

# Karakteristik sel stromal pulpa gigi permanen dan gigi sulung subjek normal dan pasien Celah Bibir dan Palatum melalui Ekspresi Gen HOXC9 = Characteristics of DPSC and SHED in normal subjects and cleft lip and palate patients through HOXC9 Gene Expression

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## Abstrak

Latar Belakang: Rekayasa jaringan merupakan perawatan alternatif autologous bone graft pada rekonstruksi tulang alveolar pasien celah bibir dan palatum (CLP). Potensi klonogenik dan proliferasi yang baik serta kemudahan aksesibilitas membuat sel stromal pulpa gigi permanen (DPSC) dan gigi sulung (SHED) menjadi sel yang ideal untuk rekonstruksi tulang alveolar. Gen HOXC9 merupakan gen homeobox di bawah famili Hox, yang mengatur pola perkembangan skeletal. Penelitian terbaru menyatakan gen Hox tetap terekspresikan saat dewasa dan ditemukan dalam regenerasi jaringan. Namun, karakteristik ekspresi gen HOXC9 pada DPSC dan SHED subjek normal dan pasien celah bibir dan palatum belum diketahui secara pasti. Tujuan: Mengevaluasi karakteristik DPSC dan SHED subjek normal dan pasien CLP melalui ekspresi gen HOXC9. Metode: Sampel RNA DPSC subjek normal (n=2), DPSC CLP (n=3), SHED CLP (n=2) diperoleh dari bahan biologis tersimpan Laboratorium Oral Biologi Fakultas Kedokteran Gigi Universitas Indonesia. Selanjutnya ekspresi gen HOXC9 dan housekeeping gene GAPDH diuji dengan two step Real-Time PCR (RT-PCR). Hasil: Tidak terdapat perbedaan ekspresi gen HOXC9, baik antara DPSC subjek normal dengan DPSC CLP ( $p>0,05$ ) ataupun DPSC CLP dengan SHED CLP ( $p>0,05$ ). Kesimpulan: Sel stromal pulpa gigi permanen dan gigi sulung subjek normal dan pasien celah bibir dan palatum memiliki karakteristik yang sama melalui ekspresi gen HOXC9.

.....Background: Tissue engineering is an alternative treatment of autologous bone graft in alveolar bone reconstruction for cleft lip and palate (CLP) patients. The clonogenic and proliferative capacity as well as the ease of accessibility make DPSC and SHED ideal cells for alveolar bone reconstruction. HOXC9 is a homeobox gene under the Hox family, which regulates the development of skeletal patterns. Recent research suggests that the Hox gene remains expressed in adulthood and is found in tissue regeneration. However, the characteristics of HOXC9 gene expression in DPSC and SHED of normal subjects and cleft lip and palate patients are unknown. Objective: To evaluate the characteristics of DPSC and SHED in normal subjects and CLP patients through HOXC9 gene expression. Methods: RNA samples from DPSC of normal subjects (n=2), DPSC of CLP patients (n=3), SHED of CLP patients (n=2) were obtained from the Laboratory of Oral Biology, Faculty of Dentistry, Universitas Indonesia. HOXC9 gene expression and housekeeping gene GAPDH were tested by two-step Real-Time PCR (RT-PCR). Results: There was no difference in HOXC9 gene expression, either between DPSC of normal subjects and DPSC of CLP patients ( $p>0.05$ ) or DPSC and SHED of CLP patients ( $p>0.05$ ). Conclusion: DPSC and SHED of normal subjects and cleft lip and palate patients have the same characteristic through HOXC9 gene expression.