A Comparative Study of the Radiobiology of BNCT Beams

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The radiobiological properties of epithermal neutron beams for BNCT differ from one facility to the next, as a consequence of the varying relative dose contributions from both high and low LET radiations, and factors such as directionality and mean neutron energy. Each centre has adopted their own approach to radiobiology, and the extent and nature of studies conducted have varied considerably. It would be useful, therefore, if an identical system could be investigated at each facility as a tool for comparison.

To this end, an *in vitro* study has been devised whereby a clonogenic survival assay is performed at various depths in the epithermal beam. V79 Chinese hamster cells are irradiated in head-like water phantom to obtain a series of cell survival curves. As a reference, the cells response to 250kVp X-rays has also been assessed. Survival measurements have been completed at Studsvik in Sweden, and are currently underway at The University of Birmingham, UK.