

Researchers say nutrition science must change to meet world food needs

8 September 2015



Josep Bassaganya-Riera (left), director of the Virginia Bioinformatics Institute's Nutritional Immunology and Molecular Medicine Laboratory, advises student researchers. Credit: Virginia Tech

An international team of researchers, including scientists at the Virginia Bioinformatics Institute at Virginia Tech, said nutrition science will have to change drastically to feed an exploding world population.

Writing in the open-access journal [Frontiers in Nutrition](#), the researchers identified key opportunities taking place in nutrition science within the next five years that will be crucial to close a major gap between the amount of food available today and the amount projected to be available in 2050. Crop calories will need to increase about 69 percent to reach levels needed by 2050, according to the World Resources Institute.

"The grand challenges in 21st century nutrition research extend beyond individual health, encompassing all the massively interacting systems that help to sustain a global population," said Josep Bassaganya-Riera, a professor and director at the Virginia Bioinformatics Institute's Nutritional Immunology and Molecular Medicine Laboratory. "This article provides concrete recommendations for assessing these issues at the macro-level such as the application of informatics, data analytics, and modeling

approaches."

The researchers, from various disciplines including genetics, neuroscience, nutritional science, physiology, immunology, food science technology, and psychology, are reaching out to the scientific community with an ambitious set of research goals for [nutrition science](#) for the period of 2015 to 2020.

"Healthy nutrition for all is an ambition too important to be handled by detached interest groups," said Johannes le Coutre, head of perception physiology at the Nestlé Research Center and Field Chief Editor of *Frontiers in Nutrition*. "By bringing together this diverse set of experts we are trying to establish a platform that is asking the right questions to move the nutrition field forward."

The authors stress the importance and timeliness of eight axes of research including sustainability, food safety, the human microbiome, and [big data](#) analysis.

"Nutrition science is evolving from reductionist approaches centered around the study of single molecules and pathways to in-depth, systems-wide analyses," Bassaganya-Riera said. "Embracing big data and computer modeling gives us a set of tools to identify nutritional benefits that are only observable in the interactions between multiple systems."

The article's contributors hope their grand challenge will provoke a lively discussion among their peers about how to improve nutrition as a science, allowing it fulfil its potential and make meaningful, sustainable contributions to global [nutrition](#).

Provided by Virginia Tech

APA citation: Researchers say nutrition science must change to meet world food needs (2015, September 8) retrieved 22 November 2019 from <https://medicalxpress.com/news/2015-09-nutrition-science-world-food.html>

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