

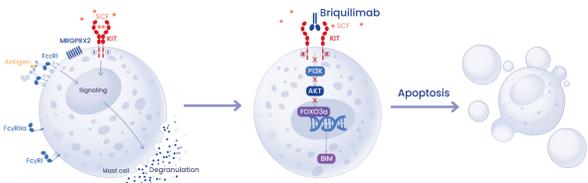
A Single Dose of Briquilimab, a Human KIT (CD117) Antibody, Protects Against Relapse of Epicutaneous Allergen-Induced Dermatitis in Mice Expressing Chimeric Human/Mouse CD117

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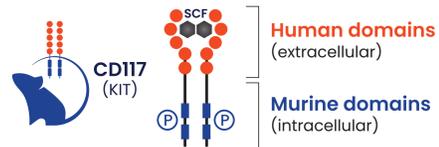


Introduction

- Briquilimab is a humanized, aglycosylated, anti-KIT monoclonal antibody that functionally blocks the interaction of KIT and SCF, disrupting the critical signal needed for mast cell (MC) survival, leading to MC apoptosis



- Humanized h/mCD117 mice, which express the functional human extracellular and murine intracellular domains of KIT, provide a clinically relevant platform for proof-of-concept preclinical evaluation



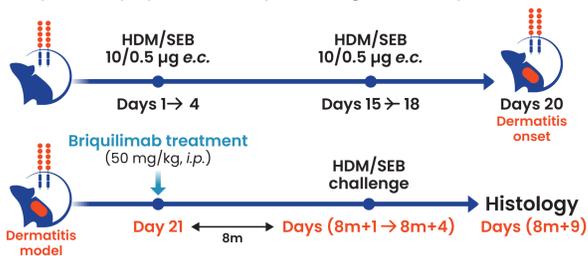
- A single dose of briquilimab has previously been shown to effectively treat epicutaneous (e.c.) house dust mite (HDM) and *Staphylococcal* enterotoxin B (SEB)-induced dermatitis in h/mCD117 mice

- This current study aimed to determine whether a single briquilimab treatment could provide sustained protection against allergen-induced relapse of dermatitis, particularly after MC tissue repopulation

Methods

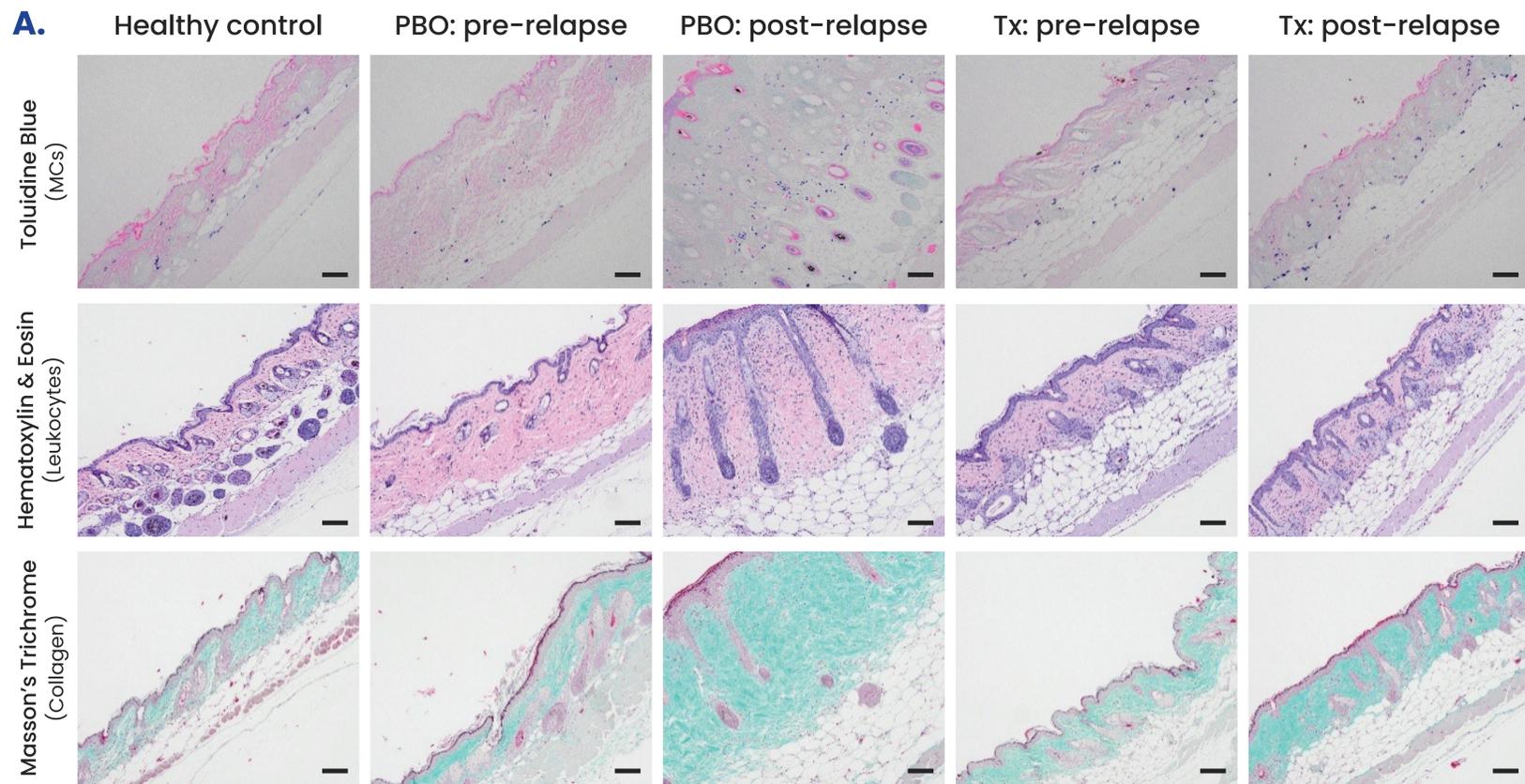
- Eight months following a single briquilimab dose (25 mg/kg), both briquilimab- and placebo-treated dermatitis models were subjected to a 4-day cycle of e.c. HDM/SEB exposure

