

## Full-thickness tissue engineered development using human keratinocyte and adipose tissue derived mesenchymal stem cells

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Tissue engineering is an emerging therapeutic strategy that has the potential to revolutionize the skin regeneration treatments (Xie et al., 2007). Three-dimensional epidermis has been previously reconstituted *in vitro* using keratinocytes and adipose tissue derived mesenchymal stem cells (ADSC) seeded on dermal substrates in an air-liquid (A/L) environment (Lu et al., 2012). ADSCs present immunomodulatory potential and are easily accessible (Du et al., 2010; Sheng et al., 2013). In addition, these cells have can differentiate into fat, bone, cartilage, and muscle under lineage-specific culture conditions (Tholpady et al., 2006). The aim of this study was to develop a three-dimensional full-thickness engineered skin substitute using irradiated glycerol-preserved acellular dermis as support for the proliferation of different numbers of keratinocytes and ADSCs. Our results show that 300,000 keratinocytes cell/cm<sup>2</sup> and 300,000 ADSCs cell/cm<sup>2</sup> plated at the same time are enough to create a full-thickness dermal-epidermal substitute.

### References

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