107 Determination of Transforming Sequence in Human Bronchial Epithelial Cells Malignantly Ttansformed by Radon-Simulated α-Particles

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In order to identify oncogene sequence(s) activated in human bronchial epithelial cells malignantly transformed by 150 KeV/μm ^{4}He ions, high-molecular weight DNA was extracted from tumors formed in nude mice after injection of irradiated cells subcutaenously. The DNAs were transfected into NIH3T3 cells. Although weak focus-forming abilities were demonstrated in tumor-derived DNA 4 weeks after transfection, none of the DNA isolated from those primary foci produced secondary foci. We next examined cotransfection between tumor-derived DNA and pT24 plasmid containing an activated c-Ha-*ras* gene. While pT24 alone induced transformed foci in NIH3T3 cells, the number of foci increased when the plasmid was introduced together with tumor-derived DNA but not with DNA from normal cells. The morphology of the foci after cotransfection was quite different from those of the foci induced by pT24 alone, and seemed more malignant. Using Alu-PCR method, we detected the presence of human derived sequence in focus-derived DNA. These results suggested that high LET radiation activated gene(s) which could cooperate with the c-Ha-*ras* gene to enhance focus formation in NIH3T3 cells.