Rennes 1, France
402. Dr. Gwenola Gouesbet, University of Rennes, CNRS, ECOBIO Ecosystèmes, biodiversité, évolution, France
403. Dr Nathalie Boulanger, University of Strasbourg, France
404. Dr. Aurora Zuzuarregui, University of Valencia - Spanish Type Culture Collection, Spain
405. Dr. Fiz da Costa González, University of Vigo, Spain
406. Dr Morgane Ollivier, University Rennes 1, France
407. Claudia M. Ortiz-Sepulveda, Université de Lille, CNRS, UMR 8198 – Evo-Eco-Paleo, France
408. Cosseau Céline, UPVD, France
409. Prof. Dr. Vinod Subramaniam, Vrije Universiteit Amsterdam, Netherlands
410. Prof. dr. A.P.J.Mol, Wageningen University & Research, Netherlands
411. Dr. Gerard J.M. Verkley, Westerdijk Fungal Biodiversity Institute (WI-KNAW), Netherlands
412. Prof. Pedro Willem Crous, Westerdijk Fungal Biodiversity Institute, Netherlands
413. Dr. Belén Martín Míguez, World Meteorological Organization, Switzerland
414. Prof. Dr. Bernhard Misof, ZFMK, Germany
415. Dr. Peter Grobe, Zoological Research Museum Alexander Koenig, Germany