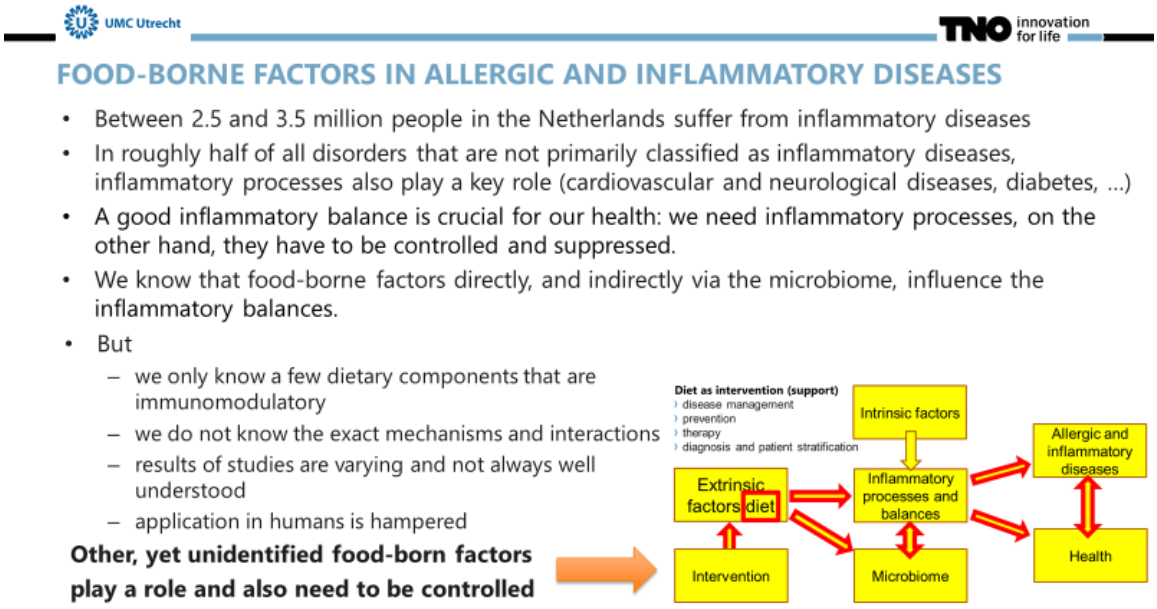
Food-borne Factors in Allergic and Inflammatory Diseases

UMC Utrecht and TNO collaborate in research on food-borne factors in allergic and inflammatory diseases. Our interest in this program mainly concerns the identification of factors that, either or not in interaction with the gut microbiome, influence the inflammatory state of our body. A good inflammatory balance is crucial for our health. On the one hand we need inflammatory processes, on the other hand they have to be controlled and suppressed. The inflammatory balances are determined by an interplay between intrinsic properties (such as our genome) and extrinsic factors. The most abundant exposure to extrinsic factors is through our food, but we actually know very little about which and how food-borne factors affect our immune system. The role of the intestinal microbiome is of course very important, but on its turn, the intestinal microbiome is also strongly influenced by what we eat. And also in this respect, we know very little about which factors do this in which way and how that influences immune functions. Our research aims to elucidate how we can use diet as an intervention or to support interventions in immune health, to develop better diagnosis, patient stratification, and population and personalized management, therapy and prevention of inflammatory diseases.



Our research focuses on the development and application of methods to identify food-borne factors that influence the inflammatory state of our body. We go deeper than most other researchers; food products or product groups and some specific nutrients are often considered. In contrast, we analyze food intake data, food composition data, microbiome data, and patient/health characteristics data in an unbiased way using machine learning. The approach that we follow is shown in the figure on the next page.

Our approach in short: we collect data from a wide variety of substances in food through various databases. We link this data to food intake data from, for example, cohort studies, to map intake through food at substance level. We combine this with individual microbiome data and patient/health characteristics data to search for (complex combinations of) food-borne factors that influence the inflammatory state using machine learning approaches.

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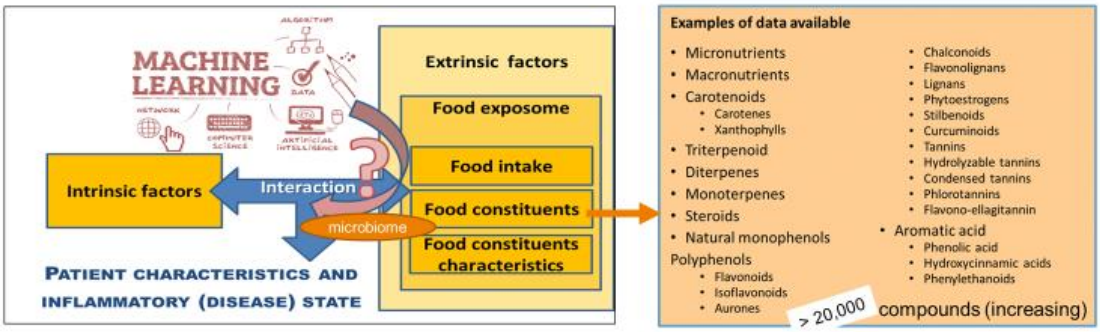

TNO and UMC Utrecht are looking for partners in this research program.

We would welcome industrial partners interested in studying food-borne factors in allergic and inflammatory diseases to identify nutritional targets for intervention or to support interventions in immune health.

For more information, please contact:

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