DATASHEET

# Rat IL-23-induced Skin Inflammation

Skin inflammation affects millions of people each year. Recently, the IL-23/Th17 pathway has been shown to play a major role in skin inflammation pathogenesis making further mechanistic research a necessity. The IL-23-induced inflammation model is an ideal system with which to study this interplay.

IL-23 stimulates and promotes differentiation of Th17 cells. IL-23 is a heterodimeric cytokine with two subunits. It drives the Th17 response by its binding and signaling through its receptor subunits. When the IL-23R is activated, it promotes the development of Th17 cells and the resulting production of cytokines such as IL-17A, IL-17F, and IL-22 - all which are involved in mediating psoriasiform changes.

## Experimental Overview

Skin Inflammation is induced by 4 day intradermal (i.d.) IL-23 injection into the right ear of anesthetized animals; PBS is injected into the left ear as an injection control. Ear thickness, clinical score and body weight are measured daily for 5 days.

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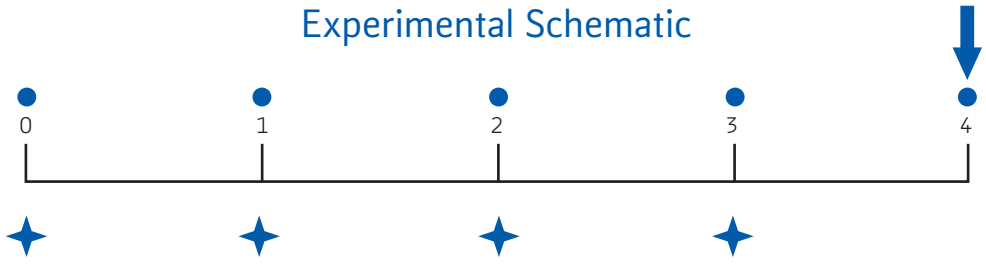
|---|---|
| Animal Strain: | Sprague Dawley Rat |
| Study Duration: | 5 Days |
| Numbers/group: | 8 |
| Positive Controls: | Clobetasol-topical<br>Dexamethasone-IP/PO |
| Standard Assessments: | Clinical score/signs<br>Ear thickness |
| Add-on Assessments: | Biomarker Analysis<br>Histology/IHC<br>Collagen Levels |

## Experimental Schematic




● Body weight, Clinical Score and Ear Thickness

Termination
Animals will be terminated and ears will be collected.

IL 23 Adminstration:
IL23 i.d. on right ear
PBS i.d. on left ear (control)

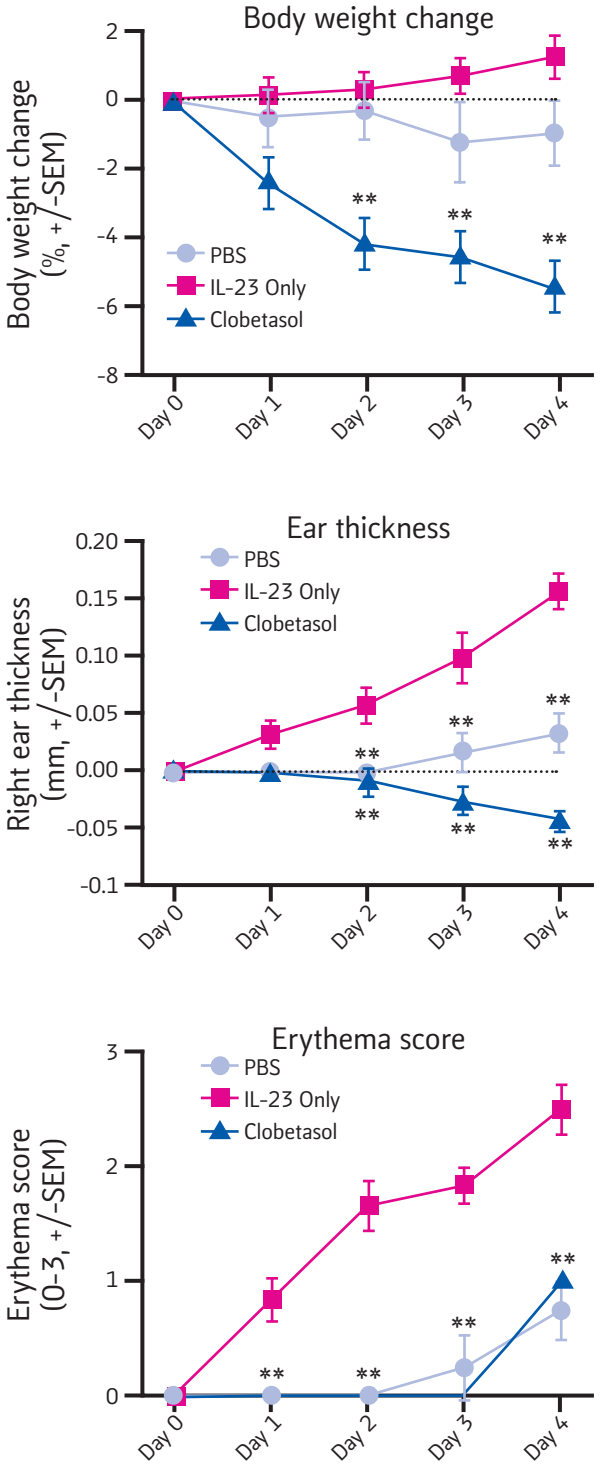



Figure 1: Model parameter verification and clinical assessments

Animals were injected i.d. with with either PBS or rrIL-23 protein. **p<0.01, Two-way ANOVA, multiple comparisons.

