Exploring the three dimensional structure of dermal tissues

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The dermal tissues are composed of collagen fibers and have been researched many years. The composite and three dimensional structure of collagen protein, collagen fibrils, collagen fiber has been clarified, however, the three dimensional structure of the extracellular matrix of dermal tissues has not been known, which impede the development of skin tissue engineering and skin regeneration. For example, the current skin tissue engineering products use the non-woven structure as the scaffold, which confirmed unsatisfactory after clinic usage. The other question is how the collagen fibers wove into the normal ECM during ontogeny and after wound healing is still unknown. This research will focus on the exact three dimensional mesoscopic structures of dermal tissues and would like to uncover the mechanism of the knit of collagen fibers, provide the golden standard to evaluate the skin tissue engineering product and regulate the wound healing.

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Faces of chromoblastomycosis in Mainland China and using of photodynamic therapy

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Chromoblastomycosis as a chronic, cutaneous and subcutaneous infection has been reported more than 600 cases in China, but it has not been known to cause outbreaks until now. Several dematiaceous fungi are involved with the disease etiology, Cladophialophora carrionii is the most common agent in the North China, while Fonseccaua monophora instead of F. pedrosoi and F. nubica is the most common agent in the southern region. Infection commonly initiated after the etiologic agents gain through puncture wounds and mostly involved extremities of the males. Clinically, the lesions are polymorphic, including plaque, tumoral, cicatricial, verrucous, pseudo-vacuole, eczematous and mixed type, which should be differentiated from some diseases associated with similar manifestation. The factors related to successful therapy for chromoblastomycosis might be pathogens, manifestations and severity. The common treatments include chemical therapy (systemic antifungal agents single used or combined) and physical methods, such as surgery, thermotherapy and cryotherapy. Patients with mild type of lesions could be treated successfully with systemic antifungal mono-therapy or combined therapy. But it is extremely difficult to eradicate severe lesions which are recalcitrant and disabling. Photodynamic Therapy (PDT) as a minimally invasive approach combines a non-toxic photosactivatable dye as photosensitizer with harmless visible light of correct wavelength to generate reactive oxygen or molecules that are toxic to target cells. It has recently been applied to the drug-resistant or recalcitrant chromoblastomycosis and showed considerable effects with promising future.

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