PSORIASIS

TOPICAL APPLICATION OF MS-275 SELECTIVELY DECREASES THE EXPRESSION OF IL-23 IN IMIQUIMOD-INDUCED PSORIASIS-LIKE DERMATITIS IN BALB/C MICE

Matthew Friedland [1] - *Hye Jin Chung* [1] - *Jean McGee* [1]

Boston University School of Medicine, Department of Dermatology, Boston, United States [1]

Psoriasis is a common inflammatory skin disease with limited options for effective topical therapies. To date, epigenetic regulators have not been tested as topical agents for any cutaneous disorders. MS-275 (also known as entinostat) is a histone deacetylase inhibitor currently undergoing clinical trials for various cancers. It epigenetically controls the acetylation status of histones, thereby regulating downstream gene expression. In our study, we demonstrated for the first time that MS-275 can penetrate BALB/c mouse skin when applied topically. Indeed, topical application of MS-275 increases the protein expression level of acetylated histones in the skin and decreases the number of proliferating keratinocytes in the epidermis. Next, using an imiquimod-induced psoriasis-like dermatitis mouse model, we tested the potential therapeutic applicability of MS-275. We demonstrated that topical application of MS-275 during imiquimod induction attenuates the psoriasis-like histologic changes in BALB/c mice. In addition, topical application of MS-275 during the induction selectively decreases the expression level of IL-23 (and not IL-22) in the dermis of BALB/c mice. Taken together, our findings hold promise for a new class of novel topical epigenetic therapies in psoriasis.