

## Sample validation data

Animal models and cell injection number

### A549-luc-C8 (Cat. No. 119266)

Model	Subcutaneous		Intravenous			
	Male SCID-bg (Charles River)	Male nu/nu (Charles River)	Male SCID-bg (Charles River)	Male SCID-bg (Charles River)	Male nu/nu (Charles River)	Male nu/nu (Charles River)
<b>Graft Site</b>	Thigh	Thigh	Lungs	Lungs	Lungs	Lungs
<b>Cell Number Injected</b>	5 x10 <sup>6</sup> , 1 x 10 <sup>7</sup>	5 x10 <sup>6</sup> , 1 x 10 <sup>7</sup>	5x10 <sup>6</sup>	5x10 <sup>6</sup>	5x10 <sup>6</sup>	5x10 <sup>6</sup>
<b>Tumor Take</b>	100%	100%	100%	100%	2/6 in vivo; 5/6 ex vivo	0/8 in vivo; 5/8 ex vivo
<b>Met Frequency</b>	20-60% <i>ex vivo only</i>	13% in lungs	100% in lungs	100% in lungs	80% in lungs <i>ex vivo</i>	60% in lungs <i>ex vivo</i>
<b>Met Sites</b>	Lungs (1/5) Intercostal muscle (3/5)	Lungs (1/8)	Lungs (13/13) Liver (4/13) Intercostal muscle	Lungs (8/8)	Lungs (5/6) <i>ex vivo</i>	Lungs (5/8) <i>ex vivo</i>
<b>Initial Met Signal</b>	End point ( <i>ex vivo</i> )	Week 7	Day 0	Day 0	-	-
<b>Study Length</b>	7 weeks	10 weeks	4-7 weeks	7 weeks	14 weeks	7 weeks

## B16-F10-luc-G5 (Cat. No. 119269)

Model	Subcutaneous	Intravenous	
<b>Mouse Strain</b>	Male Nu/nu (Charles River)	Male Nu/nu (Charles River)	Male C57BL/6 Albino (Jackson Laboratory)
<b>Graft Site</b>	Dorsal region near thigh	Lungs	Lungs
<b>Cell Number Injected</b>	1-5x10 <sup>5</sup>	5x10 <sup>5</sup>	5x10 <sup>5</sup>
<b>Metastatic Frequency</b>	None	> 90%	> 90%
<b>Metastatic Sites</b>	No Mets	Lungs (90-100%) Ribs, Fat (80%) Liver (30%) Lymph nodes (10-30%) <ul style="list-style-type: none"> <li>- mesentery</li> <li>- axillary/ brachial</li> </ul> LN <ul style="list-style-type: none"> <li>- inguinal LN</li> <li>- cervical LN</li> </ul> Others (< 10%) <ul style="list-style-type: none"> <li>- urogenital system</li> <li>- kidneys</li> <li>- pancreas</li> <li>- stomach</li> </ul>	Lungs (80-90%) Liver (15-30%) Fat (15-30%) Kidneys (15-30%) Pancreas (15-30%)
<b>Initial Metastatic Signal</b>	N/A	Week 1	Week 1
<b>Study Length</b>	2-3 weeks	2-3 weeks	2-3 weeks
<b>Notes</b>	N/A	At < 5x10 <sup>5</sup> cells, see less frequency of lung metastases at end point	At < 5x10 <sup>5</sup> cells, see less frequency of lung metastases at end point

