Efficacy

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This protocol assumes an intermediate level of scientific competency with regard to techniques, instrumentation, and safety procedures. Rudimentary assay details have been omitted for the sake of brevity.

Some of the NCL's experiments are tailored specifically to the individual nanoparticle under study. As such, a standard experimental method cannot be generated. Instead of a protocol, we offer the following brief description of the experiment and the types of data it generates, to aid in determining a suitable experimental pathway for a nanoparticle characterization project. The following description is ***not*** *a protocol and does not describe all of the relevant experimental parameters necessary to conduct the experiment. If you'd like more information, please feel free to contact us at the phone number or email address provided on the previous page.*

Efficacy

NCL efficacy studies utilize transgenic, orthotopic or xenograft tumor models to provide independent verification of collaborators' proof-of-concept studies. Here are some of the models we have experience with:

Tumor models:

Xenograft Models in Athymic Nude Mice:

- LS174T colon cancer model
- MDA-MB-231 breast cancer model
- MCF-7 estrogen-dependent breast cancer model
- We also have access to the following xenografts under our current animal study protocol (ASP): B16, BALB/3T3, NIH/3T3, N87, SKOV3, KB-DTP, KB-ATCC, and UM SCC-81B. We can obtain approval for other cell lines, but this process can take several weeks.

Orthotopic Models:

- MDA-MB-231 breast cancer model
- Intracranial injection of U87 (human)/ TRE (murine) glioma cell lines (in collaboration with CAPR)

Metastatic Models:

- Metastasis of MDA-MB-231 to lymph node and lung
- Metastasis of B16F10 to lymph node
- Intravenous injection of cancer cell line (lung metastasis)
- Intraperitoneal injection of ovarian cancer cell line (peritoneal cavity)
- Metastasis to the brain-left ventricle injection of brain seeking breast cancer cell line

Transgenic Models:
(in collaboration with NCI-Frederick's Center for Advance Preclinical Research (CAPR))

- glioblastoma model
- lung cancer model

In collaboration with NCI-Frederick's Small Animal Imaging Program (SAIP), we have the capability to assess imaging efficacy using bioluminescence and fluorescence imaging, CT, MRI, and ultrasound.