EXIMIOUS
Mapping Exposure-Induced Immune Effects
MEMBER OF THE European Human Exposome NETWORK

Mapping Exposure-Induced Immune Effects: Connecting the Exposome and the Immunome

LIFELINES cohort

Intro

Lifelines is a multigenerational cohort study encompassing over 167,000 participants. Lifelines aims to provide valuable insights into healthy aging and serves as a crucial resource for both national and international scientific research. Within the EXIMIOUS project, Lifelines data and biosamples are utilized to explore the relationship between environmental exposures and autoimmune diseases.

LIFELINES

167 000

DISEASES

LUPUS T1D RA HEALTHY CONTROLS

DATA AND SAMPLES

Questionnaire data collected every 1,5 years covering health data and demographics

Exposure data based on Home adres and occupation

Urine – black carbon measurements
DNA – Telomere measurements
Plasma – cytokine measurements

Why was the cohort included?

The inclusion of (part of) this specific cohort in EXIMIOUS makes it possible to investigate the influence of certain exposures on the development of autoimmune diseases like **lupus, rheumatoid arthritis (RA) and diabetes type 1 (T1D)**

What did we measure?

The lifelines cohort started collecting data and samples from their participants in 2006, this includes modelled air pollution data based on the home address, job descriptions, health status, and much more information. They also collected blood and urine from the participants. In Eximious we measured

1. **Black carbon** as an internal marker for black carbon exposure.
2. **Telomere length** is a biomarker of cellular aging, with shorter telomeres indicating accelerated biological aging. In EXIMIOUS we measured telomere length because it can provide insights into understanding how exposure to pollutants like black carbon can influence biological aging and contribute to the development of autoimmune diseases.
3. **Cytokine** measurements are crucial for understanding immune system function and inflammation. In the context of the EXIMIOUS project, measuring cytokine levels is particularly interesting because it can provide insights into the immune response. Identifying how environmental exposures, such as black carbon, affect the immune system's function and contribute to inflammation.

Studies in the cohort

- Telomere length as potential predictor of autoimmune diseases: a nested case control study
- Urinary air pollution as a potential predictor of autoimmune diseases: a nested case control study

LEARN MORE

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References

1. Lifelines Biobank. (n.d.). Retrieved from https://www.lifelines-biobank.com/