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研究題目：Hydrogen sulfide increases hepatic differentiation of human tooth-pulp stem cells compared with human bone-marrow stem cells

目 的：

To determine the differences in stem-cell properties, in hepatic differentiation, and in the effects of H₂S on hepatic differentiation between human bone-marrow stem cells (hBMC) and stem cells from human exfoliated deciduous tooth pulp (SHED).

対象および方法：

CD117⁺ cells were magnetically separated and subjected to hepatic differentiation. CD117⁺ cell lineages were characterized for transcription factors indicative of stem cells by qRT-PCR. For the last 9 days of the differentiation, the test cells were exposed to 0.1ng/mL H₂S. Immunocytochemistry and flow-cytometry of albumin, alpha-fetoprotein and carbamoyl phosphate synthetase were carried out after differentiation. Urea concentration and glycogen synthesis were also determined.

結果および考察：

Results : Genes expressed in SHED were also expressed in BMC. No difference in expression level of hepatic markers was shown by immunofluorescence. SHED showed more positive cells than hBMC ($p < 0.01$). H₂S increased the number of positive cells in both cultures ($p < 0.01$). Urea concentration and glycogen synthesis increased significantly after H₂S exposure ($p < 0.001$ and $p < 0.05$, respectively).

Conclusions : SHED and BMC have similar properties. The level of hepatic differentiation in SHED compared with BMC was the same or higher. H₂S increased the level of hepatic differentiation.

成果発表：（予定を含めて口頭発表，学術雑誌など）

学会発表

1. Mio Okada, Nikolay Ishkitiev, Ken Yaegaki, Toshio Imai Effect of H₂S on Hepatic Differentiation of Adult Stem Cells. The 91st General Session & Exhibition of the IADR, J Dent Res. 92. Special Issue A, seattle, USA, March 20th-23rd, 2013
2. 岡田実緒, Nikolay Ishkitiev, 八重垣健, 今井敏夫 成体幹細胞の肝臓分化における硫化水素の影響 第62回日本口腔衛生学会・総会 長野県松本市 2012年5月15~17日

学術雑誌

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