The analyses of bystander effect induced by X ray irradiation in glioma cell

T. Ando[1], A.Watanabe[1], T.Kakizaki[1], K.Sera[2] and S.Wada[1]

[1]School of Veterinary Medicine, Kitasato university
35-1Higashi23bantyo, Towada, Aomori 034-8628, Japan

[2]Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

Abstract

Recently, it was considered that the cell lethal effect by low dose radiation was due to bystander effect. Cells irradiated low dose radiation secreted something liquid factor that induced lethal effect by signal transduction. So far, we suggested that radiation induced bystander effect is closely relative with sphingomyelinase. To analyze mechanism between activation of shingomyelinase and induction of bystander effect, in this study we investigated divalent metal included in the sphingomyelinase using PIXE analysis. When divalent metals included in the purified sphimgomyeliase using PIXE analysis were analyzed, zinc element and calcium element were observed. When the purified sphimgomyeliase was analyzed by SDS-PAGE, sphimgomyelinase and other molecular (50 kDa) were observed. These results indicate sphingomyeliase secreted by radiation formed the complex with other molecular.