- Skin condition was assessed five days later, followed by necropsy and histopathological analysis

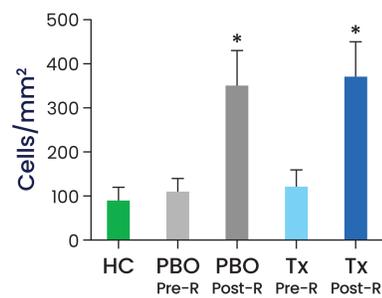


Results

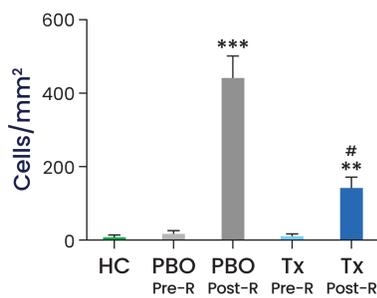
Figure. During epicutaneous allergen-induced relapse 8 months after a single briquilimab dose, the previously treated dermatitis model exhibited milder skin lesions, along with reduced dermal leukocyte infiltration and collagen deposition compared to the previously placebo-treated model.



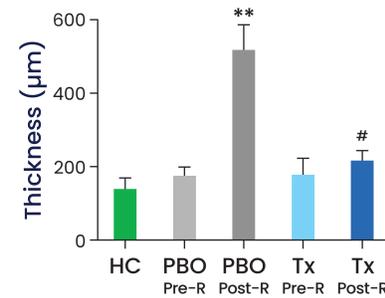
B. Dermal MCs



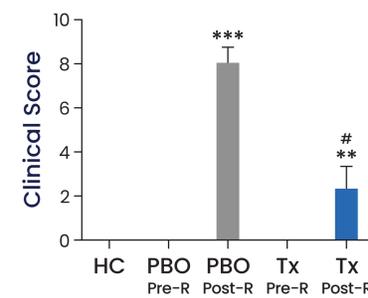
C. Dermal leukocytes



D. Dermal Collagen



E. Skin condition



• Representative histological sections of dermal mast cells, leukocytes, and dermal collagen depicted in (A). Quantification of dermal mast cells (B), dermal leukocytes (C), and dermal collagen (D). Scoring of clinical features of dermatitis (E).

HC – healthy control; PBO – previously placebo-treated; Tx – previously briquilimab-treated; Pre-R or Pre-Relapse – assessed before allergen-elicited relapse; Post-R or Post-Relapse – assessed after allergen-elicited relapse; Scale bar = 100 µm. *, **, or *** $P < 0.05, 0.01, \text{ or } 0.001$ compared with the corresponding Pre-R group; # $P < 0.01$ compared with PBO:Post-R group, $N = 3 - 5$.

Conclusions

- A single dose of briquilimab provided durable protection, significantly reducing skin inflammation, dermal leukocyte infiltration, and collagen deposition during allergen-induced relapse eight months post-treatment
- These findings demonstrate briquilimab's potential as a mast cell-targeted therapy for chronic relapsing allergen-induced dermatitis

Takeaways

- A single dose of briquilimab provided durable protection, significantly reducing skin inflammation, dermal leukocyte infiltration, and collagen deposition during allergen-induced relapse eight months post-treatment

- These findings demonstrate briquilimab's potential as a mast cell-targeted therapy for chronic relapsing allergen-induced dermatitis

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Briquilimab is an investigational drug and is not approved for any indication.