

Development of Clinically Relevant Radiation Modifiers: Models

In Vitro

Advantages:

- Experimental expediency
- Relatively limited resources required
- Ideal for mechanistic causal studies

Disadvantages:

- Does not account for potential influences of microenvironment on radiosensitivity and its modification

Ectopic Xenograft (Leg)

Advantages:

- Begins to account for *in vivo* microenvironment
- Straightforward tumor volume measurement
- Can deliver high radiation doses without injury to critical organs

Disadvantages:

- Unlikely to simulate the *in situ* tumor phenotype

Orthotopic Xenograft

Advantages:

- Microenvironment more closely simulates the *in situ* tumor

Disadvantages:

- Implantation more difficult
- Tumor response requires imaging or survival
- Limited to organs in radiation field