

Morphological Aspects of Early Wound Repair in Excised Skin of the Korean Fire-bellied Toad, *Bombina orientalis*

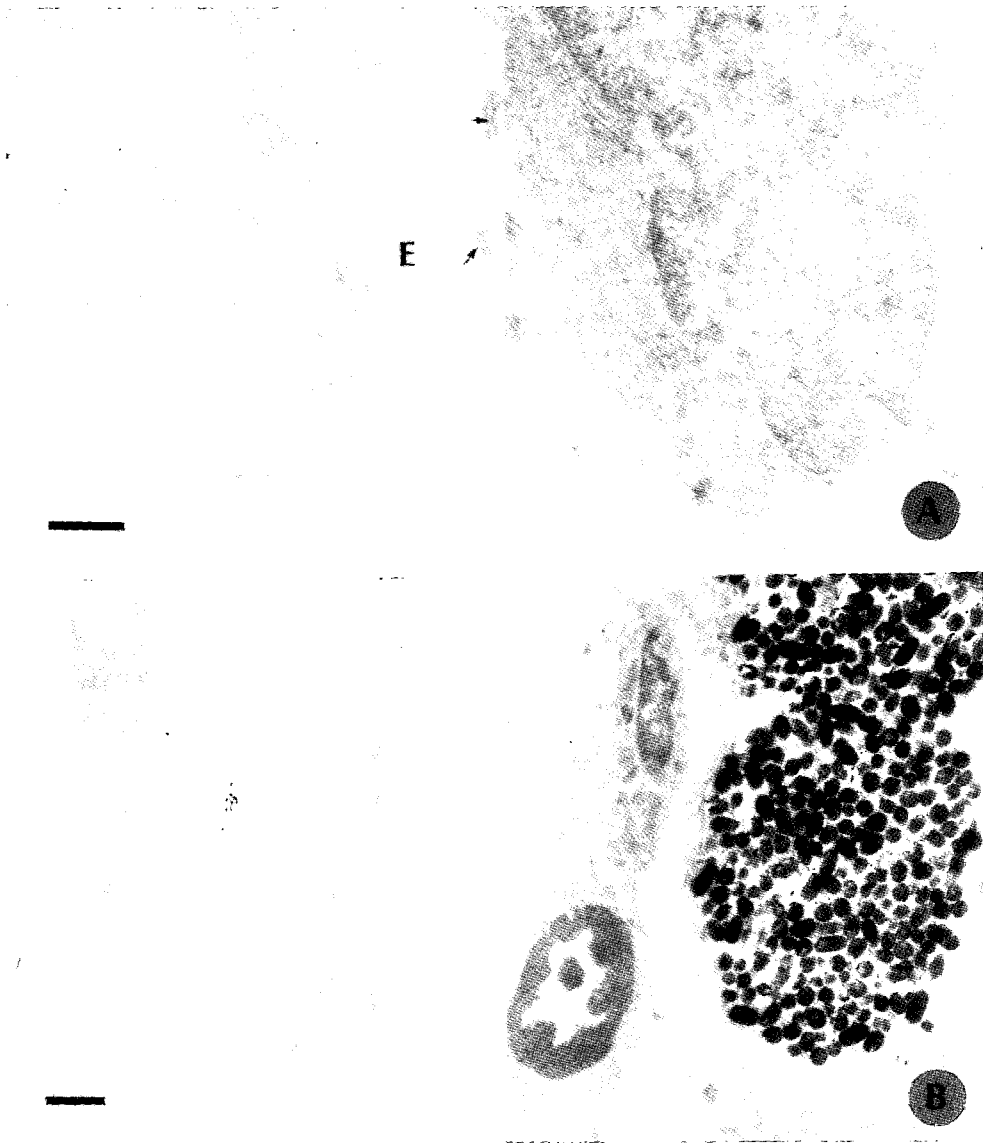
Jeong, Moon-Jin and Myung-Jin Moon

Department of Biological Sciences, Dankook University

In order to observe the wound repairing responses, artificial wounds weremade by razer blade on the dorsal surface of the toad *Bombina orientalis*. The cutaneous tissues surrounding the wound were cut out and fixed in 2.5% paraformaldehyde-glutaraldehyde mixture.

Early responses of wound repair in the skin were occurred by a wound healing responses, such as phagocytosis, secretion of fibrous substances and contraction of the wounding tissues. After inducing the wound, a few of hemocytes were seen under the wounded tissues. Foregin materials and debris were removed by phagocytosis of the epidermal cell near the wound edges.

One day after injury, fibrous substances were secreted and aggregated beneath the dermis. During this stage, the size and division of the basal stem cells were considerably increased. At 2 days after wounding, wound contraction was initiated by migration of epidermal cells located in wound edge. During migration of epidermal cells, parts of plasma membranes were attached to that of others. Moreover basement membrane between epidermis and dermis was rearranged at this stage. At 3 days after injury, excised wound area was completely covered by amorphorus membrane which composed of fine fibrous materials. Fibroblasts were first detected among the connective tissues of dermal layer.



Figs. A, B. Electronmicrograph of the dorsal skin of the toad, *Bombina orientalis*. At 1 to 3 days after wounding. After migration of epidermal cells(E), parts of cell membrane were attached to the other cells. Desmosomes(arrows) were maintained the structural integrity of the epidermis. scale bar indicates $0.5 \mu\text{m}$. Electronmicrograph of dermal chromatophores staining with uranyl acetate and lead citrate. The dermal chromatophores were parallel to the basement membrane. The melanosomes of the melanophores were observed in an oval shape and have strong electron density in dermis. Scale bar indicates $1 \mu\text{m}$.