

## University of Maryland Joins International Phytobiomes Alliance

The [International Alliance for Phytobiomes Research](#) is pleased to announce that the [University of Maryland](#) (UMD) has joined the organization as a sponsoring partner.

The Alliance is an international, nonprofit consortium of academic institutions, private companies, and government agencies. Launched in 2016, it is building a foundation for exploitation of the phytobiome for food security. “Phytobiomes” refers to a plant growing within a particular biome, enabling a holistic view of the production of crops, trees, and grasslands that includes the plant itself, all micro- and macro-organisms living in, on, or around the plant—such as microbes, animals, insects, and other plants—as well as the environment, which includes soil, air, water, weather, and climate.

The University of Maryland is one of the nation’s preeminent public research universities. Researchers in the [University of Maryland Institute for Advanced Computer Studies](#) (UMIACS), will bring extensive knowledge of genomic sequencing and bioinformatics to the Alliance, allowing for a detailed analysis of soil, water and air samples, as well as the organisms and other elements that inhabit those environments.

The university, located just outside of Washington, D.C., also has close research and educational ties to U.S. government labs and agencies like the U.S. Department of Agriculture, U.S. Food and Drug Administration, the National Institutes of Health, earth and climate specialists and the nearby NASA Goddard Space Flight Center, and more.

“The Phytobiomes Alliance proposes a holistic approach to solving one of the critical challenges facing our world—the sustainable production of food for the growing world population,” says [Mihai Pop](#), a computational biologist at UMD who will be leading collaborative efforts with the Alliance. “We expect to contribute by bringing to bear unique expertise in machine learning and data science, high-performance computing, and metagenomics.”

Representatives of Phytobiomes Alliance sponsors serve on the organization’s coordinating committee, which identifies research projects, resource and technology gaps, establishes priorities, and develops strategic plans to achieve the Alliance’s goals.

“The University of Maryland brings to the Alliance a broad range of expertise in agricultural sciences including genetics, genomics, breeding, metagenomics, earth, climate, bioinformatics, and new technologies in high-performance computing,” says [Kellye Eversole](#), the Phytobiomes Alliance executive director. “Mihai Pop’s background, experience, and knowledge will be extremely beneficial to the Alliance as we develop not only databases of disparate biological and geophysical information but also predictive and prescriptive analytics that could help growers increase the sustainable production of food, feed, and fiber.”

Over the next decades, the United Nations predicts that the world population will grow by 83 million every year, to reach 9.8 billion by 2050 and 11.2 billion by 2100. Producing enough food for this growing population—in a sustainable way, while preserving biodiversity and natural resources—requires a major paradigm shift in agricultural production of food, feed and fiber. By establishing a foundation of knowledge on how phytobiome components interact and affect each other, the Phytobiomes Alliance aims at addressing these challenges.

By 2050, the Alliance envisions that all farmers, ranchers, growers, and foresters will have at their disposal predictive and prescriptive tools that empower them to choose the best combination of crops, management practices, and inputs for a specific field in a given year.

### **About the Phytobiomes Alliance**

The Phytobiomes Alliance is an international, nonprofit alliance of industry, academic, and governmental partners created in 2016. The goal of the Alliance is to understand, predict and control emergent phenotypes for sustainable production of food, feed and fiber on any given farm. The Phytobiomes Alliance is sponsored by Bayer CropScience, Eversole Associates, Monsanto, The Climate Corporation, INRA, Indigo, the Noble Research Institute, NewLeaf Symbiotics, Colorado State University, the University of Maryland, Penn State College of Agricultural Sciences, the American Phytopathological Society, the University of Nebraska-Lincoln, and BioConsortia.

### **About the University of Maryland**

The University of Maryland, the state's flagship institution of higher education, is one of the nation's preeminent public research universities. A global leader in scientific discovery, entrepreneurship and innovation, UMD is home to nearly 38,000 students, 9,500 faculty and staff, and 250 academic programs. The institution secures more than \$500M in external research funding each year.

### **About the Institute for Advanced Computer Studies**

The University of Maryland Institute for Advanced Computer Studies (UMIACS) provides a unique multidisciplinary computing environment to address some of today's most pressing scientific and societal challenges in areas like cybersecurity, bioinformatics, computer vision, data science, and quantum information science.

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