

### 3 - 93 Impact of Carbon Ion Irradiation on Cauda Epididymis Histology in Infant Mice<sup>1</sup>

Li Hongyan, Zhang Hong, Xie Yi, Liu Yang, Di Cuixia and Liu Yuanyuan

As a part of the space radiation, heavy ions radiation could affect the development of the human reproductive system<sup>[1]</sup>. In this investigation, we examined the effects of carbon ion irradiation on cauda epididymis in infant mice after one spermatogenic cycle. We have chosen infant mice, due to the effects of cosmic and environment radiation on the infant is a long-term concern hot, especially is the damage and cancer caused by the radiation.

The two-week-old mice were whole-body irradiated with 0, 0.5, 1 and 2 Gy, respectively. Cauda epididymides were collected 35 d after irradiation. We measured the body weight and epididymides weight. The histology changes in cauda epididymis were observed. Compared with the control group, in 1 and 2 Gy group, there were significant pathology changes in cauda epididymis. Photomicrographs of cauda epididymis sections in each group are shown in Fig. 1. Our results showed that high dose carbon ion radiation damaged the cauda epididymis which change sperm transfer, maturation and storage. These data indicates that carbon ion irradiation have significant effect on cauda epididymis of infant mice and these results suggest that carbon ion cause negative impact on the development of cauda epididymis and sperm in infant mice.

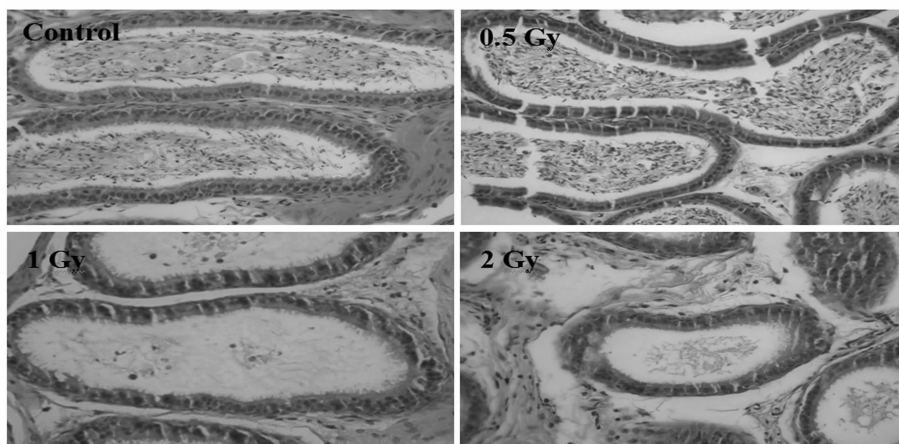


Fig. 1 The photomicrographs indicate that cauda epididymis from control mice showed a large number of mature sperm in ductus, no stromal edema and inflammatory cell infiltration. Compared to control sections, at higher doses than 0.5 Gy, vacuoles appeared on the ductal walls, whereas in 1 Gy group, there are few mature sperm in ductus. In 2 Gy group, seminiferous epithelium reduced severely, almost no mature sperm in ductus, sperm leaked into the interstitial substance which is in the state of edema.

#### Reference

- [1] H. Zhang, W. Zhao, Y. Wang, et al., *Mutat. Res.*, 653(2008)109.

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