These findings, taken together, demonstrate that depletion of DNAPKcs in glioblastoma cells at least partly suppressed IR-inflicted migration, invasion, and tube formation of HMEC-1 cells, which may be associated with the reduced HIF-1α level and VEGF secretion. Inhibition of DNA-PKcs may be a promising therapeutic approach to enhance radio-therapeutic efficacy for glioblastoma by hindering its angiogenesis.

Reference

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* Foundation item: Key Program of National Natural Science Foundation of China (U1432248), National Natural Science Foundation of China (11305224, 11205219,11175222).

3 - 55 Study of Heavy Ion Radiation on Cognitive Function in Mouse Brain*

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Radiotherapy can not only kill tumor cell, but also damage the nearby normal tissues and cells. We aim to assess the long-term effect on cognitive function induced by heavy ion radiation for protecting the normal tissue effectively during/after radiotherapy of brain tumor.

In order to determine the influence of different doses of carbon-ion radiation, our experiments were carried out on 36 male Kunming mice, divided into 4 groups, each of 6 mice, including control and radiation groups (0.5, 1, 2 Gy), respectively, and with 4 months feeding after irradiation. Passive avoidance task in the apparatus is used for evaluation of emotional memory based on contextual fear conditioning in mice[1]. After warning signal (lighting and sound), light rooms will applied a 40 V, 1.5 mA constant-current shock per 5 s. If the mice didn't enter to the dark room in 5 s after warning, they will be get electric shock until they entered and the same process occurs in per 2 min. After 5 d and totally 75 times training, the experiment was beginning in the same condition. The following parameters were measured as the number of unconditioned responses (escapes) and latency of reactions in the passive avoidance tests[2].

The results showed that there were no significant differences in the number of unconditioned responses between the 1.0 Gy irradiated group and the control group. However, a significant increase in the value of the number of unconditioned responses was observed in the 2.0 Gy irradiated group, accompanied with the improved average number of unconditioned response. Our data suggested that higher-dose irradiated group impaired cognitive performance.

Table 1 The number of unconditioned responses (escapes).

Group	Unconditioned response					Average	P
Control	7	6	5	2	7	5.4	
1 Gy	8	6	7	10	9	8	0.056 3
2 Gy	9	7	11	10	7	8.8	0.024 1 *

Table 2 The latency of reactions.

Group	Latency of reactions					Average	P
Control	35	25	40	30	65	39	
1 Gy	45	55	50	35	50	47	0.331 9
2 Gy	165	90	55	40	60	80	0.102 7

*$P < 0.05$. Treatment group vs Control group

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* Foundation item: Key Program of National Natural Science Foundation of China (U1432248), National Natural Science Foundation of China (11305224 11175222).