

# Rat IMQ-induced Psoriasis

Psoriasis is the most common chronic autoimmune skin condition, impacting ~125 million people worldwide. The pathogenesis of psoriasis is not wholly understood, though assumed to be a complex interplay between environmental factors, immune dysregulation and genetic susceptibility. The imiquimod (IMQ) induced psoriasis model uses imiquimod, a TLR7 agonist, to activate innate immune cells in the skin. Diseased animals exhibit erythema and plaque formation shortly after the study begins and progresses through termination. This activation induces a cellular cascade involving IL-23/IL-17 pathways, resulting in psoriasis-like disease in the animals.

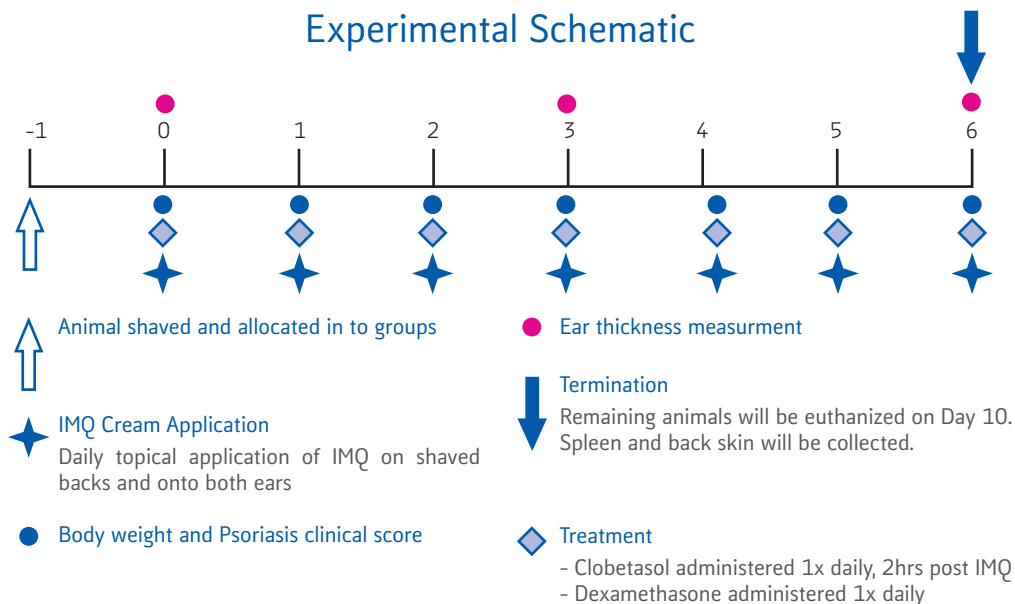
The IMQ psoriasis model shows promise in therapeutic advancements for psoriasis, as such model mimics specific disease pathologies.

## Experimental Overview

Psoriasis is induced by topical IMQ application on the ears and backs of animals. Clinical score and body weight are measured daily and ear thickness is measured 3 times.

Animal Strain:	Sprague Dawley Rat
Study Duration:	7 Days
Positive Controls:	IMQ Clobetasol-topical Dexamethasone
Standard Assessments:	Clinical score/signs Ear thickness Body weight
Add-on Assessments:	Biomarker Analysis (protein and genomic) Histology (H&E) IHC

## Experimental Schematic



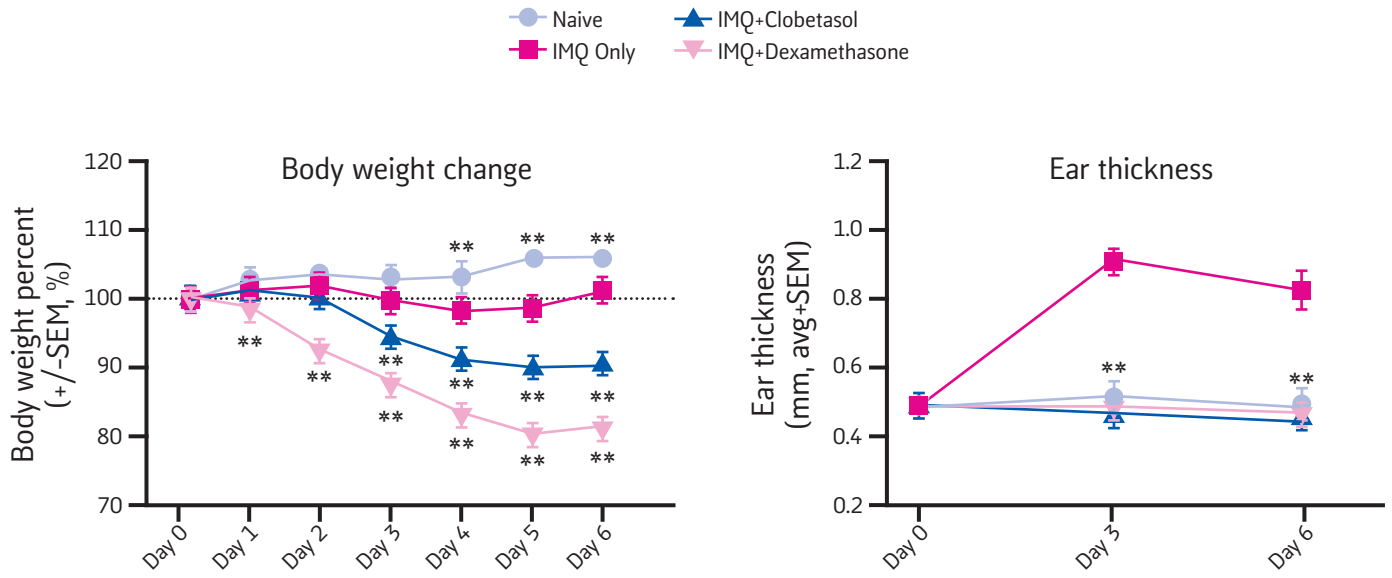


Figure 1: Body Weight and Ear Thickness Assessments

Animals were treated as above and monitored for daily body weight compared to starting weight. Ear thickness was assessed as a proxy for skin thickening. IMQ-only animals developed significant ear inflammation compared to naïve and treated animals. \*\*p<0.01, Two-way ANOVA, multiple comparisons.