## HeLa-luc (Cat. No. 119272)

Model	Subcutaneous		Intravenous	
<b>Mouse Strain</b>	Female SCID-bg (Charles River)	Female Nu/nu (Charles River)	Female SCID-bg (Charles River)	Female Nu/nu (Charles River)
<b>Graft Site</b>	Dorsal region near	Dorsal region near	Lungs	Lungs
<b>Cell Number Injected</b>	1x10 <sup>6</sup> left flank 5x10 <sup>6</sup> right flank	1x10 <sup>6</sup> left flank 5x10 <sup>6</sup> right flank	5x10 <sup>6</sup>	5x10 <sup>6</sup>
<b>Tumor Take</b>	100% (5/5)	100% (5/5)	100% (5/5)	0% (0/5)
<b>Metastatic Frequency</b>	100%	100%	100%	N/A
<b>Metastatic Sites</b> (Ex Vivo only unless otherwise noted)	Lungs (100%) - in vivo: 40% (wk4) Liver (60%) Ovaries (40%) Ribs (60%)	Lungs (80%) - in vivo: 60% (wk4) Liver (40%) Ovaries (40%) Ribs (100%)	Lungs (100%) Liver (80%) Ovaries (60%) Stomach (60%) Intestines (40%) Spleen (20%) Kidneys (60%) Pancreas (60%) Salivary Glands (40%) Jaw (40%) Spinal Cord (80%) Legs (80%) Ribs (60%)	N/A
<b>Initial Metastatic Signal</b>	Week 3-4	Week 3-4	Week 2	N/A
<b>Study Length</b>	4-5 weeks	4-5 weeks	4-7 weeks	7 weeks

## HT-29-luc-D6 (Cat. No. 119264)

<b>Models</b>	<b>Subcutaneous Metastasis Model</b>	
<b>Mouse Strain</b>	Male <b>SCID- bg</b> Charles River (C.B -17/lcrCrl-scid- bgBR)	Male <b>SCID- bg</b> Charles River (C.B -17/lcrCrl-scid- bgBR)
<b>Graft Site</b>	Dorsal region near thigh	Dorsal region near thigh
<b>Cell Number Injected</b>	1 x10 <sup>6</sup> and 3 x 10 <sup>6</sup> (two sites)	3 x10 <sup>6</sup> (one site)
<b>Tumor Take</b>	100%	100%
<b>Met Frequency</b>	In vivo: 38-80% Ex vivo: 63- 100%	In vivo: 33 - 56% Ex vivo: 33- 78%
<b>Met Sites</b>	0-80% Lymph Nodes (axillary, brachial)  40 - 63% Lungs	22-33% Lymph Nodes (axillary, brachial)  22-33% Lungs
<b>Initial Met Signal</b>	Weeks 2-6	Weeks 2-5
<b>Study Length</b>	7-8 weeks	7-8 weeks

## LL/2-luc-M38 (Cat. No. 119267)

Model	Subcutaneous			Intravenous		
<b>Mouse Strain</b>	Female SCID-bg (Charles River)	Female C57BL/6-Albino (Jackson Labs)	Female C57BL/6 (Charles River)	Female SCID-bg (Charles River)	Female C57BL/6-Albino (Jackson Labs)	Female C57BL/6 (Charles River)
<b>Graft Site</b>	Dorsal region near thigh	Dorsal region near thigh	Dorsal region near thigh	Lungs	Lungs	Lungs
<b>Cell Number Injected</b>	1x10 <sup>6</sup>	1x10 <sup>6</sup>	1x10 <sup>6</sup>	1x10 <sup>6</sup>	1x10 <sup>6</sup> – 2x10 <sup>6</sup>	1x10 <sup>6</sup> – 2x10 <sup>6</sup>
<b>Tumor Take</b>	100%	100%	100%	90-100%	90-100%	90-100%
<b>Metastatic Frequency</b>	78-100%	33%	56%	90-100%	90-100%	90-100%
<b>Metastatic Sites</b>	Lungs (100%) (in vivo) Ribs (33-60%) (ex-vivo) Heart (11-33%) (ex-vivo)	Lungs (33%) (in vivo) Ribs (60%) (ex vivo) Heart (33%) (ex vivo)	Lungs (78%) (ex vivo) 11% spleen (ex vivo)	Lungs (90-100%) (in vivo) Ribs (87-100%) (ex vivo) Heart (73-78%) (ex vivo) Jaw (0-40%) (in vivo) Abdominal area (0-56%) (in vivo) Lower Spine Area (0-33%) (ex vivo) Leg/pelvis (0-33%) (ex vivo) Salivary Gland (0-11%) (ex vivo) Head Region (0-11%) (ex vivo)	Lungs (90-100%) (in vivo) Ribs(70-100%) (ex vivo) Heart (10-70%) (ex vivo) Lower Spine Area (0 -20%) (in vivo) Abdominal (0-20%) (ex vivo) Jaw (10%) (in vivo) Leg (0-10%) (ex vivo)	Lungs (90%) (in vivo) Ribs (90%) (ex vivo) Heart (10%) (ex vivo) Abdominal (10%) (ex vivo)
<b>Initial Metastatic Signal</b>	Day 7	Day 21	Day 17	Day 7	Day 7	Day 11
<b>Study Length</b>	4 weeks	4 weeks	4 weeks	3-4 weeks	3-4 weeks	3-4 weeks

