Nutritional research is entering a paradigm conversion which necessitates the modeling of complex interactions between dietary, genetic, lifestyle, and environmental factors. This requires the development of capabilities for processing, analyzing, and integrating multiple data and information sources, and to incorporate these data into holistic models that allow us to better target and personalize nutritional approaches for the maintenance of health. Ideally, such knowledge will be employed to underpin the development of concepts that combine consumer and medical nutrition with diagnostic targeting for early intervention designed to maintain proper metabolic homeostasis, delay the onset of chronic diseases such as diabetes, obesity, and Alzheimer's disease, and ultimately to develop nutritional interventions that can also help to modulate early disease states toward healthier outcomes.

It is important to establish nutritional measurement capabilities with tools for multidata integration to generate hypotheses and actionable concepts from which to develop targeted and eventually personalized nutritional solutions for health protection. Efforts are made to develop a complete state-of-the-art nutritional profiling platform and algorithms for dietary nutrient and calorie intake as the basis of understanding health trajectories (fig. 1). Ultimately, these measures will provide a starting point for advancing new strategies to apply nutritional signatures for consumer health and for patients with medical conditions.

We acknowledge that nutritional status is fundamental to any description of health; in combination with other data on lifestyle, environment and genetics, it can be employed to further segment, diagnose, and target health preservation approaches. Eventually, when such data become more generally available they will begin to enrich and empower
nutritionally health-conscious consumers, patients, and medical practitioners to become more proactive in health management as opposed to disease treatment.

Fig. 1. The next generation of a comprehensive nutrient profiling platform for a personalized nutritional status.