

Psoriasis Mouse Model

Establishment of Psoriasis Mouse Model

Methods:

1. Healthy male BALB/c mice aged 7-8 weeks were selected for back shaving with an area of 2.5cm×2.5cm.
2. Then the mice received commercially available IMQ cream (Sichuan Mingxin Pharmaceutical Co. LTD) on the shaved back for 5 consecutive days. The control group received the same dose of vaseline.
3. PASI (Psoriasis Area and Severity Index) and pathological changes were used to measure the severity and extent of psoriasis.

PASI scores can be calculated as follows:

Erythema, scaling, and thickening were scored independently on a scale from 0 to 4.

Thickening:

- 0: No skin thickening. The flesh should be loose and unwrinkled.
- 1: Visible skin puckering at the edge of the applied area.
- 2: Visible skin puckering in all areas.
- 3: The skin is further puckered.
- 4: Based on the symptoms described above, the mice were losing weight or were in poor condition.

Scaling

- 0: No skin flaking
- 1: Minor dry spots
- 2: Dry spots across a majority of the skin
- 3: More and more dry spots
- 4: Based on the symptoms described above, the mice were losing weight or were in poor condition.

Redness:

0: Fleshy pink.

1: Minor reddening

2: Medium red

3: Further red

4: Based on the symptoms described above, the mice were losing weight or were in poor condition.

The cumulative score (erythema plus scaling plus thickening) served as a measure of the severity of inflammation (scale 0-12).

Results:

Mice with IMQ ointment showed erythema, scaly skin, and significantly thickened skin. HE staining results indicated that IMQ treatment resulted in hyperproliferative keratinocytes, a disturbed epidermal differentiation (parakeratosis), and the absence of a granular layer, admixed with lymphoid infiltrate and dilated capillaries in the upper dermis.

