

Proteomic analysis of radiation response in Mv1Lu and impaired TGF-beta1 signaling variants R1B and DR26 cellsM.-H. Kang^a, J.-Y. Song^b, J. Lee^c, E. Chung^d and J.Y. Yi^a^a*Lab. of modulation of radiobiological responses, Korea Institute of Radiation and Medical Sciences, 215-4, Gongneung-dong, Nowon-Gu, 139-706 Seoul, Republic of Korea;*^b*Laboratory of Radiation and Cancer Science, Korea Institute of Radiological & Medical Sciences, 215-4 Gongneung-dong, Nowon-gu, 139-706 Seoul, Republic of Korea;*^c*Yonsei Proteome Research Center, Yonsei Univ., 134, Sinchon-dong, Seodaemun-gu, 120-749 Seoul, Republic of Korea;* ^d*Dep. of Biomedical Science, Hallym University, 39, Hallymdaehak-gil, 200-702 Chuncheon, Republic of Korea*

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Transforming growth factor-beta (TGF- β) is a multifunctional cytokine that regulates a broad spectrum of cellular processes on a variety of cell types. Several studies reported that TGF- β is implicated in the development of cell survival or apoptosis induced after irradiation. To investigate TGF-beta β signaling in radiation responses, we performed proteomic analysis in Mv1Lu, mink lung epithelial cell line, and its clonal variants, R1B and DR26, knocked down TGF- β RI and RII, respectively. The cells were irradiated with 4 Gy after TGF- β 1 treatment and proteins were extracted after 16 hr incubation to analyze in 2-D gel electrophoresis. Total 633 paired spots were identical in three types of cells and 179 spots were changed over two folds. We divided the changed spots into three groups; newly appeared (89), increased (63), and decreased (116) spots in R1B and DR26 cells compared to the parental Mv1Lu cells. The identified proteins were associated with several aspects of cellular responses such as regulation of immune response (annexin1, annexin2), cytoskeletal architecture (actinin, vimentin, β -actin etc.), migration (BMP9), and protein folding (HSP90 β). The relationship between the identified spots and TGF- β signaling after irradiation in Mv1Lu and its variant R1B and DR26 are under investigation.