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Effect of black-colored rice extract on the differentiation of 3T3-L1 and C3H10T1/2 cells

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The effect of black-colored rice ethanolic extract (BRE) that contains high levels of phytochemicals and anthocyanins on osteogenesis and adipogenesis in cultured cells. The stimulation of C3H10T1/2-derived the mesenchymal stem cells (MSC) cells with BRE stimulation induced the expression of osteoblastic gene prograMS including ALP and osterix, thus enhanced cellular mineralization, however, lipogenic gene expressions were significantly suppressed with reduced cellular lipid accumulations. In 3T3L1 adipocytes, similar inhibitory effects of BRE on adipogenesis were confirmed with downregulation of PPARγ, aP2, C/EBPα, and lipoprotein lipase. Stimulation of MSC with BRE induced Wnt3a and β-catenin expressions thus downregulated GSK-3β in C3H10T1/2 cells. These suggest that BRE promotes osteogenesis while inhibiting adipogenesis by induction of Wnt signaling pathway.

Biography

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