Understanding Radiation Therapy Sensitivity in Invasive Lobular Carcinoma of the Breast

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Background on ILC – Why is it an Issue?

- Invasive Lobular Carcinoma (ILC) of the breast is a top ten most common cancer affecting women
- Despite biomarkers of good long-term prognosis, ILC associated with anti-estrogen resistance and is typically unresponsive to chemotherapy
- Anecdotally ILC is more responsive to radiation

ILC May Not Initiate HR-Mediated DNA Repair

- ILC cells demonstrate sustained panoramic γH2AX indicating inefficient or incomplete DDR initiation.
- DNA damage does not induce RAD51 foci in ILC cell lines

ILC Cells Are Deficient in γH2AX Foci Formation

- MCF7 cells (IDC): XRT induces γH2AX foci formation
- 44 PE cells (ILC): No apparent foci formation with XRT
- MM134 Cells (ILC): No apparent foci formation with XRT

ILC Cells Are More Sensitive to Radiation

- ILC deficiency in γH2AX formation may indicate DDR dysfunction may be present in ILC cells when undergoing XRT

Conclusions and Future Directions

- ILC deficiency in γH2AX formation may explain early cell arrest and poor DNA damage repair when exposed to XRT. ILC cells appear to be more sensitive to XRT than IDC Cells.
- XRT may provide a more efficacious route for treating ILC.
- Explore efficacy and interaction between XRT and endocrine therapy.