

ASSAY FOR DETECTION OF PSORIASIS PATIENT RESPONSE TO GENISTEIN TREATMENT

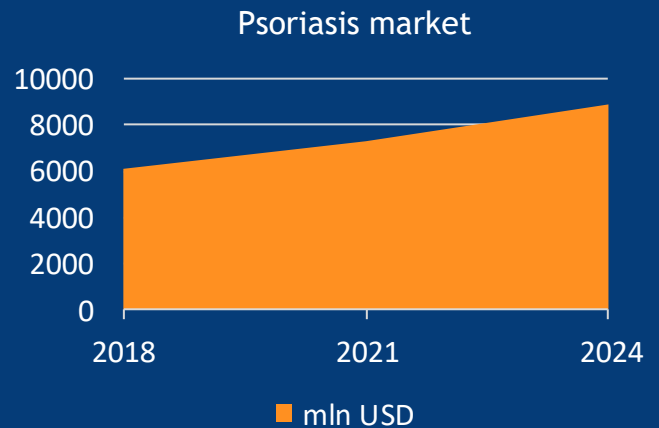
Market

Psoriasis is a chronic, non-infectious, inflammatory disease of the skin, what is more, it is one of the most frequently occurring dermatoses with an immunological basis. It occurs worldwide, affecting approximately 1-3% of the global population most often in Europe and North America. According to report “Psoriasis Disease Landscape and Forecast 2014-2019” published by Decision Resource Group, psoriasis market is expected to grow in 2024 to almost \$9 billion.

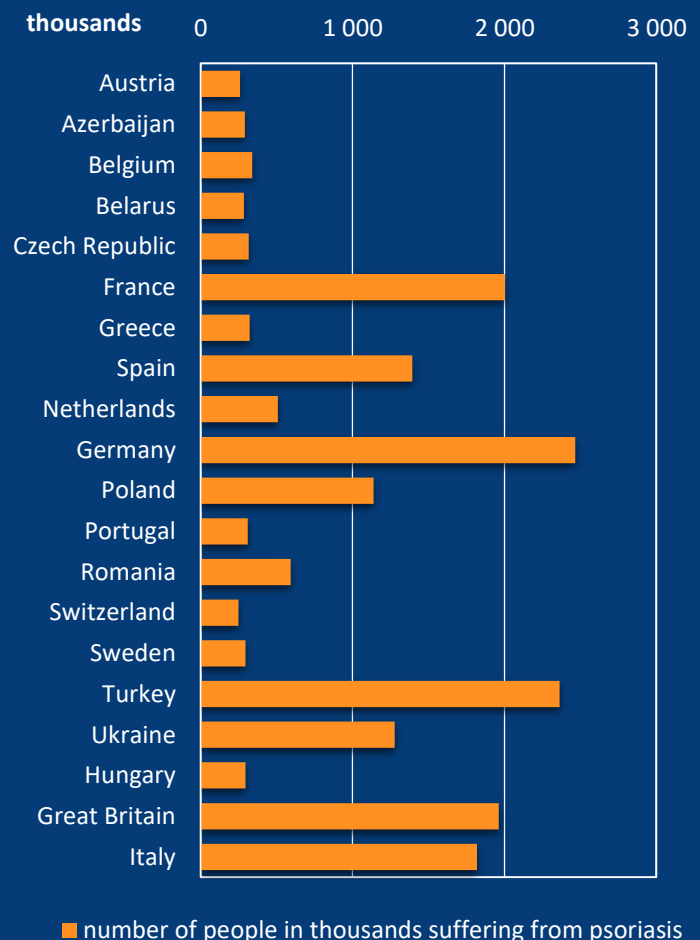
Technology

The evaluation of the dermatological status of patients with psoriasis before and after the treatment is based on the doctor's assessment using the PASI, PGPA or BSA index. These parameters are characterized by difficulty in correct and repeated assessment of the patient. Molecular assay described herein provides a method of identifying molecular response of patients suffering from psoriasis to genistein treatment. The invention relates to the use of quantitative polymerase chain reaction with the imaging in real time (real-time qRT-PCR, i.e. real-time quantitative Reverse Transcription-PCR), allowing to learn the level of expression of genes involved in the pathomechanism of psoriasis, being potential genetic markers (30 genes) to explore new molecular response in patients with psoriasis to treatment with genistein. Alterations in mRNA level of selected genes were performed to determine the transcriptional profile of human keratinocytes treated with genistein, and in particular to explore the expression of 30 genes involved in the pathomechanism of psoriasis. Modulation of the expression level of these genes causes inflammatory processes in the epidermis or increases keratinocytes proliferation of human affected by psoriasis.

Psoriasis - Opportunity Analysis and Forecasts to 2024



The highest incidence of psoriasis in Europe in 2017



Technology highlights

- 1 Quantitative polymerase chain reaction with real-time imaging (real-time qRT-PCR).
- 2 The assay is based on expression analysis of 30 psoriasis-related genes via DNA microarray to explore new molecular response in patients undergoing psoriasis treatment with genistein.
- 3 Determined transcriptional profile of human keratinocytes treated with genistein, in particular expression of 30 genes involved in pathomechanism of psoriasis.

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Commercialization opportunities



- ➔ Licensing agreement
- ➔ Transfer of ownership
- ➔ Spin off

IP Status



The invention was submitted for patenting according to Polish (P.410454) and international (PCT/PL2015/000198) procedures.

Implementation progress



TRL 4
Technology validated in laboratory conditions

Summary

Psoriasis, a chronic inflammatory skin disease affecting about 1-3% of the worldwide population most often in Europe and North America. The clinical picture of the disease is heterogeneous, which results from the multifactorial background, i.e. the effects of genetic, environmental and immune system disturbances (including autoimmunology dysfunction).

Genistein, a soy-derived isoflavone has attracted attention as a potent agent in treatment of psoriasis, not only due to its anti-proliferative and immunosuppressive properties, but also as a mediator modulating expression of various genes, whose products are involved in different phases of the inflammation and proliferation. Additionally, it has antioxidant, anti-mutagenic, anticancer, anti-atherogenic, anti-allergic, hypotensive, antipyretic, anti-bacterial and many other properties.

A way of identifying the response of psoriasis patient to treatment with genistein allowing to learn the level of expression of genes involved in the pathomechanism of psoriasis is presented. A group of genes whose activity can be monitored and used as an indicator of the effectiveness of the therapeutic action of genistein was identified.

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