Author’s response to reviews

Title: Estrogen enhanced cell-cell signalling in breast cancer cells exposed to targeted irradiation

Authors:

Chunlin Shao (clshao@shmu.edu.cn)
Melvyn Folkard (folkard@gci.ac.uk)
Kathryn D Held (kheld@partners.org)
Kevin M Prise (k.prise@qub.ac.uk)

Version: 2 Date: 4 January 2008

Author’s response to reviews:

Dear Sir,

There is considerable interest in the observation of radiation-induced bystander responses, where cell respond to the fact that their neighbours have been irradiated. These responses are a key underlying mechanism in gene therapy strategies where they underpin biological effectiveness. For radiation-induced bystander responses there is significant interest as to whether these can be modulated to enhance tumour cell kill or to protect normal tissues after radiation exposure.

The work reported here is the first study determining if these responses occur in breast tumour cells. Using novel microbeam technology, variable fractions of cells were targeted with radiation and the induction of lethal chromosome damage measured. As well as evidence for a radiation-induced bystander response, we report differences dependant on the ER status of the cells studied and an important role for an 17ß-estradiol mediated increase in reactive oxygen species in ER positive cells, which could be diminished by the anti-estrogen tamoxifen.

The observation of these responses in breast tumour cells may allow potential new targets to be elucidated for the use of radiation-based therapies in the treatment of breast cancer.

Yours sincerely,

KM Prise

(on Behalf of the authors)