

Summary of the EU-project HIALINE

Health Impacts of airborne ALLergen Information NETWORK

Exposure to allergens is one of several factors determining sensitization and allergic symptoms in individuals. Exposure to aeroallergens from pollen is assessed by counting allergenic pollen in ambient air. However, proof is lacking that pollen count is representative for allergen exposure. We therefore monitored simultaneously birch, grass and olive pollen counts and their corresponding major pollen allergens Bet v 1, Phl p 5 and Ole e 1 across Europe.

Already at one location in Europe in Munich, Germany, we found that the same amount of pollen from different years, different trees and even different days released up to 10-fold different amounts of Bet v 1. Thus exposure to allergen is poorly monitored by only monitoring pollen count. Monitoring the allergen itself in ambient air might be an improvement in allergen exposure assessment.

The objective of the HIALINE-project is to evaluate if these effect found in Munich, Germany are also measurable over a bigger geographic area like Europe, and at the same time implement an outdoor allergen early warning network, in addition to the pollen forecasts. Climatic factors that influence allergen exposure will be extracted and will be used to calculate the effect of climate change on local airborne allergen exposure. Current users of national pollen information services (atopic individuals, physicians and health authorities) will benefit.

The major allergens from the top 3 airborne allergens in Europe (grasses, birch and olive) are sampled with a cascade impactor, extracted and analyzed by allergen specific ELISA's. Pollen counts are measured by standard pollen traps and correlated with the weather data. Allergen forecast will be calculated by incorporating the SILAM chemical transport model and compared with the observations of HIALINE aiming at a comprehensive parameterization of the allergen release and transport.

Expected outcomes are the implementation of a network of European outdoor allergen measurements to better predict allergic symptoms. Also the climatic factors that govern allergen exposure in outdoor air will be established. These can be used to calculate the effect of climate change on the health effects of airborne allergens

The Project is coordinated by Prof. Dr. J. Buters, ZAUM-Center for Allergy and Environment, with 13 partners in 11 countries for 3 years with a volume of about € 700.000. The workpackage leaders are Lorenzo Cecchi (Italy), Auli Rantio-Lehtimäki (Finland), Mikhail Sofiev (Finland) and Bernhard Weber (Germany). The other involved partners are Michel Thibaudon (France), Matthew Smith (United Kingdom), Carmen Galan (Spain), Rui Brandao (Portugal), Roberto Albertini (Italy), Uwe Berger (Austria), Bogdan Jackowiak (Poland) and Ingrida Šaulienė (Lithuania).

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