A photopolymerized and resorbable biomaterial composite for oral mucosal surgical wound repair post cleft palate surgery

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Improving the standard of care

Figure 1: Representation of the most common types of cleft affecting the palate. (a) Unilateral cleft lip with alveolar involvement; (b) bilateral cleft lip with alveolar involvement; (c) unilateral cleft lip associated with cleft palate; (d) bilateral cleft lip and palate; (e) cleft palate only.

3-(Acryloyloxy)-2-hydroxypropyl methacrylate (AOHPMA)
UV light is detrimental for cell survival and Visible light should be considered for future polymerization.

Absorption profile of IRGACURE 2959

Red Visible Light on Fibroblast

Dental Light on Osteoblasts
Gelatin is non-toxic to cells but mechanical properties need to be improved.
Next Steps

- Obtain biological correlate mechanical measurements using rheometer
- Establish an animal surgical wound model
- Use of material blend to achieve desirable biomechanical properties
- Gene expression analysis of palatal mucoperiosteal cells and osteoblasts after co-culture with material
- ISO rapid degradation and artificial saliva degradation tests
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