

The analysis of signal secretion on bystander effect induced by X ray irradiation

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Abstract

Recently, it was considered that the cell lethal effect by low dose radiation was due to bystander effect. Irradiated Cells 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. Still more signal transduction of sphingomyelinase is related to microvesicles. To include protein and metal in the microvesicles, in this study we investigated divalent metal and proteins in the microvesicles using PIXE analysis and SDS-PAGE. 50 kDa, 57 kDa and 70 kDa proteins were detected by SDS-PAGE, and zinc and calcium elements were detected by PIXE analysis in the microvesicles. These results indicate microvesicles by radiation secrete many molecules that are related to signal transduction.