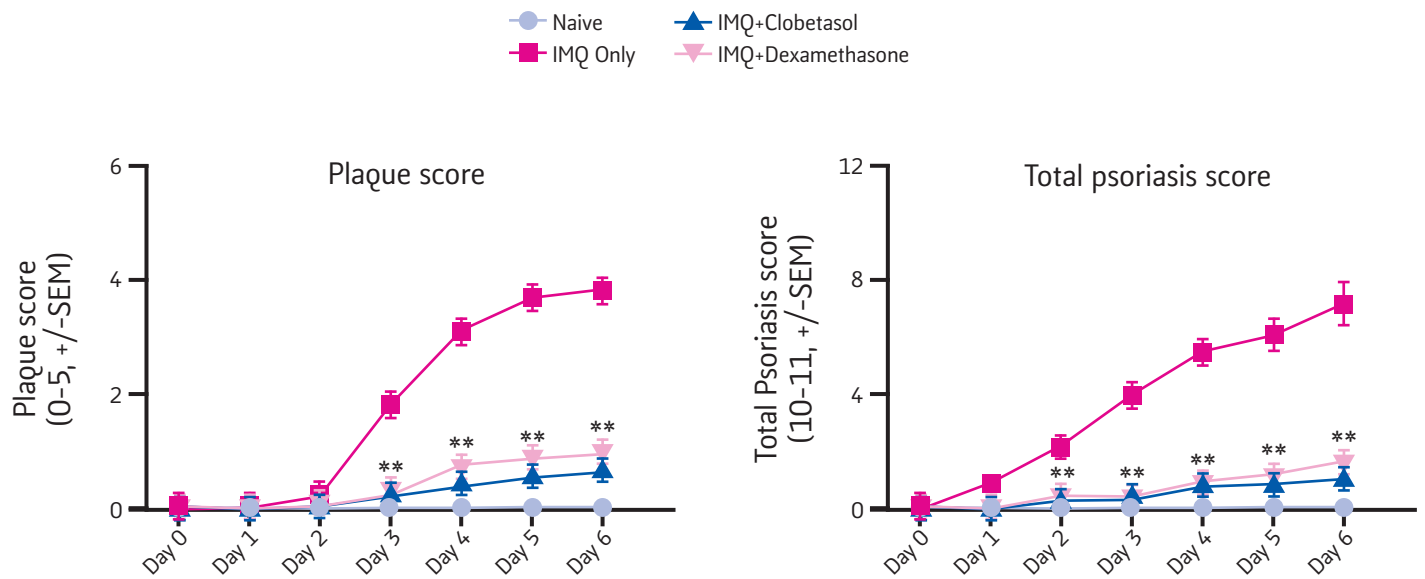


Figure 2: Plaque Score and Total Psoriasis Score

Animals were treated and monitored daily for assessment of plaque score and total psoriasis disease score. IMQ-only animals developed significant plaques and overall disease compared to naïve and treated animals. \*\*p<0.01, Two-way ANOVA, multiple comparisons.

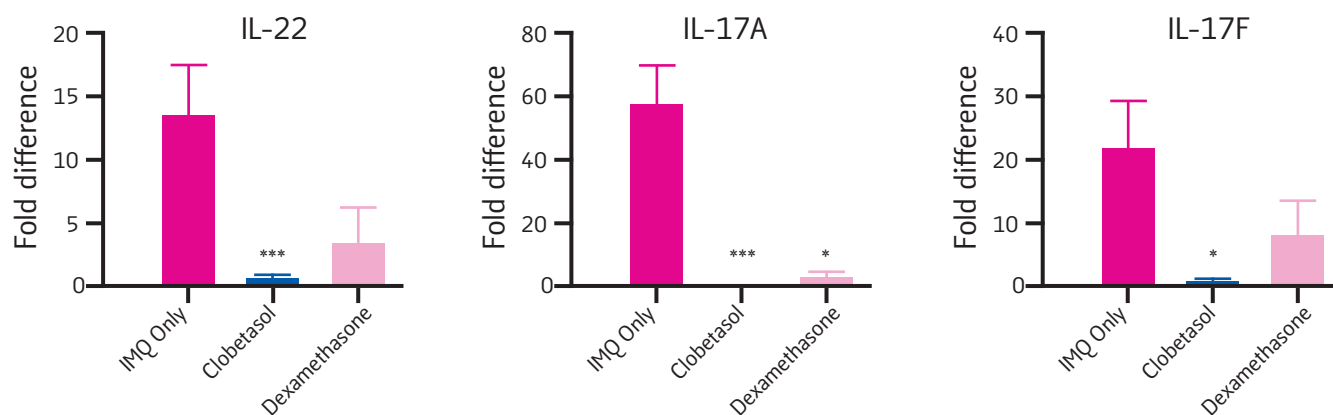


Figure 3: Biomarker Assessments

qPCR was performed on back skin samples from animals on Day 6. Samples were normalized to house-keeping gene, HPRT1 and naïve controls. IMQ induced robust biomarker production. All markers were significantly decreased in treated animals compared to IMQ controls. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$  vs. IMQ only group using one-way ANOVA followed by Dunnett's multiple comparisons.

## 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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