Human Microbiome Action Final Conference – Questions & Answers

Name:	Description:
Dirk Hadrich	**Dirk Hadrich** studied biomedical science and holds a PhD in tumor diagnostics. He is working at the European Commission in Brussels since 2001. First dealing with legislation on health and safety risks, then with employment, social and health policies and since 2011 he is developing funding programs and policies for health research in particular cancer and mental health. Prior to joining the European Commission, he worked as German Government official on occupational health and safety.
Question:	Answer:
How is the microbiome planned to be included in the future Horizon Europe Partnership Brain Health?	The 4 priority areas identified in the framework document developed by the CSA BrainHealth are: • Brain health promotion • Improving early diagnosis, monitoring and intervention for people living with brain conditions • Improving care and support for people living with brain conditions and their caregivers • Lead the reflection on the social dimension in the field of brain health. I think that studies on the gut-brain connection (incl. microbiome) could fit well under the first three areas.

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Name:	Description:
Pascale Vonaesch	**Pascale Vonaesch** is an Assistant Professor at the University of Lausanne and a Principal Investigator within the NCCR Microbiomes. Her lab focuses on fundamental and translational/clinical research on the human intestinal ecosystem and the contribution of the microbiota to health and disease. In her research, she is especially interested in the role of the intestinal microbiome in childhood malnutrition and in the development of microbiota-targeted interventions.
Questions:	Answers:
How is the microbiome that is saved in the vault supposed to be reused in human populations? I mean by which way?	The idea is that isolated strains could be used to develop therapeutic interventions. This is however outside of the scope of the Vault, but the Vault could enable this.
Are there plans for also preserving microorganisms from other ecosystems, important for One Health, i.e. soils, oceans, plants, etc.?	Yes, currently we also sample fermented foods, but in fine, the Vault would like to harbor also other types of samples of human benefit.
Can we create a comprehensive microbiome community - to combine and exchange our data? To not repeat or lose case studies and establish systematically a communication platform.	There are already several platforms that aim to do this (i.e. QIITA but also others), but for the moment, there is no platform everyone systematically adheres. I agree this would be a great resource to the overall community and clearly needed!!

Name:	Description:
Francesco Asnicar	**Francesco Asnicar** is a postdoctoral researcher at Prof. Nicola Segata's laboratory (Department CIBIO, University of Trento, Italy). He has a computational background, and his research interests focus on the development of computational tools for microbiome analyses, including phylogenomic and machine learning approaches. As part of the Human Microbiome Action project, he is working on the definition of minimum standards for microbiome data analysis.
Questions:	Answers:
What about data standards for the analysis of N=1 studies based on a single patient/person?	Microbiome studies have the usual trade-off between low-sample size and in-depth metadata information, and large-scale studies with minimal metadata information. When N=1 is usually difficult to derive conclusions but can be informative as a pilot study to inform and guide future large-scale studies that focus on the specific problem/disease/setting.
Can we say that, like we do in human genetics, control data sets should be matched by genetic population?	I think this will be relevant in the microbiome field as we are expanding on sample size with newer studies. However, probably genetics is one of the factors we should control for, but likely not the most impactful one for the microbiome. For instance, diet, lifestyle, antibiotics, and drug usage might have a more direct impact on the microbial composition than genetics. So, controlling for these factors might be relevant in such studies that want to identify a microbial signature of the disease.
What coverage is advisable to aim at to be sure that the reads are not randomly "glued" 2 together, ending up in rather short contigs? What N50 values are good for low biomass samples, as swabs can be?	For sequencing, especially with low biomass samples like swabs, achieving accurate assembly requires high coverage, as there's no one-size-fits-all coverage level. The N50 metric, a measure of assembly quality, varies significantly across projects due to differences in sample characteristics and processing methods. Optimal N50 values and coverage must be tailored to each specific case, highlighting the importance of considering the unique requirements and conditions of the sequencing project for reliable results.

Name:	Description:
Céline Druart	**Céline Druart** obtained her PhD in Biomedical and Pharmaceutical Sciences from UCLouvain (Belgium) in 2014 and a specialized master's in management (Solvay Brussels School of Economics and Management) in 2017. Following a 3-year project in Patrice Cani's research group focused on developing the potential beneficial effects of a human gut commensal Akkermansia muciniphila, she worked for 3 years at A-Mansia Biotech (now known as The Akkermansia Company). Céline joined the PRI in July 2021 as Microbiome Project Manager, managing the Regulatory Science activities of the Association, coordinating Task Group work, and supporting PRI Members in their development planning. She became the PRI's Executive Director in January 2024.
Questions:	Answer:
Do you have any idea how many microbiota analysis companies exist in Europe and what determined the choice of companies to send the samples to?	I have no idea about the number of companies proposing kits to analyze microbiota in Europe. We did not perform a market analysis. The choice of the company was based on: - having companies in the EU and US. Then, we selected the kits randomly. The objective of this benchmark study was just to feed our workshop with "real data", and real consumer experience to obtain a clear view on the ethics and regulatory issues linked to these kits.
Did all kits have questionnaires, and did you look at the quality of these?	I think all kits were associated with questionnaires. There is no clear way to analyze the quality of the questionnaire, except with the use of validated questionnaires.
Is the report publicly available to read?	We will publish a paper (open access) on the ethics and regulatory issue of microbiome self-managements tools.

Name:	Description:
William Fusco	**William Fusco** is a MD with clinical interest in gut microbiota and its modulation, especially with FMT and future microbiome therapeutics.
Question:	Answer:
In Precision Medicine Clinical Trials several professionals are already involved. Why should not we be able to do this for Microbiome CTs?	Actually, I do believe there is a necessity to involve many professional figures for Microbiome CTs, as I said in my talk. In fact, differently from other fields (Cardiology, Pneumology, but also inflammatory bowel diseases), the study of Microbiome requires more than just the clinicians, for the whole understanding needs many points of view (the clinical, sure, but also microbiological, ecological, biochemical etc.). Those professionals are especially needed during the study design phase, for their vision and backgrounds will enrich the study, giving it a larger perspective.

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