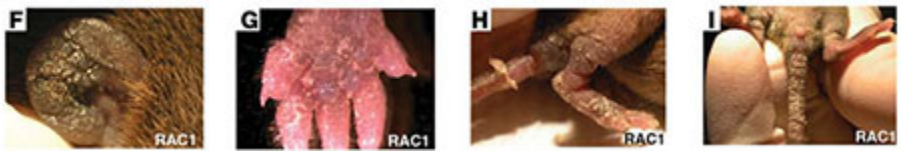
Docket #: S03-205

Mouse model for psoriasis that closely mimics the human disease

Researchers at Stanford have developed a mouse model of psoriasis that closely mimics human psoriasis. Psoriasis is a chronic inflammatory disorder characterized by itchy, disfiguring skin lesions. Immune-based biologic therapies have been developed to treat psoriasis but they carry significant risk with long term use, thus alternatives are needed. This invention provides a mouse model of psoriasis that can be used to help develop new therapeutics. The transgenic mice express activated RAC1 ($RAC1^{V12}$) and have been used in studies to show RAC1 is a key mediator of epidermal dysfunction. These mice demonstrate the hallmarks of human psoriasis including: itchy, scaly skin lesions, the Auspitz sign, Koebnerization, a response to cyclosporine and topical steroids and a pattern of arthritis that closely mimics human psoriasis. These mice provide an excellent model of human psoriasis that can be used for research and therapeutic development purposes.



Images of transgenic $RAC1^{V12}$ mice. By 1 month lesions localized to the ears (F), paws (G), tail (H and I) and snout (not shown).

Applications

- Mouse model of psoriasis:
  - Develop and test therapeutics for psoriasis
  - Research

Advantages

- Closely mimics human psoriasis including clinical phenotype, histology and molecular characteristics
- Avoids xenograft model- no need to take skin from patients already suffering from psoriasis and graft it onto immunodeficient mice

Publications

- Winge MC, Ohyama B, Dey CN, Boxer LM, Li W, Ehsani-Chimeh N, Truong AK, Wu D, Armstrong AW, Makino T, Davidson M, Starcevic D, Kislat A, Nguyen NT, Hashimoto T, Homey B, Khavari PA, Bradley M, Waterman EA, Marinkovich MP. RAC1 activation drives pathologic interactions between the epidermis and immune cells. J Clin Invest. 2016 Jul 1;126(7):2661-77. doi: 10.1172/JCI85738. Epub 2016 Jun 13.
- Conger K. Possible psoriasis drug target identified. Stanford News. 2016 Jun 13.

Innovators

- M. Peter Marinkovich

Licensing Contact

Brenda Martino

Biological Materials Specialist

Email