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Application of nutrigenomics in food industry for the public health application

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Nutrigenomics uses the new "omics" technologies at the level of molecular and cellular Processes and biological systems and can tell us how things work. The new technologies have allowed us to take account of the whole process, to identify cell signatures which represent exposure to the environment and to investigate the earliest changes in disease processes. Nutrigenomics could make contributions to the study of human nutrition at many levels. For example, it could help to define safe upper and lower limits for essential nutrients and micronutrients. By identifying key genes involved in dietary responses, Nutrigenomics can also give some indications of those genes in which polymorphisms might be important and these may then be explored further in epidemiological studies. The study of these individual variations, their interaction with nutrition, and their association with health and disease, is the complementary study of nutrigenetics. This end of the science may be more readily translated eventually into public health applications, but is fraught with many unknown levels of complexity.