XSTRAHL IN ACTION: CIX2 Cabinet Irradiator Used to Expand Clonogenic Assay Protocol

PUBLICATION/STUDY

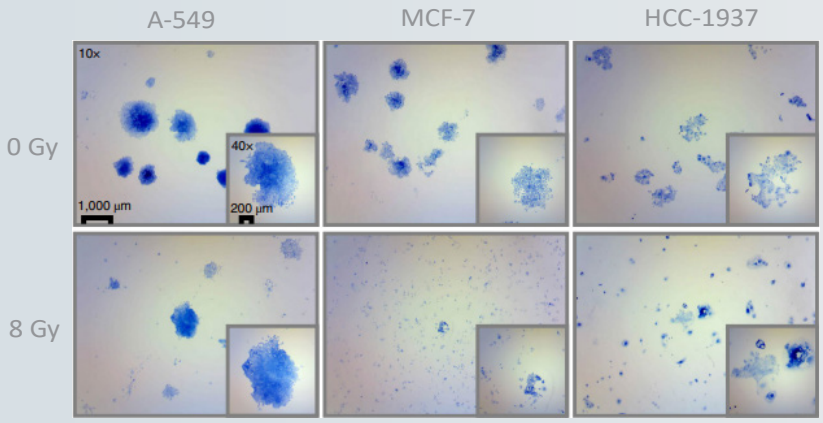
Analysis of clonogenic growth in vitro

AUTHORS

Nikko Brix, Daniel Samaga, Claus Belka, Horst Zitzelsberger, and Kirsten Lauber

KEY FINDINGS

- The clonogenic assay measures the capacity of single cells to form colonies in vitro
- This study aimed to expand on the initial clonogenic assay protocol developed by Puck & Marcus
- The CIX2 cabinet irradiator was used to irridiate cells
- Researchers expanded the protocol to examine clonogenic survival of cancer and nonmalignant cells in response to radio- and chemotherapy in single- and combined-modality settings



Intra-assay heterogeneity adds complexity to accurate colony counting. *Representative images of colony growth under untreated conditions (upper row, 0 Gy) and upon severe treatment (bottom, 8 Gy) for the lung adenocarcinoma cell line A-549 (RRID: CVCL_0023; left) and the breast cancer cell lines MCF-7 (RRID: CVCL_0031; middle) and HCC-1937 (RRID: CVCL_0290; right) are shown (10× magnification; images were collected from colony-formation assays prepared for ref. 17). The colony in the center of each image is depicted at higher magnification (40×) in the inlays on the bottom right of each panel. Under untreated conditions, all three cell lines formed colonies of similar size with sufficient staining intensity. Albeit smaller than under control conditions, colonies of irradiated A-549 cells were well detectable. In contrast, the identification of the single MCF-7 colony grown after irradiation (lower panel in the middle) was challenging because of its small size and surrounding giant cells.*

THE VALUE OF CIX

The free-standing, self-contained CIX2 Cabinet Irriadator enabled researchers to irradiate cells with ease and accuracy.