

# Microemulsion for dermal hyposensitization against allergens, especially insect venom allergens

skin-friendly microemulsion, hyposensitization against insect venom allergens, bee and wasp venom, pollen allergens, allergens of house dust mites, animal allergens, food allergens

## DESCRIPTION OF TECHNOLOGY

Every now and then insects sting everyone, which usually leaves a small itchy redness or slight swelling around the bite. In people with an insect venom allergy, a sting can cause a violent reaction that can be life-threatening.

This microemulsion is suitable for immunotherapy.

It has a water phase and an oil phase in which the insect allergen is dispersed. The microemulsion is applied to the skin for administration. The allergen reliably penetrates the skin and triggers a local immune response against the allergen. This application can be repeated so that the immune system is accustomed to the allergen-causing substance by small allergen doses and thus reacts less or no longer allergic to it.



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Other allergens such as pollen allergens, allergens from house dust mites, animal hair or food allergens or combinations of individual allergens might also be administered easily and reliably via the skin and used for immunotherapy.

## APPLICATION FIELDS

Fields of application are immunotherapy and the treatment of allergies.

## AT A GLANCE ...

### Application Fields

- Immunotherapy
- Treatment of allergies
- Production of ointment or cream

### Business

- Pharma

### USP

- Microemulsion is well tolerated by the skin
- Active ingredient reliably penetrates the skin and triggers immune response
- Effect proven on bee venom allergen
- Storage stability of at least 3 months
- Minimization of the risk of local skin reactions
- No subcutaneous administration of the allergen necessary

### Development Status

- Clinical efficacy demonstrated in mouse model
- positive results on the pig ear

### Patent Status

Priority application filed on 06.06.2018 at German Patent- and Trademark Office.

## ADVANTAGES OVER THE PRIOR ART

The microemulsion can be easily produced and is suitable for the particularly sensitive skin of allergy sufferers. It includes components with good skin compatibility. Skin irritations and skin damages are avoided.

This hyposensitization was shown in experiments with the main allergen of the bee venom (Api m 1) or the main allergen of the wasp venom (Ves v 5) and in the mouse model the sensitization and allergen-specific immune response was proven.

Human skin is very similar to pig skin, therefore ex vivo experiments were performed on the pig ear. These show that the allergen of the bee venom Api m 1 actually penetrates into the stratum corneum and is effective there.

## STATE OF THE PRODUCT DEVELOPMENT

The formulation of the microemulsion is available, a small series has been produced and the storage stability of at least 3 months has been demonstrated, up scaling is possible.

## MARKET POTENTIAL

In Germany every 4th to 5th inhabitant suffers from an allergic disease. 86% of all allergy sufferers suffer from a pollen allergy, 41% are allergic to dogs or cats, 38% to house dust and 2% of the population react to insect bites with complaints that go far beyond the bite site. Beekeepers and their relatives are particularly affected by insect venom allergies. People who work in bakeries, sell fruit or work in agriculture also run a higher risk.

Every year, about 20 deaths are reported in Germany due to allergic reactions to bee, wasp and hornet stings. The actual number is probably slightly higher because allergic reactions are not always recognised as a cause of death. The incidence of anaphylactic reactions caused by insect bites is reported by professional societies to be approximately 1:200.

## COOPERATION OPPORTUNITIES

On behalf of its shareholder Technische Hochschule Mittelhessen, TransMIT GmbH is looking for cooperation partners or licensees for sales/development in Germany, Europe, the USA and Asia.

## A TECHNOLOGY OF



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