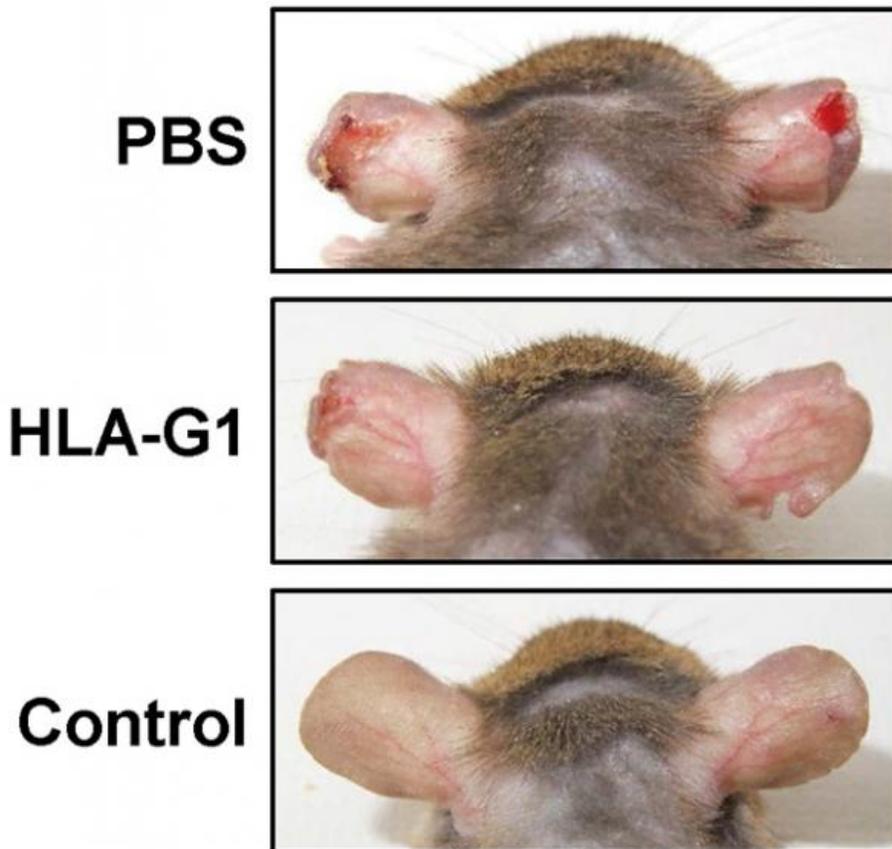


Countering atopic dermatitis immune reactions

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Mice treated with HLA-G1 showed marked improvement of the skin lesions compared to PBS (saline) treated mice. Control mice with no induced atopic dermatitis is shown as control. Credit: Maeda N., et al., International Immunopharmacology, July 1, 2017

Human leukocyte antigen (HLA)-G is a protein that interacts with specific cell receptors to inhibit immune responses. The protein is best known for its role in protecting the fetus from attack by its mother's immune system. A team of researchers from Hokkaido University in Japan successfully used it to treat mice with an induced form of atopic dermatitis.

Atopic dermatitis is a chronic form of eczema commonly seen in developed countries, particularly in children. It occurs as a result of a hypersensitive immune reaction but the exact mechanism is unknown. It causes redness of the skin, itchiness, scaling and vesicles.

According to the paper published in the journal *International Immunopharmacology*, Professor Katsumi Maenaka and his team used an extract made from a common dust mite to induce [atopic](#) dermatitis in mice. Dust mites are known as a causative allergen in atopic dermatitis. Bleeding, scarring and dry skin were evident after applying the extract on and around the mice's ears for 15 days. *Blood* samples also showed evidence of an immune reaction. The affected areas around the ears were then treated with topical HLA-G1, a major form of HLA-G, every other day for 20 days. These HLA-G1 proteins had been produced in bacteria and purified for the experiments.

Mice treated with HLA-G1 showed marked improvement of the skin lesions. Blood samples also showed a reduced immune response compared to mice that weren't treated with HLA-G1. The results suggest that HLA-G1 could improve conditions by suppressing an excessive allergic reaction in the atopic dermatitis model. Importantly, the treated [mice](#) didn't show weight loss, a common side effect in anti-atopic dermatitis treatments. Other experiments showed that HLA-G1's suppressive function involves the inhibition of lymphocytes that work in allergic reactions.

The team previously reported that HLA-G proteins can suppress joint swelling in an animal model for rheumatoid arthritis. "Our study provides novel insights on the function of HLA-G proteins, which can provide clues on efficient therapeutic strategies for patients with [atopic dermatitis](#), [rheumatoid arthritis](#) and other related diseases. Further investigation is needed to better understand HLA-G's suppressive mechanism against excessive immune reactions," says Katsumi Maenaka.

More information: Naoyoshi Maeda et al. Therapeutic application of human leukocyte antigen-G1 improves atopic dermatitis-like skin lesions in mice, *International Immunopharmacology* (2017). [DOI: 10.1016/j.intimp.2017.06.026](#)

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