



Periodic Table of Food Initiative (PTFI)

Call for Expressions of Interest for Institutional Home/Secretariat for the PTFI

The Periodic Table of Food Initiative (PTFI) is seeking an Institutional home/secretariat for the PTF. Both single-applicant and joint Expressions of Interest are certainly welcome for teams with complementary strengths. The PTFI is a global effort to create a public database of the biochemical composition and function of the foods we eat, which will build the groundwork for scientific breakthroughs with the potential to revolutionize the health, agriculture, and food sectors.

Overview: Periodic Table of Food Initiative

Food is at the center of the world's most urgent challenges and largest opportunities. Yet our scientific understanding of the foods that nourish us is still rudimentary. At most, 150 of food's biochemical components are measured and tracked in conventional databases, which only represents a tiny fraction of the tens of thousands of biochemicals in food. A food system that supports human and planetary health requires a rigorously collated public database of the full range of nutritionally relevant molecules in food to catalyze research and innovation that will enable us to understand the relationships between food, diet, health, nutrition, and environment.

The Periodic Table of Food Initiative (PTFI) is a global effort, currently funded by the Rockefeller foundation, to create a public database of the biochemical composition and function of the food we eat using the latest mass spectrometry technologies and bioinformatics. The PTFI will strengthen and support ongoing work by institutions around the world by developing low-cost mass spectrometry kits, standards, methods, cloud-based analytical tools, and a public database – the Periodic Table of Food (PTF) – that will include a quantitative and qualitative analysis of thousands of foods.

The PTFI will begin by analyzing 1,000 foods that are representative of the geographic and cultural diversity across the world. Once the database is in place, the scientific community and private sector can build on this public resource by adding analysis of additional foods, varieties, and preparation methods. The PTFI technical platform will enable conditions for a rapid acceleration in research and innovation in both the public and private sectors. See Annex A for additional information on the approach of the PTFI.

Roles and Responsibilities for Institutional Home/Secretariat

The PTFI Core Team¹ is now **seeking an institutional home/secretariat for the PTFI**, that can be responsible for managing the day-to-day operations of the PTFI and working closely with funders and

¹ Currently the PTFI Core Team is composed by a team of scientists from University of California Davis, Verso Biosciences, Rockefeller Foundation, and Meridian Institute (which also serves as the interim Secretariat for the PTFI).

key partners to ensure effective and efficient decision-making and program implementation. Core roles and responsibilities include the following.

MANAGING THE DAY TO DAY OPERATIONS OF THE PTFI

- Develop annual workplans based on strategic direction from funders and key partners.
- Prepare agendas for, facilitate, and document key internal and external meetings.
- Establish and maintain communications with a truly global, diverse, multi-sectoral and culturally/geographically representative group of collaborators, partners, and stakeholder. These include but are not limited to academic journals, private sector associations, etc.
- Develop job descriptions for and recruit key staff and consultants for the PTFI. Supervise the performance and track the progress of key staff and consultants
- Build and maintain a website for the PTFI with communication products that showcase the transformative potential of the PTFI for nutrition, health, environment, and agriculture.

IMPLEMENTATION OF PTFI PROGRAM

- **Initial Inventory:** Conduct an untargeted inventory to help with prioritizing development of core elements in technical platform and create a publicly available discovery data resource for future interrogation.
- **Technical Platform:** Oversee the development of standard methods and kits in partnership with companies and with input from researchers.
- **Biobanking:** Implement a biobanking strategy for the PTFI and a strategy for selecting the first 1,000 foods to be analyzed that are culturally, geographically, and biologically diverse. Oversee the analysis and cataloguing of the first 1,000 foods and ensure QA/QC.
- **Network of Laboratories:** Establish and maintain a network of laboratories, in consultation with key partners, to engage for research and use of the PTF.
- **Database:** Implement and further develop a strategy for establishing the PTF database, as well as options for licensing data, international treaty compliance, and other legal agreements.
- **Application:** Oversee and ensure the timely publication of important discoveries, implications, and applications. In addition, oversee the identification and implementation of potential demonstration projects that will showcase the revolutionary potential of revealing the content of nutritional dark matter.
- **Fundraising:** Ensure the financial sustainability of the PTFI through fundraising or other activities that allow the initiative to continue past the initial funding resources.

Criteria for Institutional Home/Secretariat

The PTFI Core Team will assess potential institutional home/secretariats with the following criteria.

- Well respected institution with relevant expertise in issues related to food, agriculture, nutrition, and health.

