

# The Future of DNA Testing in Personalized Nutrition: Can Your Genes Predict Your Diet?

In a world driven by data, your DNA may hold the most personalized nutrition guide you'll ever need. The emerging science of nutrigenomics, the study of how genes and nutrition interact, is reshaping how we think about diet, health, wellness and disease prevention. At ITSI Biosciences, we're proud to be at the forefront of this rapidly evolving field, and able to use our technologies to provide answers research questions that you may have.

## What Is Personalized Nutrition?

Personalized nutrition is the practice of tailoring dietary recommendations to an individual's genetic makeup, lifestyle, microbiome, and other biological factors. Unlike traditional dietary advice, which is often assumed to be one-size-fits-all, this approach seeks to answer:

- Why do some people lose weight on low-carb diets while others don't?
- Why does the same amount of caffeine affect people differently?
- Can certain genes predict your risk of nutrient deficiencies, e.g. vitamin deficiencies, food allergies or food intolerances?

DNA testing is beginning to provide the answers.

## The Science Behind It: How Your Genes Influence Your Diet

DNA testing can identify genetic variations (called SNPs, single nucleotide polymorphisms) that impact how your body processes nutrients. Here are a few examples:

- Methylentetrahydrofolate reductase (MTHFR) gene: Variants may reduce your ability to process folate, increasing the need for specific forms of vitamin B9.
- Fat mass and obesity-associated (FTO) gene: Associated with appetite regulation and obesity risk. Some variants may mean a higher susceptibility to weight gain.
- Cytochrome P450 1A2 (CYP1A2) gene: Determines how fast your body metabolizes caffeine. Slow metabolizers may have a higher risk of heart issues from coffee.
- Lactase (LCT) gene: Related to lactose tolerance. Variants can signal whether you're likely to be lactose intolerant.

## Applications: From Wellness to Chronic Disease Prevention

Personalized DNA-based nutrition is no longer just for elite athletes or Silicon Valley execs. It's practical applications are expanding to:

- Weight management
- Diabetes prevention
- Cardiovascular health
- Optimized athletic performance
- Food allergy and intolerance identification
- Mental wellness and sleep improvement

At ITSI Biosciences, we believe the integration of genetics into nutrition is not just a trend, it is the next evolution in wellness and preventive medicine.

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Our bioanalytical services can help detect protein markers of gene activity with precision and reliability, to help power research into nutrigenomics. We can measure protein expression changes in all sample types.

**How ITSI Biosciences Supports the Future of Personalized Nutrition**

With over 20 years of experience in bioanalytical testing, ITSI Biosciences is uniquely positioned to support:

- Proteomics, genomics and metabolomics research.
- Custom protein assay development.
- Consulting services for research into nutrigenomics.
- Sample-to-answer solutions.

Through technologies such as mass spectrometry, 2D-DIGE, Luminex xMAP and Quantigene assays, and deep scientific expertise, we provide researchers with the analytical capabilities needed to uncover the foundations of nutrition-related traits.

**Join the Conversation**

Are you researching how DNA can shape diet? Are you interested in identifying differentially expressed proteins in persons fed different diets? or how ITSI Biosciences can support your research or product development in nutrigenomics? We'd love to hear from you.

Contact us at: [info@itsibio.com](mailto:info@itsibio.com)

Visit us at: [www.itsibio.com](http://www.itsibio.com)

**Stay Curious. Stay Informed. Stay Ahead.**

Thank you for reading this month's edition of **DNAnews**.

Until next time, let your genes guide you, responsibly.