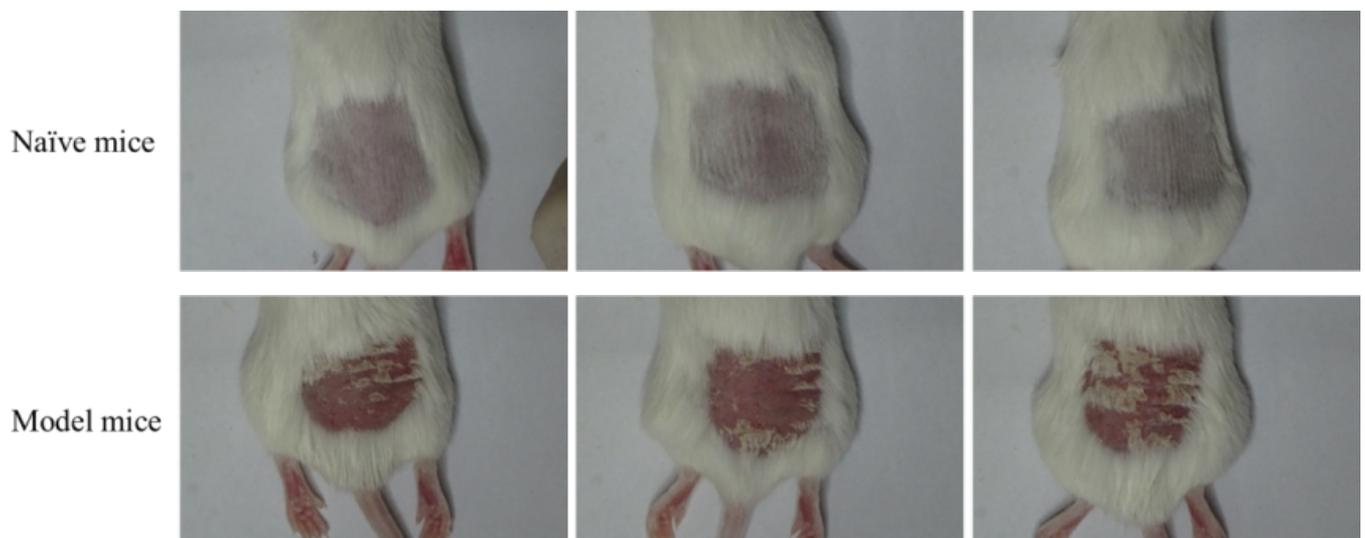


Fig 1. The picture of naïve and model mice at the end of experiment

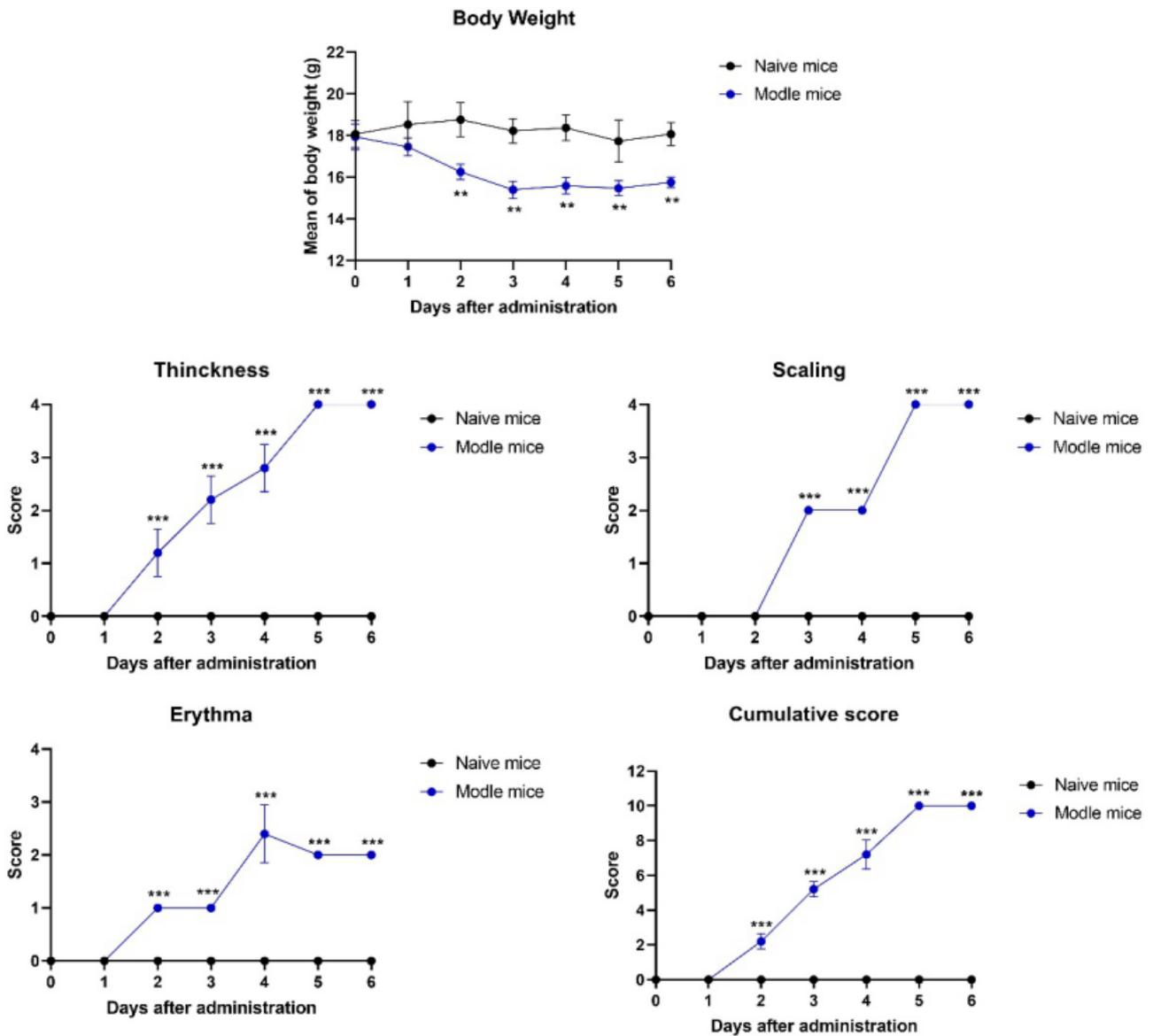


Fig 2. Score and weight of naïve and model mice

(**, $P < 0.01$, ***, $P < 0.0001$)