## LNCaP-luc-M6 (Cat. No. 119271)

Model	Subcutaneous	Orthotopic
Mouse Strain	Male SCID-bg (Charles River and Harlan)	Male SCID-bg (Charles River)
Graft Site	Dorsal region near thigh	Prostate
Cell Number Injected	3x10 <sup>6</sup> in 50% Matrigel	1x10 <sup>6</sup>
Tumor Take	Variable (0-100%)	50-90%
Metastatic Frequency	In vivo: 90% Ex vivo: 100%	In vivo: 50 - 56% Ex vivo: 75 - 100%
Metastatic Sites	Lungs: 10/10 Ribs w/ associated tissue: 7/10 Peritoneum: 5/10 Inguinal LN: 1/10 Preputial Gland: 4/10 Pancreas: 1/10	Lungs: 12/13 Ribs w/ associated tissue: 11/13 Male sex organs: 3/13 Intestine: 2/13 Preputial gland: 2/13
Initial Metastatic Signal	Weeks 7-11	Weeks 7-10
Study Length	7-16 weeks	8 -16 weeks

\* Nude mice are NOT recommended for LNCaP-luc-M6 tumor growth

## LoVo-6-luc-1 (Cat. No. 119265)

Model	Subcutaneous	Intraperitoneal	Ceacum Injected
<b>Mouse Strain</b>	Male <b>SCID-bg</b> (Charles River: CB-17/lcrCRI-scid-bgBR)	Female <b>SCID-bg</b> (Charles River: C.B-17/lcrCrI-scid-bgBR)	Female <b>SCID-bg</b> (Charles River: C.B-17/lcrCrI- scid-bgBR)
<b>Graft Site</b>	Dorsal region near thigh	Intraperitoneal cavity	Serosa of ceacum
<b>Cell Number Injected</b>	1x10 <sup>6</sup> and 3x10 <sup>6</sup> (two sites)	2x10 <sup>6</sup> cells	4x10 <sup>6</sup> cells
<b>Tumor Take</b>	100% for 3x10 <sup>6</sup> cells 80% for 1x10 <sup>6</sup> cells	100%	86%
<b>Met Frequency</b>	0%	100%	86%
<b>Study Length</b>	6 weeks	7 weeks	9 weeks

