

## Is it possible to make scars on newts?

Ikkei Takashimizu, Shunsuke Yuzuriha

Shinshu University School of Medicine, Department of Plastic and Reconstructive Surgery, Nagano, Japan

The Japanese fire belly newt, *Cynops pyrrhogaster*, is a unique amphibian that can completely regenerate eyes, limbs, and tails without scars during its entire lifetime. How it regenerates these tissues is of interest because it may shine light on how to treat normal and abnormal scars such as keloids. We investigated whether it is possible to generate scars on these newts by creating skin wounds and implanting a device under the skin that extended the epithelialization stage from the normal 2 days to up to 18 days. The wounded tissues were then collected and subjected to immunohistochemical analysis. Extending the epithelialization stage associated with scattered  $\alpha$ SMA-positive cells and the accumulation of blood cells and fibrin-like substances on the wound surface. Collagen fibers were not observed. Thus, the wounds generated in this study were equivalent to the clinical wound healing stage between blood clotting and granulation (i.e. the pre-granulation tissue stage). These observations suggest that scars can be created on the Japanese fire belly newt by prolonged inhibition of wound epithelialization.