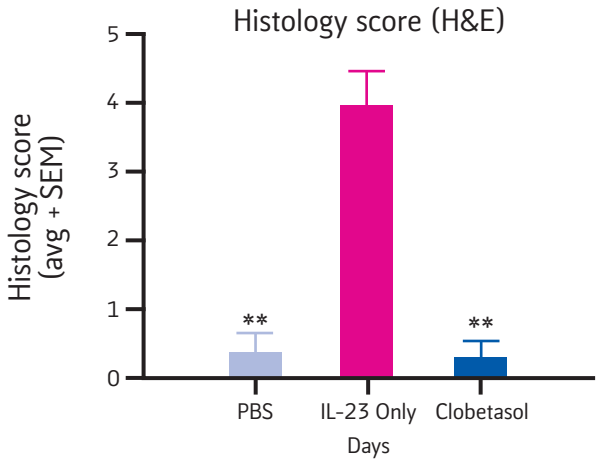



Figure 2: Histology (H&E)

Ear samples from day 4 were harvested and stained with H&E for disease severity assessment. Slides were scored by a pathologist and cumulative data shown. Parameters include epidermal exudates, erosion, epidermal hyperplasia and inflammation.

Scoring was based on the following scale:
0 = no finding, 1 = minimal, 2 = mild, 3 = moderate, 4 = marked, 5 = severe. Based on H&E scoring, IL-23 induced significant disease that was reduced upon Clobetasol treatment. **p<0.01, One-way ANOVA, multiple comparisons.

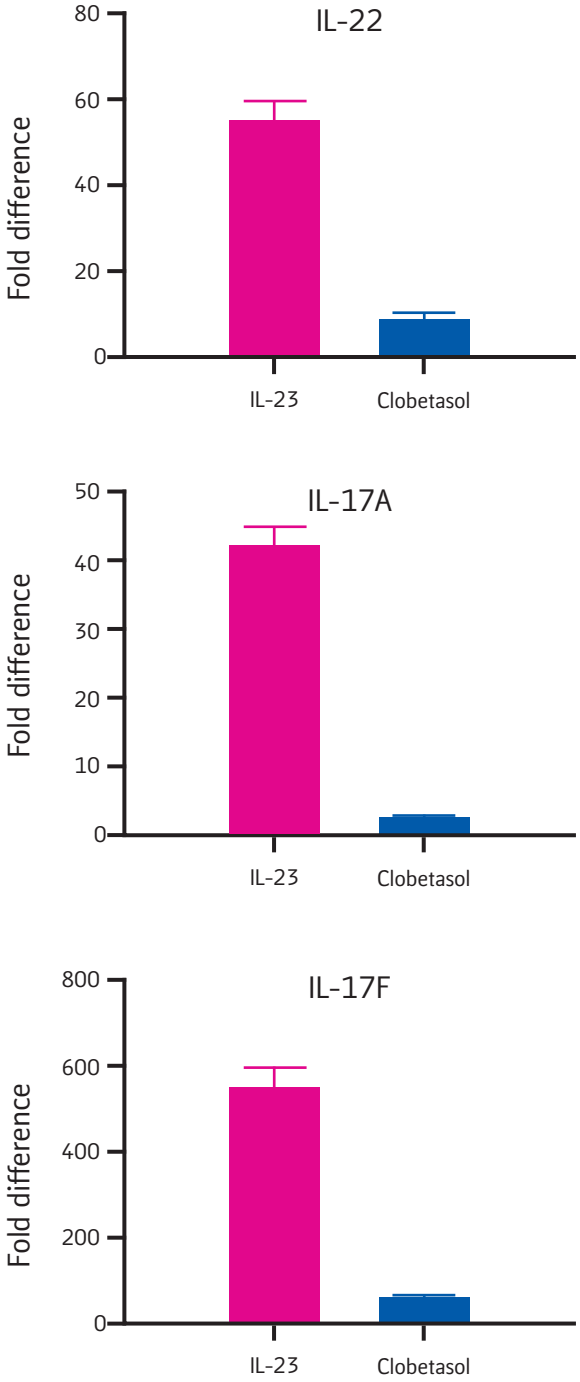



Figure 3: Biomarker Assessments
qPCR was performed on ear samples from animals on day 4. Samples were normalized to housekeeping gene, HPRT1 and PBS injection controls. IL-23 induced robust biomarker productions. All markers were significantly decreased in treated animals compared to IL-23 only controls. **p<0.01, T-Test.

## Our Clients Say ...

"The performance of your team far exceeded our expectations. The study was performed well and we appreciate all your input into the study design. Your responsiveness and feedback during the study and following in the data interpretation was extremely helpful to guide our next steps. That's something we don't find with every CRO."

*S.G., Toxicologist, Biotech Company*

"Of all the CROs that I have used over the years... MLM Medical Labs been one of the very best in terms of scientific knowledge, data quality, timelines, flexibility and personal contacts."

*O.B., Director of Therapeutics, Pharmaceutical Company*

"Throughout our relationship, you have been attentive to our needs and have completed exploratory pilot studies and three drug studies with professionalism and an understanding of tight biotech timelines that are unmatched by other CROs."

*D.Z., Director of Therapeutics, Biotech Company*

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If you'd like to discuss a particular study or speak with a scientist, please reach out to us!

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