



Technology Opportunity, Ref. No. UZ-16/434

Dimethylfumarate as a novel treatment approach for acne

Heavy acne is a major concern, mostly at adolescent age. Current treatments, including antibiotics, contraceptives and tretinoin, are known for potentially severe side-effects. This invention provides the use of dimethyl-fumarate (DMF) for the treatment of acne.

Keywords	Dimethyl-fumarate (DMF); inflammasome; acne
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Reference	M. Garstkiewicz et al (2017). Opposing effects of Nrf2 and Nrf2-activating compounds on the NLRP3 inflammasome independent of Nrf2-mediated gene expression. Eur J Immunol, 47 (5): 806-817
Background	Four out of five adolescents in the age between 12 and 24 years suffer from acne vulgaris. Many have problems with self-esteem, leading to depressions in severe cases. In addition, heavy forms can cause lasting scars in the face. According to experts, about 20% of all affected have to undergo specialized treatment. Current treatments of heavy acne are unfortunately known to have severe side effects including eye or skin dryness, and unwanted effects on the liver, blood fat values or the bone structure, as well as putting unborn children at risk. New treatment options are therefore highly desirable. Ideally, a new therapy would be well-tolerated and could be produced at reasonable costs to be competitive in this market.
Invention	This invention is related to the use of DMF in the treatment of heavy forms of acne vulgaris. Acne is linked to the inflammasome pathway and the inventors could convincingly show that (i) DMF inhibits inflammasome activation in different human cells as well as in a mouse model of inflammasome-dependent inflammation, and (ii) a therapeutic effect could be achieved in an established murine disease model. Since decades patients suffering from the chronic skin disease psoriasis are treated with DMF (Fumaderm®) without major side effects. More recently, it turned out that DMF is also effective against multiple sclerosis (Tecfidera®). An involvement of inflammasomes is discussed in both diseases. Therefore, DMF might be an excellent alternative to established therapies for patients suffering from other diseases with an involvement of the inflammasome, such as acne vulgaris.
Fields of Use	Pharmaceutical formulations for the treatment of acne vulgaris, particularly as a cream.
Patent Status	Patent application filed
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