- Proven track record of providing world class project management and Secretariat support.
- Capacity to steward financial resources supporting the PTFI from multiple funding sources (experience managing multiple currencies required).
- Proven ability to successfully seek out and work with leading public institutions and private companies in the Global North and Global South.
- Demonstrated success supporting initiatives that have catalyzed public goods and private sector innovation.

While not required, experience with one of more of the following will be viewed favorably during the selection process.

- Demonstrated commitment to the well-being of vulnerable populations, and to supporting diverse stakeholders across all spectra of cultural, geographic, and socioeconomic diversity.
- Experience managing diverse, multi-stakeholder processes.
- Expertise and capacity related to analysis of food composition.
- Computational data processing capabilities or expertise.
- Biobanking capabilities or expertise.
- Public database management.

Given the wide range of roles and responsibilities, joint Expressions of Interest are welcome for teams with complementary strengths.

Submission Guidelines

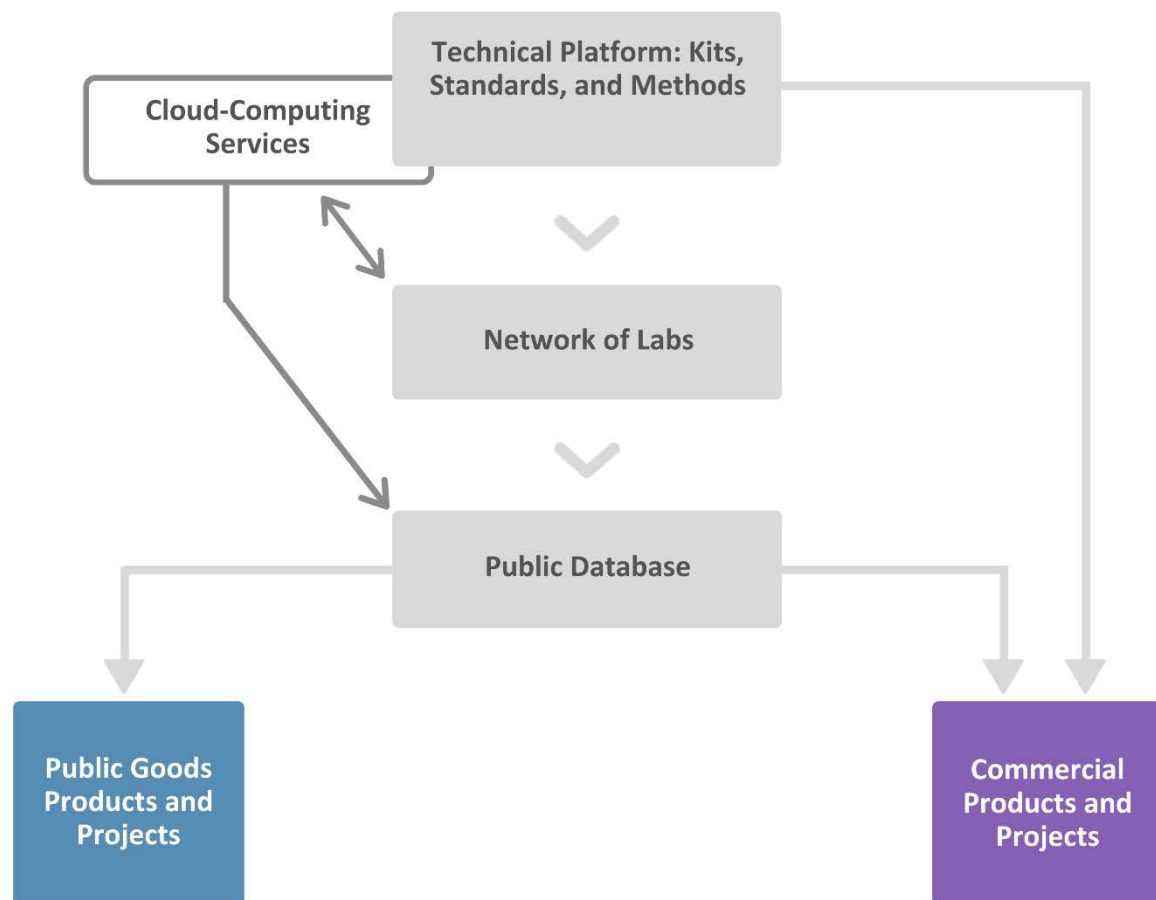
If your organization(s) are interested in serving as the institutional home/secretariat of the PTFI, please submit an expression of interest (no longer than 3 pages) addressed to the PTFI Core Team (ptfi@merid.org) with the following information.

