In vitro study on proliferation kinetics of oral mucosal keratinocytes.

Abstract:

The limited availability of autogenous oral mucosa in oral and maxillofacial surgery for intraoral grafting after trauma or tumor resection can be balanced by the use of tissue-engineered oral mucosa. However, the use of tissue engineering in autologous grafts is still subject to further research. The aim of this study was to evaluate conditions that lead to a rapid proliferation of vital and highly proliferative oral keratinocytes, which can be used in tissue engineering and consequently help improve surgical management of intraoral mucosal defects. Human oral keratinocytes were obtained from oral mucosal specimens and cultivated. According to their affinity to \(\alpha 1\)-integrin, epidermal stem cell populations were isolated by using collagen type IV and laminin-coated dishes. Cell proliferation and cell viability were measured by using the CASY cell counter, WST-1 assays, and real-time cell analysis (xCELLigence). Measurements on cell proliferation (CASY cell counter) and cell viability (WST-1 assay) showed the characteristic proliferation stages of in vitro-cultivated cells. No statistically significant differences could be monitored (\(P> .05\)). Real-time cell analysis, as a more direct and precise technique, revealed a steeper growth curve of adherent cells and therefore generally higher proliferation kinetics compared with cells derived from the supernate. Data from real-time cell analysis showed an
increased proliferation of adherent cells compared with those derived from the supernate. These results demonstrate the increase of the proliferation capacity by cultivation of keratinocytes derived by adhesion to extracellular matrix proteins.

**Zeitschriftentitel / Abkürzung:**

**Jahr:**
2015

**Band:**
120

**Heft / Issue:**
4

**Seiten:**
429-35

**Sprache:**
eng

**Volltext / DOI:**
http://doi.org/10.1016/j.oooo.2015.06.001

**Pubmed:**

**Print-ISSN:**
2212-4403

**TUM Einrichtung:**
Klinik und Poliklinik für Mund-, Kiefer- und Gesichtschirurgie

**Occurences:**
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Klinik und Poliklinik für Mund-, Kiefer- und Gesichtschirurgie > 2015

**entries:**