

Principal Investigator

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Summary of research:

Allergy, hayfever, asthma, Mendelian Randomization, epidemiology

Application Lay Summary:

1a: The prevalence of allergic diseases and asthma has increased in Westernized countries. Our goal is to identify risk factors by a number of genetic epidemiological studies. We aim to take advantage of genetic differences in exposure to potential risk factors to determine unbiased estimates of their causal effects on hay fever, eczema and asthma. This approach is also known as Mendelian Randomization and has been used for various exposures and diseases, but until now few studies have looked at hayfever, eczema, and asthma. No new sampling or contact to participants are needed to carry out this proposal.

1b: The increasing prevalence of allergic diseases and asthma has great public health significance. There is limited knowledge about the responsible risk factors and therefore it is difficult to develop effective preventive strategies. We hope to improve knowledge about the factors that increase the risk of allergic diseases and asthma and hope to contribute to the development of preventive strategies. Thus, we believe this project is in accordance with the purpose of the UK Biobank, since it is both health-related research and in the public interest.

1c: We will use information already available in the UK Biobank to estimate effects of possible risk factors for hayfever, eczema, asthma and the autoimmune disease, celiac disease. Genetic variants associated with exposure to the risk factors will be used as unbiased markers of exposure to these factors. The risk factors to be investigated are vitamins (Vitamin D, vitamin C, Vitamin B12, folate), alcohol intake, coffee drinking, milk drinking, testosterone, obesity, height, and age of menopause. Thus, genetic variants associated with life-long exposure to these factors will be employed.

1d: The full cohort is needed for this proposal. The concept of Mendelian Randomization needs large populations to produce precise estimates of causal effects of risk factors.