

KADAR KALSIMUM OPTIMAL
STEM CELL HUMAN EXFOLIATED DECIDUOUS TEETH (SHED)
PADA DIFERENSIASI OSTEOGENIK

ABSTRAK

Latar Belakang : *Stem Cell Human Exfoliated Deciduous Teeth* (SHED) memiliki potensi diferensiasi menyerupai *osteoblast*. Besar potensi diferensiasi osteogenik pada SHED tersebut, salah satunya dipengaruhi oleh kuantitas kadar kalsium pada SHED. **Tujuan :** Untuk mengukur kadar kalsium optimal pada *Stem Cell Human Exfoliated Deciduous Teeth* (SHED) setelah diinduksi dengan medium osteogenik (deksametason, β -gliserolfosfat dan asam askorbat). **Metode :** Ekstraksi Gigi Sulung dan Isolasi Pulpa, kemudian dilakukan thawing dan pasase sel hingga pasase 4 pada 12 *well plate* hingga 80 % konfluen. Kemudian diinduksi menggunakan medium induksi osteogenik dan dibiarkan tumbuh selama 7, 14, dan 21 hari. Kadar kalsium secara kuantitatif dibaca menggunakan *elisa reader* pada optical density 595 nm. **Hasil :** Kadar kalsium pada *Stem Cell in Human Exfoliated Deciduous Teeth* (SHED) pada hari ke 7 adalah $0.173 \text{ mg/dl} \pm 0.000174$, pada hari ke 14 adalah $0.176 \text{ mg/dl} \pm 0.000232$, sedangkan pada hari ke 21 sebesar $0.1718 \text{ mg/dl} \pm 0.00029$. **Kesimpulan :** Dapat disimpulkan bahwa SHED memiliki kemampuan berdiferensiasi menyerupai *osteoblast*, yang dibuktikan dengan kadar kalsium optimal. SHED yang diinduksi medium osteogenik selama 14 hari.

Kata Kunci : *Stem Cell Human Exfoliated Deciduous Teeth* (SHED), Kalsium, Diferensiasi osteogenik

**OPTIMAL CALCIUM LEVELS OF
STEM CELL HUMAN EXFOLIATED DECIDUOUS TEETH (SHED)
AFTER OSTEOGENIC DIFFERENTIATION**

ABSTRACT

Background: Stem Cell Human exfoliated Deciduous Teeth (SHED) has the potential to resemble osteoblast differentiation. Optimal calcium levels from SHED should be known for clinical application. **Purpose:** To measure the optimal levels of calcium in the Stem Cell Human exfoliated Deciduous Teeth (SHED) after induction with osteogenic medium (dexamethasone, β -gliserolfosfat and ascorbic acid). **Methods:** Primary SHED cultured from deciduous teeth on passase 4 were cultured on 12 well plate and allowed to grow until reach 80% confluent. Then they induced with osteogenic induction medium for 7, 14 and 21 days. The levels of calcium was observed by elisa reader at 7, 14, and 21. **Results:** Levels of calcium on Stem Cell in Human exfoliated Deciduous Teeth (SHED) at day 7 was 0,173mg/dl \pm 0.0002, at day 14 was 0,176 mg/dl \pm 0.0002, whereas on day 21 amounted to 0,1718mg/dl \pm 0.0003. **Conclusion:** It can be concluded that SHED has an ability to differentiate into osteoblast like cell, indicated by the optimal calcium level after 14 days induced with osteogenic medium.

Keywords: Stem Cell Human exfoliated Deciduous Teeth (SHED), Calcium, Osteogenik differentiation