## MDA-MB-231-luc-D3H1 (Cat. No. 119261)

Model	Intravenous	Intracardiac	Orthotopic	Orthotopic
<b>Mouse Strain</b>	Female nude beige Charles River NIH-III (N:NIH- <i>bg-nu-xid</i> BR)	Female nude Harlan (Hsd: Athymic Nude-nu)	Female nude Harlan (Hsd: Athymic Nude-nu)	Female nude beige Charles River NIH-III (N:NIH- <i>bg-nu-xid</i> BR)
<b>Graft Site</b>	Lungs	Heart-left ventricle	Mammary fat pad	Mammary fat pad
<b>Cell Number Injected</b>	2x10 <sup>6</sup>	1x10 <sup>5</sup>	2x10 <sup>6</sup>	2x10 <sup>6</sup>
<b>Metastatic Frequency</b>	70-80%	80%	80-100%	70-80%
<b>Metastatic Sites</b>	Lungs (70-80%) Rib/tissue (30%)	Rib/tissue (80%) Lungs (40%) Lymph node (40%) (brachial/axillary) Scapula (20%)	Lymph node (90-100%) (brachial/axillary)	Lungs (50-60%) Lymph node (70%) Rib/tissue (100%)
<b>Initial Metastatic Signal</b>	Week 4-5	Week 5	Week 6-7	Week 9-12
<b>Study Length</b>	11 weeks	10 weeks	10-13 weeks	13 weeks



## MDA-MB-231-luc-D3H2LN (Cat. No. 119369)

Model	Orthotopic		Intracardiac		
	Female nude Harlan  (Hsd: Athymic Nude-nu)	Female nude beige Charles River NIH-III  (N:NIH-bg-nu-xidBR)	Female nude Harlan  (Hsd: Athymic Nude-nu)		Female nude beige Charles River NIH-III  (N:NIH-bg-nu-xidBR)
<b>Graft Site</b>	Mammary gland	Mammary gland	Heart-left ventricle	Heart-left ventricle	Heart-left ventricle
<b>Cell Number Injected</b>	2x10 <sup>6</sup>	2x10 <sup>6</sup>	1x10 <sup>5</sup>	1x10 <sup>5</sup>	1x10 <sup>5</sup>
<b>Tumor Take</b>	89% (8/9)	67% (6/9)	100% (8/8)	100% (3/3) Pilot Study	100% (3/3) Pilot Study
<b>Metastatic Frequency</b>	100%	100%	100%	100%	100%
<b>Metastatic Sites</b>	Lymph Node (100%) (brachial/axillary)	Lungs (50%) Lymph node (100%) Rib/Tissue (67%)	Spine (88%) Skull (75%) Scapula (75%) Femur/Tibia (63%) Clavicle (50%) Rib/tissue (100%) Brain (88%) Lungs (88%) Lymph Node (63%) (brachial/axillary)	Spine (67%) Skull (33%) Scapula (33%) Femur/Tibia (33%) Clavicle (33%) Rib/tissue (33%) Brain (33%) Lungs (67%) Lymph Node (0%) (brachial/axillary)	Spine (67%) Skull (33%) Scapula (33%) Femur/Tibia (33%) Clavicle (0%) Rib/tissue (67%) Brain (33%) Lungs (67%) Lymph Node (0%) (brachial/axillary)
<b>Initial Metastatic Signal</b>	Week 3-4	Week 4-6	Week 3-4	Week 3-4	Week 3-4
<b>Study Length</b>	5 weeks	9 weeks	4 weeks	6 weeks	9 weeks

## MCF-7-luc-F5 (Cat. No. 119262)

Models	Orthotopic Model		
<b>Mouse Strain</b>	Female <b>nu/nu</b> Charles River (CrI:NU/NU-nuBR)	Female <b>nude-beige</b> Harlan (Beige-nude XID nu/nu)	Female <b>nude-beige</b> Harlan (Beige-nude XID nu/nu)
<b>Graft Site</b>	Abdominal mammary fat pad	Abdominal mammary fat pad	Abdominal mammary fat pad
<b>Cell Number Injected</b>	2 x10 <sup>6</sup>	7 x10 <sup>6</sup>	7 x10 <sup>6</sup>
<b>Estrogen</b>	17β-Estradiol, 0.72 mg/pellet, 60 day release	17β-Estradiol, 0.36 mg/pellet, 60 day release	17β-Estradiol, 0.36 mg/pellet, 60 day release
<b>Tumor Take</b>	64% (18/28)	97% (33/34)	92% (24/26)
<b>Met Frequency</b>	In vivo: 0% Ex vivo: 0%	In vivo: 86% (6/7) Ex vivo: 100% (7/7)	In vivo: 71% (5/7) Ex vivo: 86% (6/7)
<b>Met Sites</b>	n/a	Lungs: 100% Forelimbs: 57% Lymph nodes: 14% (axillary / brachial)	Lungs: 86% Forelimbs: 0% Lymph nodes: 0% (axillary / brachial)
<b>Initial Met Signal</b>	n/a	Week 6	Week 5
<b>Study Length</b>	5-9 weeks	8 weeks	14 weeks

