Title:

Fragrance chemical allergy: a major environmental and consumer health problem in Europe (FRAGRANCE ALLERGY)

Objectives:

The main objective of the project is the prevention of fragrance chemical allergy in non sensitised (primary prevention) and in already sensitised (secondary prevention) individuals. The aim of the primary prevention part of the study is to create initiatives that regulate the exposure to fragrance chemicals so induction of allergic contact sensitisation does not take place. This include identification and validation of fragrance sensitisers including new emerging ones (SAR methods) and insight to their sensitising potential through predictive studies and QSAR analysis. The secondary prevention part of the study will establish measures aiming to avoid the elicitation of the skin disease in already fragrance sensitised individuals. It will include standardisation of diagnostic methods to identify the individuals at risk, epidemiological clinical studies combined with exposure assessment, and cross-reactivity studies aiming at allergenic fragrance chemical substitution. The results of the different studies will be compiled in a risk assessment model providing the basis for preventive measures.

Scientific approach:

The cutaneous toxicology of most fragrance chemicals is poorly documented. Therefore there is a need to identify more fully the nature of the main fragrance chemicals responsible for causing contact allergy in the consumers and improve risk assessment procedures. The work programme of the project is divided into two essential constituents: primary prevention studies and secondary prevention studies. Each constituent contains three major studies each with its own specific aim but with a convergent objective: risk assessment of fragrance chemical allergy.

1. Primary prevention
   - **Hazard identification.** Development of Structure Activity Relationships (SARs) methods for the identification of fragrance sensitisers. Application to oak moss skin sensitisers and to oxidised and/or degraded fragrance terpenes. Identification and validation of new fragrance sensitisers (Workpackages 1 and 2).
   - **Sensitisation potential** of selected fragrance chemicals and development of Quantitative Structure Activity Relationship studies (Workpackage 3).
   - **Environmental exposure.** Identification of the presence of fragrance sensitisers in consumer products related to hand eczema fragrance allergy (Workpackage 4).

2. Secondary prevention
   - **Diagnosis.** Development of a new fragrance mix in order to identify individuals at risk (Workpackage 5).
   - **Elicitation thresholds.** Threshold dose-response studies on newly identified fragrance allergens (Workpackages 6 and 7).
   - **Cross-reactivity.** Allergenic fragrance chemical substitution. The case of isoeugenol (Workpackage 8).

The results of the different studies will be compiled in a risk assessment model providing the basis for preventive measures. The proposal intends to provide operational scientific data and more effective methods for diagnosis and risk assessment of fragrance chemical allergy, which need to be further used for preventive measures leading to a decrease in the burden of fragrance induced skin disease in the European
Community. The proposed programme will bring a high degree of consumer protection with respect to skin fragrance sensitisation, as both induction and elicitation of contact dermatitis are prevented. The whole sequence of studies is based on quantitative risk assessment. The present combination of suggested studies will provide the EU legislator with scientific background for introducing either compulsive labelling of products, use concentration limitation or banning some of the most sensitising fragrance substances.