Radiosensitivity of hepatoma cell lines and human normal liver cell lines exposed to $^{12}C^{6+}$ ions

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ABSTRACT AIM: To investigate the radiosensitivity of hepatoma cell lines and human normal liver cell lines.

METHODS: Accelerated carbon ions by heavy ion research facility in Lanzhou (HIRFL) have high LET. We employed it to study the radiosensitivity of hepatoma cell lines (SMMC-7721) and human normal liver cell lines (L02) using premature chromosome condensation technique (PCC). Cell survive was documented by a colony assay. Chromatid breaks were measured by counting the number of chromatid breaks and isochromatid breaks immediately after prematurely chromosome condensed by Calyculin-A.

RESULTS: The survival curve of the two cell lines presented a good linear relationship, and the survival fraction of L02 is higher than that of SMMC-7721. Additionally, the two types of G_2 phase chromosome breaks (chromatid breaks and isochromatid breaks) of L02 are lower than that of SMMC-7721.

CONCLUSION: Human normal liver cell line have high radioresistance than that of hepatoma cell line. It imply that it is less damage to normal organs when radiotherapy to hepatoma.