

Metastasis Experimental Strategies available at NCI:

Trepel:

Motility Assays
Invasion Assays
Microscopy- Phase contrast
Fluorescence time-lapse
Induction of metastasis suppressors with Luciferase reporters

Kleinman:

Metastasis:
Mouse Tail vein injection
Mouse Intracardiac injection (for metastasis and bone metastasis)
Mouse Mammary fat pad model (for lung metastasis)
Chick embryo vein injection (no protocol required!)
Tongue injections of SCC

Tumor growth:
Intratibial (bone) injections
chick CAM metastasis assays (again no protocol required)

Khanna:

In Vitro
-Time lapse fluorescent motility assay
-Transwell motility assay
-Transwell invasion assay
-Heterotypic adhesion assay
-3-D projection - invasion assay

Ex Vivo
-Vital Imaging of fluorescent clones - Lung

In Vivo - Single Cell imaging
-Intravital imaging of single cell metastatic cells - Lung
-Intravital imaging of single cell metastatic cells - Liver

In Vivo - Tumor Colony

- Xenogen luciferase imaging
- MRI

In Vivo - Metastatic Assays

- Orthotopic limb to spontaneous lung metastases
- Tail vein experimental lung metastases
- Intrasplenic experimental hepatic metastasis
- Intracardiac experimental bone metastasis

Naturally Occurring Metastases Models

- Canine osteosarcoma
- Canine prostate carcinoma
- Canine NH-Lymphoma

Hunter:*In vivo:*

- Highly metastatic spontaneous mammary tumor model
FVB/N-TgN(MMTV-PyVT)^{634Mul} mouse model
- Modulation of metastasis efficiency by genetic background effects
- Quantitative genetic analysis of metastasis efficiency loci
- Tail vein injections
- Mammary orthotopic implantation assays

In vitro:

- Affymetrix microarray analysis
- 2D protein gel electrophoresis
- Ciphergen SELDI-TOF

Kohn:*In vivo:*

- Ovarian cancer intraperitoneal tumor model with local invasion and mets
- Mammary orthotopic implantation assays
- Tail vein injections

In vitro:

Motility assays, Boyden chamber and wound healing
Attachment and adhesion assays
Angiogenesis tubulogenesis assays on Matrigel
Laser capture microdissection of endothelial tubes
Microwesterns
2D PAGE

Liotta/Stracke:

In vitro:

- Microscopy
Standard, phase contrast, and fluorescence
- Boyden chamber motility assays
Mixed cell populations utilizing fluorescent stains
and/or immunofluorescence
- Transwell Invasion Assays
- RNAi studies

In vivo:

- Drosophila metastasis model
- Murine systems using SC and IP injections
Ovarian tumor growth model
Matrigel plug angiogenesis model

Merlino:

In vivo:

- UV induced metastatic HGF/SF transgenic tumor model

In vitro:

- modified B16 mouse melanoma cell lines to examine autocrine and paracrine c-Met signaling
- multiple rhabdomyosarcoma cell lines with different metastatic potential