## PC-3M-luc-C6 (Cat. No. 119270)

Model	Subcutaneous		Intravenous		Intracardiac	Orthotopic
<b>Mouse Strain</b>	Male Nu/nu	Male SCID-bg	Male Nu/nu (Charles River)	Male SCID-bg (Charles River)	Male Nu/nu (Charles River)	Male Nu/nu (Charles River)
<b>Graft Site</b>	Dorsal region	Dorsal region	Lungs	Lungs	Heart (left ventricle)	Prostate
<b>Cell Number Injected</b>	3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	5x10 <sup>6</sup>	5x10 <sup>6</sup>	3x10 <sup>6</sup>	5x10 <sup>5</sup>
<b>Tumor Take</b>	90%	100%	N/A	N/A	N/A	100%
<b>Metastatic Frequency</b>	N/A	> 90%	50%	100%	> 90%	N/A
<b>Metastatic Sites</b>	N/A	Lungs (>90%) Inguinal LN (>90%) Leg (~50%) Liver (~50%) Other LNs (~50%) - Axillary - Brachial Kidney (<20%) Spleen (<20%) Pancreas (<20%)	Lungs (50%) Heart (17%)	<u>In Vivo</u> Head region: 4/12 mice Thorax: 8/12 mice Abdomen: 9/12 mice Leg region: 3/12 mice  <u>Ex Vivo</u> Jaws (25%) Skull, Salivary (17%)  Lungs (100%) Ribs/ pleural (58%) Heart, scapula (17%)  Adrenal gland (42%) Pancreas, liver (25%) Vas deferens, spine (17%)  Leg (17%)	<u>In Vivo</u> Head region: 5/6 mice Thorax: 6/6 mice Leg region: 5/6 mice  <u>Ex Vivo</u> Dental pulp (50%) Periodontal incisor (33%) Cervical LN (17%)  Pleural surface (83%) Muscle to spine (33%)	N/A
<b>Initial Metastatic Signal</b>	N/A	Week 3 (3x10 <sup>6</sup> ) Week 5	Week 3	Week 3	Week 1	N/A
<b>Study Length</b>	5-7 weeks	6-8 weeks	6-8 weeks	6-8 weeks	3-4 weeks	4-6 weeks

## SKOV3-luc-D3 (Cat. No. 119276)

Model	Subcutaneous		Intraperitoneal	
Mouse Strain	Female SCID-bg (Charles River)	Female Nu/nu (Charles River)	Female SCID-bg (Charles River)	Female Nu/nu (Charles River)
Graft Site	Dorsal region near thigh	Dorsal region near thigh	Lungs	Lungs
Cell Number Injected	1x10 <sup>6</sup> left flank 5x10 <sup>6</sup> right flank	1x10 <sup>6</sup> left flank 5x10 <sup>6</sup> right flank	5x10 <sup>6</sup>	5x10 <sup>6</sup>
Tumor Take	100% (3/3)	80% (4/5)	100% (3/3)	80% (4/5)
Metastatic Frequency	9% (1/11)		0%	0%
Metastatic Sites	Lungs	N/A	N/A	N/A
Initial Metastatic Signal	Week 13	N/A	N/A	N/A
Study Length	10-13 weeks	10-12 weeks	10-12 weeks	10-12 weeks

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