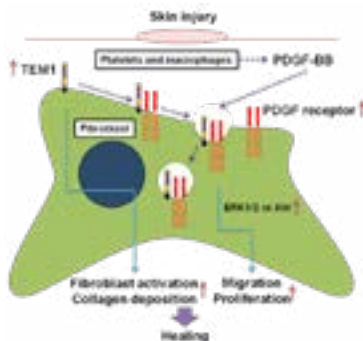


The synergistic effect of tumor endothelial marker 1 and platelet-derived growth factor in wound healing

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Tumor endothelial marker 1 (TEM1), also known as endosialin or CD248, is a type I transmembrane glycoprotein containing a C-type lectin-like domain. It is specifically expressed in smooth muscle cells, pericytes, and fibroblasts. Dermal fibroblasts play a pivotal role in cutaneous wound healing, especially in the proliferative and remodeling phases. However, the mechanism by which TEM1 physiologically regulate wound healing remains to be unexplored. In the process of wound healing, both TEM1 and platelet-derived growth factor (PDGF) receptor α (PDGFR α) expressions were significantly up-regulated in myofibroblasts in the granulation tissues. A delayed wound healing was observed in TEM1 deficiency mice. Fibroblast activation, collagen deposition, and proliferation of fibroblasts were decreased in granulation tissues in the wounds of TEM1 deleted mice. The migration, adhesion, and proliferation activities in NIH3T3 cells were attenuated when TEM1 expression was knockdown by short hairpin RNA. The signal transduction, mitogenic and chemoattractive effects induced by PDGF-BB were inhibited by TEM1 silencing. Furthermore, TEM1 and PDGFR α were co-localized in sub-cellular organelles in dermal fibroblasts. The association of TEM1 and PDGFR α was also demonstrated by co-immunoprecipitation. In conclusion, we demonstrated that TEM1, in cooperation with PDGFR α , plays a critical role in wound healing by enhancing the mitogenic and chemoattractive effects of PDGF-BB and collagen deposition in myofibroblasts.

**Recent Publications:**

- Hong Y K, Lee Y C, et al (2019) Tumor Endothelial Marker 1 (TEM1 / endosialin / CD248) Enhances Wound Healing by Interacting with Platelet-Derived Growth Factor Receptors. Journal of Investigative Dermatology pii: S0022-202X (19)31480-0.

Biography

Yi-Kai Hong is pursuing his PhD in Institution of Basic Medical Sciences at National Cheng Kung University in Taiwan. His research project is to investigate the biological function of tumor endothelial marker1(TEM1), which is also known as endosialin, in skin fibroblasts. TEM1 is a type I trans-membrane glycoprotein, which belongs to the same family as thrombomodulin.

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