

Bezos Earth Fund Grants \$2M to UC Davis and American Heart Association to Advance AI-Designed Foods

Funding Will Support Scientists at UC Davis and the Periodic Table of Food Initiative to Reimagine Food for Sustainability and Nutritional Value Using AI

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A grant of \$2 million from the Bezos Earth Fund will support Swap it Smart, an AI-based platform to identify new food ingredients, combinations and recipes that promote nutrition while lowering costs and environmental impact. SwapItSmart is a collaboration between scientists at UC Davis and the Periodic Table of Food Initiative. (Getty Images)

DAVIS, CA - October 25, 2025 — ([ucdavis.edu](https://www.ucdavis.edu)) — The Bezos Earth Fund has announced a \$2 million grant to the University California, Davis, the American Heart Association and other partners to advance “Swap it Smart” as part of its AI for Climate & Nature Grand Challenge. The funding will support research that could help redesign foods, for example optimizing for flavor profile, nutritional properties and lower costs and environmental impact.

Swap it Smart is an AI-powered recipe formulation tool in development by scientists at the UC Davis in collaboration with the Periodic Table of Food Initiative (PTFI), an entity of RF Catalytic Capital co-managed by the American Heart Association and Alliance of Bioversity CIAT and developed by The Rockefeller Foundation. The PTFI provides standardized tools, data and training to map food quality of the world's edible biodiversity for improved human and planetary health.

"We're not just teaching AI to understand food, we're asking it to reimagine what food can be," said co-principal investigator Ilias Tagkopoulos, professor of computer science at UC Davis and director of the USDA AI Institute for Next Generation Food Systems (AIFS). "Can we harness the power of AI and computational science to design foods that actively promote human and planetary health, without sacrificing taste or affordability?"

The Swap it Smart team will work to advance research that may one day enable food scientists to replace resource-intensive ingredients in food formulations with sustainable alternatives that deliver the same nutrition and sensory experience.

"By integrating deep phenotyping, molecular data, and generative intelligence, we can create better meals and consumer products for our schools, our hospitals and everyday lives," Tagkopoulos said.

"Our mission is to create a tool that could be used by anyone from farmers and commercial kitchens to home cooks to develop new foods," said co-principal investigator Justin Siegel, professor in the UC Davis departments of chemistry and of biochemistry and molecular medicine and faculty director of the Innovation Institute for Food and Health (IIFH).

Core to Swap it Smart is the PTFI's vast and first-of-a kind data infrastructure on the exact chemical composition of thousands of biodiverse foods based on standardized multi-omics tools.

"By combining PTFI's molecular food composition data, AI and human capacity, we can unlock the intelligence of food itself to design meals and products that nourish people and sustain the planet, working alongside school meals programs, food enterprises and chefs to bring these innovations to the table," said Selena Ahmed, principal investigator of the Bezos Earth Fund award and executive director of the PTFI.

New ingredients and combinations

Through this effort, researchers will collaborate with practitioners to pull out new combinations or obscure ingredients and create new foods or healthier, more sustainable substitutes.

The PTFI's continually evolving data set currently includes over 400,000 proteins from 500 commonly consumed foods along with 27,000 bioactives and other small molecules. UC Davis is the North American Center of Excellence of the PTFI, focusing on deep molecular characterization of these proteins and their known or potential effects on human health, as well as fiber, fats, minerals, phytochemicals and other key small molecules (metabolites) present in foods.

"With support from the Bezos Earth Fund, we will be able to better translate the science from the Periodic Table of Food Initiative into real world tools, using data to formulate meals that nourish people and planet," said John de la Parra, Director, Food at The Rockefeller Foundation.

Swap it Smart will include data on five sustainability pillars: environment, nutrition, health, socioeconomic factors and sensory quality. These five datasets then need to be organized so that the data can be used by AI systems to make predictions and generate new solutions.

In addition to PTFI, AIFS and IIFH, other partners include PIPA, a company founded by Tagkopoulos in 2015 that leverages AI to accelerate discovery in food and health, and Verso Biosciences, both based in Davis, California.

"Working on the interface of AI, nutrition, and health for more than ten years, we're excited to contribute our ingredient and formulation AI expertise to the development of Swap it Smart. This tool has real potential to create sustainable food concepts, and we're committed to supporting its successful launch," said Christos Stamelos, Chief Technology Officer of PIPA.

Media Resources

[Bezos Earth Fund Announces \\$30 Million in AI Grand Challenge Awards](#) (Bezos Earth Fund)
[AI Institute for Next Generation Food Systems](#)
[UC Davis Innovation Institute for Food and Health](#)
[Periodic Table of Food Initiative](#)

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