

3 - 91 Impact of Carbon Ion Irradiation on Liver Mitochondrial Respiration in Mice

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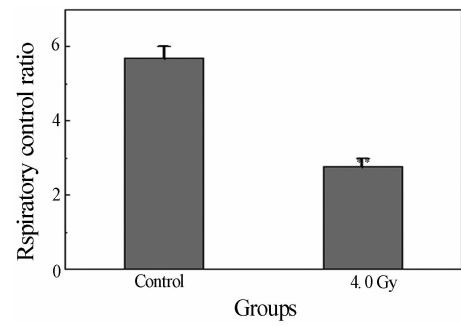


Fig.1 The respiration control ratio (RCF) level of isolated liver mitochondria.

To investigate the effect of high LET carbon ion irradiation on the liver mitochondria respiration of male mice, the testes of outbred Kun-Ming strain mice were whole-body irradiated with 4.0 Gy carbon beams. Liver mitochondria were isolated by different centrifugation techniques. Oxygen consumption of isolated liver mitochondria was monitored using a Clark-type oxygen electrode. Respiratory capacity was assessed by measuring state 3(i.e., ADP-dependent) and state 4 (i.e., ADP-independent) respiration. The respiratory control ratio (RCR) was calculated as the ratio of state 3 and state 4 respiration rates (i.e., state 3 divided by state 4 respiration). The results showed that a significant decrease of RCF after carbon ions irradiation (Fig. 1). This indicated that the mitochondrial function must be destroyed after carbon ion irradiation.

Reference

[1] A. Venkatraman, A. Landar, A. J. Davis, et al., J. Biol. Chem. 279(2004)22092.