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To develop an *in vivo* wound healing model for human skin

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The repair and management of full-thickness skin wounds such as deep burns or chronic ulcers remain a clinical challenge. No significant new therapies have been made in the last decade due in large part to the absence of a properly humanized animal model. Currently, the common mouse model for studying human skin wound healing uses either human skin grafted or tissue engineering skin transplanted onto the nude mice. In the human skin graft model, the skin transplant after wounding usually repairs with contraction, a high rate of shrinkage and hypertrophic scar, and does not maintain a viable normal-looking human skin for long periods. The current tissue engineering skin model is not morphologically normal as it consists of a simple bilayer epidermis without appendages and an undifferentiated dermis. We recently developed a new isolation and culture system, which could maintain multipotential of skin cells after expanded *in vitro*. The culture-expanded skin cells were able to regenerate a full-thickness human reconstituted skin (hRSK) after grafting onto the immuodeficient mouse. The histological structure of hRSK is similar to that of human skin and we created a wound on the regenerated skin, and found the skin could heal by itself, and the healing procedure is similar to normal human skin. This data suggested this mouse model could used to study human skin wound healing *in vivo*.