- Applicant organization name(s), description(s), and address(es). Please include a contact person's name, title, and contact information.
- Summary of experience and qualifications to serve as institutional home/secretariat.

The deadline for submission is **September 18, 2020**. The PTFI Core Team will review the expressions of interest and select finalists by October 2, 2020 which will be invited to submit a full proposal by November 2, 2020. If you have any questions, please reach out to the PTFI Core Team (ptfi@merid.org). An institutional home/secretariat will be announced by December 4, 2020.

Annex A: Periodic Table of Food Initiative Approach

The PTFI is a global effort to create a public database of the biochemical composition and function of the food we eat using the latest mass spectrometry technologies and bioinformatics. Given advances in the quality and cost of mass spectrometry and revolutionary changes in bioinformatics, machine learning and big data capabilities, together with growing recognition of the important health impacts of trace phytonutrients, the time is ripe for the PTFI. The PTFI technical platform will enable conditions for a rapid acceleration in research and innovation in both the public and private sectors, as shown in the figure below.



To accomplish this, the PTFI will include the following elements.

- **Initial Inventory:** The project will begin by developing an initial list of compounds found in the first 1000 foods selected, by conducting an untargeted analysis of a set of representative foods. This inventory – constructed with support from spectral libraries and artificial intelligence – will produce a “draft zero” of the PTF to inform the prioritization of the development of kits and methods in an integrated technical platform.
- **Technical Platform:** The PTFI will create a technical platform comprised of kits, methods, and data processing services to enable a network of public and private laboratories to analyze thousands of foods around the globe by food composition category to populate the PTF. The

PTFI will take a phased approach to the development of kits, informed by the initial inventory. To develop this technical platform, the PTFI will work with reagent manufacturing, mass spectrometry, and data processing companies.

- **Biobanking Strategy:** Food analyses will be informed by a common approach to sample collection and access to materials for the network of labs populating the PTF. The PTFI will develop a biobanking strategy in consultation with leaders at biobanks and repositories around the world to inform this work.
- **Network of Labs:** As mentioned above, a global network of public and private research institutions and labs will utilize the technical platform to analyze a selected set of foods for the PTF by food composition category. Based on capabilities and availability, different labs may annotate different aspects of each food. Ultimately, we seek to democratize the analysis of food and innovation by making this technical platform available to any public or private research institution and/or lab.
- **Cloud-Computing Services:** The cloud-computing platform will use the same analytics on the data generated by the network of labs so that the outputs are – by default – comparable and can be integrated into the PTF. This service will be available in the technical platform to public and private research institutions and laboratories.
- **Public Database:** While present databases aggregate information from the existing literature, there is no coordinated effort across different research nodes to populate a global, public database. The data generated by the network of labs will be assembled into the PTF database, a public database as per terms of license agreements. The Funders Consortium (see below) will determine an appropriate institutional home/secretariat to develop, maintain, and house the database.
- **Demonstration Projects:** As mentioned above, revealing the content of nutritional dark matter has the potential to transform our health, agriculture, and the environment. The PTFI will issue RFPs for demonstration projects that can answer global questions around food, nutrition, and health utilizing the technical platform and PTF data to demonstrate its revolutionary nature. The selected projects will be aligned with the interests and strategies of the Funders Consortium, relevant to a diversity of people and audiences with scalable results and impacts.
- **Case Studies:** The PTFI will develop short case studies which will serve as communicational tools to raise awareness on the importance and revolutionary nature of the PTFI. We aim to develop 10-12 case studies covering public health, environmental conservation and restoration, agricultural efficiency and innovation, and food innovation and engineering in partnership with interested experts and institutions.
- **Curated Industry Conversations:** The PTFI will also manage and coordinate engagement with private sector partners and social entrepreneurs interested in developing goods and services based on the data gleaned from the PTF.
- **Funders Consortium Board:** The PTFI will create a Funders Consortium Board (FC) with interested philanthropic partners to set strategy, identify priority issues for investment, and to create public goods using the PTF. The FC is the core governance body for the PTFI. The FC will consult different Stakeholder Advisory Councils comprised of civil society organizations, clinicians, funders and investors, governments and policy makers, scientists, and research institutions to inform key decisions, including the selection of demonstration projects. In addition, the Secretariat will support the FC through management, personnel, and facilitation support.

Meridian Institute currently serves as the interim Secretariat. See figure below for additional information on the role and structure of the FC.

