

性症例はなかった。さらにMRで同定した区域間とICGを使用した区域間は概ね一致していた。

【結論】 MRを用いて術中に非侵襲的に腫瘍の同定と区域間同定を行うことが可能であった。MRを用いた区域切除はICG等の通常法と比べても遜色なく安全に手術を行うことができる可能性が示唆された。

5-1.

VCAM-1 and GFPT-2: Predictive markers of osteoblast differentiation in human dental pulp stem cells

(大学院博士課程3年口腔外科学)

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Dental pulp stem cells (DPSCs) have high proliferative and multilineage differentiation potential in mesenchymal stem cells. However, several studies have indicated that there are individual differences in the potential for osteogenic differentiation of DPSCs, and the factors determining these differences are unknown. The purpose of this study was to designate the genes responsible for the individual differences in DPSCs. We divided DPSCs into high and low osteogenic differentiation ability groups (HG or LG), and compared the gene expression patterns using RNA-seq. Among these patterns, vascular cell adhesion molecule-1 (*VCAM1*) and glutamine fructose-6-phosphate aminotransaminase-2 (*GFPT2*) were significantly expressed at higher levels in the HG than in the LG. The results of small interfering RNA analysis showed that *VCAM1* and *GFPT2* knock-down significantly reduced the expression of osteogenic markers. Furthermore, we analyzed the cell signaling of DPSCs differentiation involving these two genes.

The results indicated that *VCAM1*-mediated Ras-MEK-Erk and PI3K/Akt pathways are involved in osteogenic differentiation of DPSCs, and *GFPT2*-mediated HBP signaling influences osteogenic differentiation of DPSCs. These findings indicate that DPSCs that highly express *VCAM1* and *GFPT2* have a high capacity for osteogenic differentiation. An evaluation of the *VCAM1* and *GFPT2* expressions in undifferentiated DPSCs may predict the outcome of bone regenerative therapy using DPSCs.

5-2.

Expression of osteogenesis, vasculogenic, and neurotransmitter markers in temporomandibular joint dementia mouse (senescence accelerated mouse: SAMP8)

(大学院博士課程3年人体構造学分野)

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【Background】 In dementia subjects, chewing function is decreased during aging. Chewing function is related to various elements such as temporomandibular joint (TMJ), masticatory muscle, occlusal condition, feeding pattern, and oral components. Neuropeptide calcitonin gene-related peptide (CGRP) is a neurotransmitter related to vasculogenesis and osteogenesis during bone formation and aging. The relationship among CGRP, osteogenesis and vasculogenic markers in the dementia TMJ is not fully understood.

【Materials and methods】 In our study, which were used to provide TMJ under a dementia using model animal senescence accelerated mouse (SAMP8) and control mouse (SAMR1) (12 and 24 weeks old). The mRNA expression levels of transmitters, vasculogenic, bone formation markers were analyzed by qRT-PCR and in situ hybridization methods.

【Results】 The mRNAs levels of transmitters, vasculogenic, bone formation markers in the 24 weeks old SAMP8 were higher than that of others. An antisense