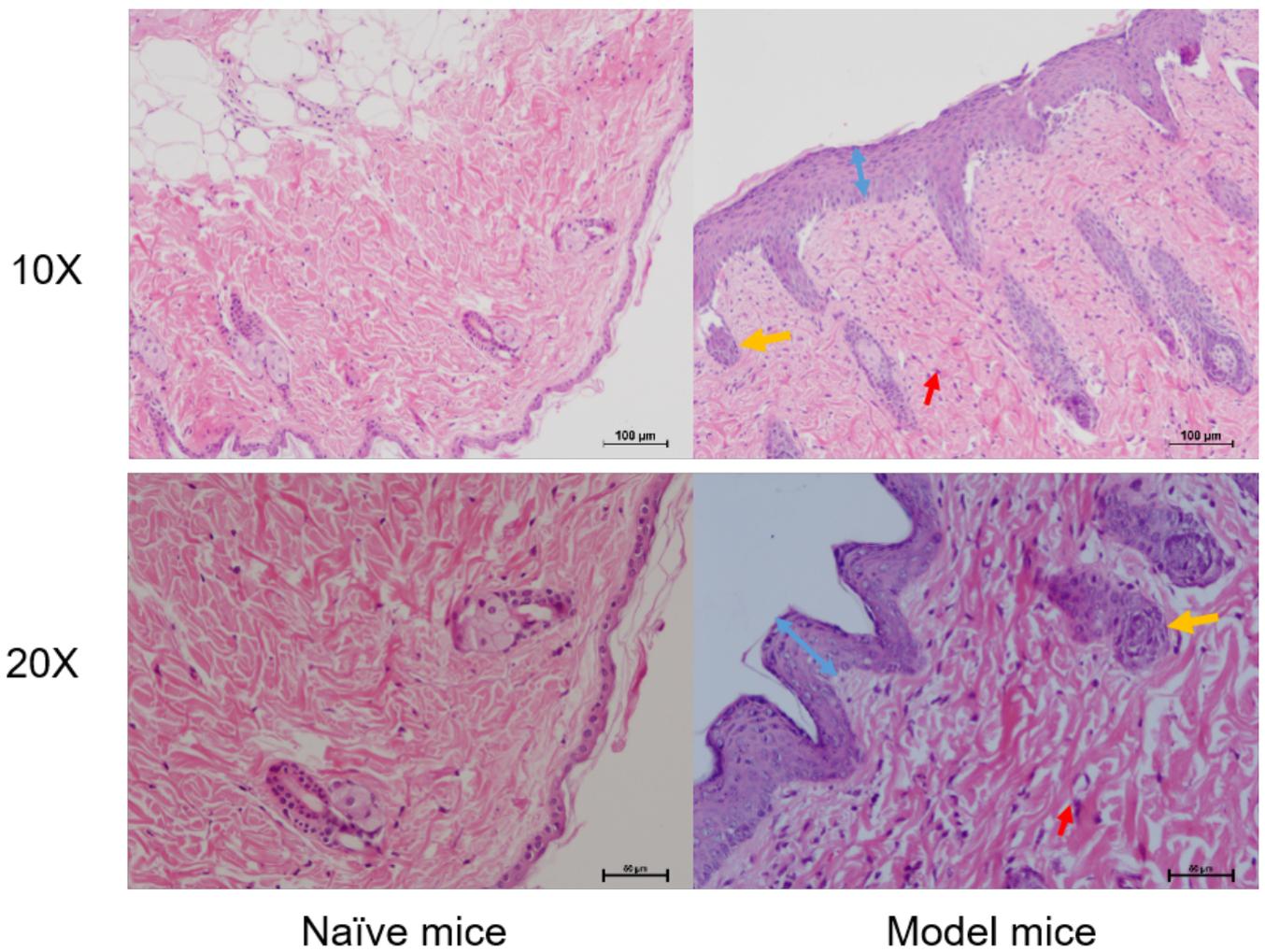


Fig 3. HE staining from skin of the naïve and model mice at the end of experiment

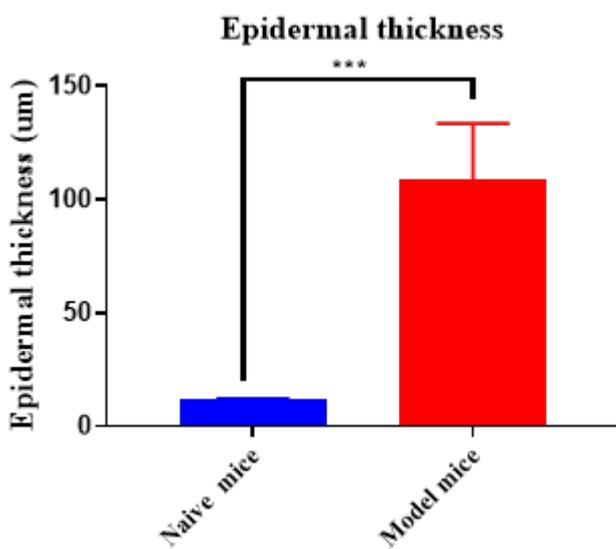


Fig 4. The thickness of skin of the naïve and model mice at the end of experiment

(***, P < 0.0001)

Conclusion:

In conclusion, the IMQ-induced dermatitis mouse model shows many similarities with human psoriasis, which offered an ideal animal model for drug efficacy evaluation.