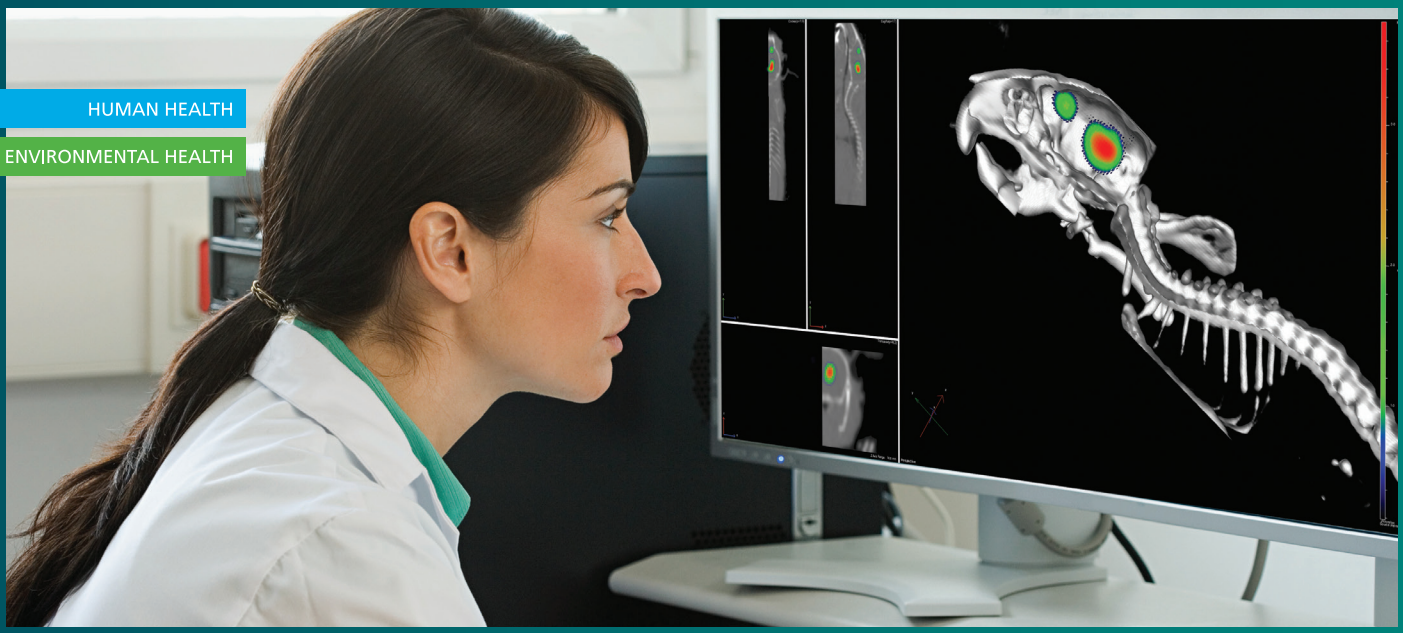
HUMAN HEALTH

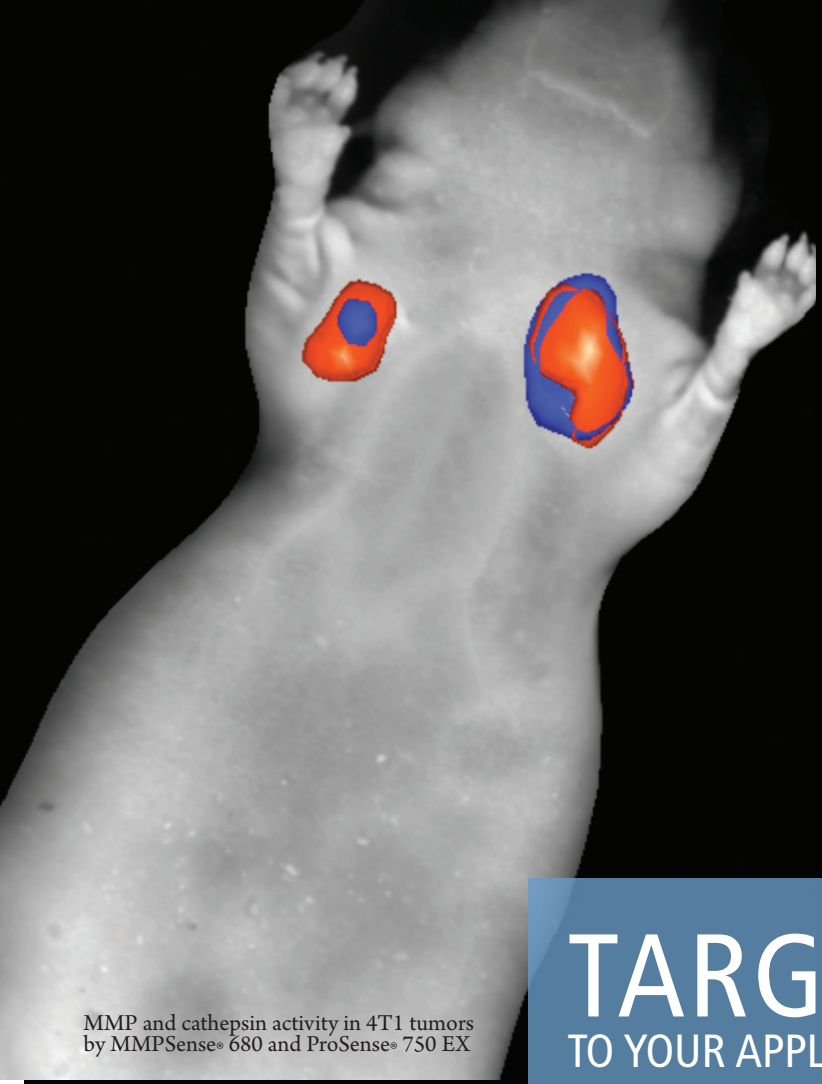
ENVIRONMENTAL HEALTH



# OBTAIN MORE INFORMATION FROM YOUR TARGET

*In Vivo* Imaging Agents

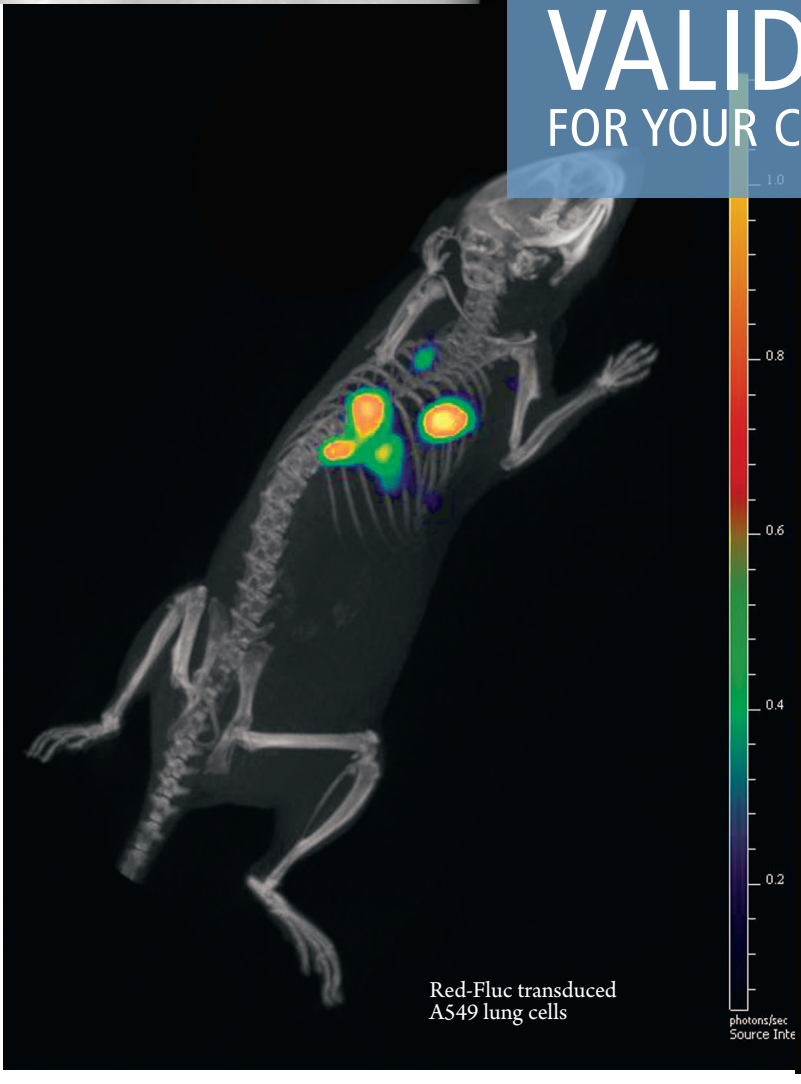
PerkinElmer®
*For the Better*



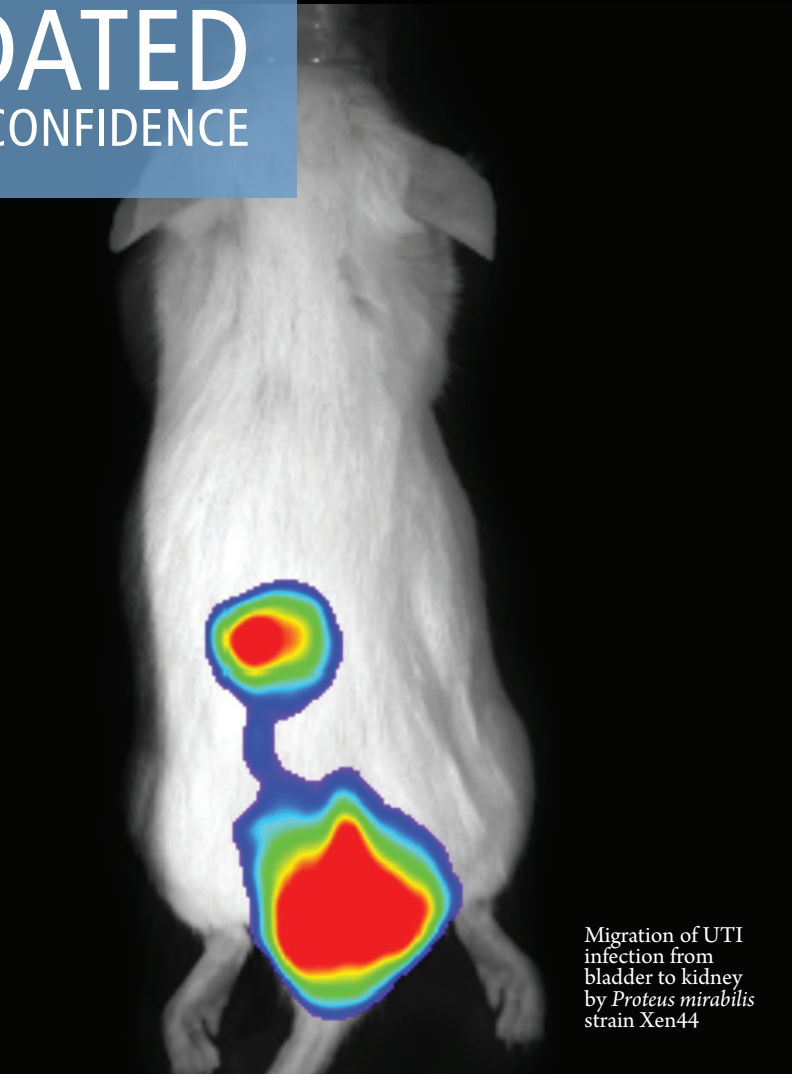
MMP and cathepsin activity in 4T1 tumors by MMPSense® 680 and ProSense® 750 EX

Cathepsin activity in antibody induced Arthritis by ProSense 750 EX

# TARGETED
## TO YOUR APPLICATION AND
# VALIDATED
## FOR YOUR CONFIDENCE



Red-Fluc transduced A549 lung cells



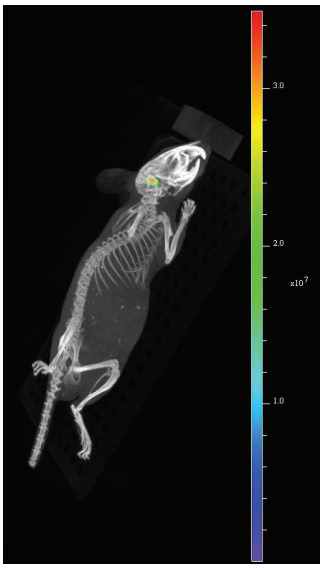
Migration of UTI infection from bladder to kidney by *Proteus mirabilis* strain Xen44

**Built around your applications – choose one, or use in combination for your disease focus to obtain more information (see list)**

| | Angiogenesis | Apoptosis | Arthritis | Atherosclerosis | Bone Loss | Cardiovascular Disease | Hypertension | Infectious Disease | Inflammation | Kidney Function | Oncology | Pulmonary | Vascular Disease |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Easily activated fluorescence agents enable specific imaging of biological processes that underlie disease** | | | | | | | | | | | | | |
| Cat B 680 and 750 FAST™ | | | • | • | | • | | | • | | • | • | • |
| Cat K 680 FAST | | | • | | • | | | | | | • | • | |
| MMPSense® 680, 750 FAST, and 645 FAST | | | • | • | | • | | | • | | • | • | • |
| Neutrophil Elastase 680 FAST | | | | | | | | | • | | • | | |
| ProSense 680, 750 EX, and 750 FAST | | | • | • | | • | | | • | | • | • | • |
| PSA 750 FAST | | | | | | | | | | | • | | |
| ReninSense 680 FAST | | | | | | | • | | | | | | |
| **Targeted agents enable specific areas of interest to be detected, monitored and measured *in vivo*** | | | | | | | | | | | | | |
| 2-DG 750 probe | | | | | | | | | | | • | | |
| Annexin-Vivo 750 | | • | | • | | | | | | | • | | |
| BacteriSense™ 645 | | | | | | | | • | | | | | |
| Bacterial Detection Probe 750 | | | | | | | | • | | | | | |
| COX-2 probe | | | • | | | | | | • | | • | | |
| FolateRSense™ 680 | | | • | | | | | | • | | • | | |
| IntegriSense™ 680, 750 and 645 | • | | | • | | • | | | • | | • | | • |
| HypoxiSense™ 680 | • | | | | | | | | • | | • | • | |
| Inflammation Probe | | | • | | | | | | • | | | | |
| OsteoSense® 680 EX, 750 EX and 800 | | | • | • | • | • | | | | | • | | |
| TLectinSense™ 680 | • | | | | | | | | • | | • | | • |
| BombesinRSense™ 680 | | | | | | | | | | | • | | |
| Transferin-Vivo™ 750 | | | | | | | | | | | • | | |
| **Vascular and physiologic fluorescence agents are distributed passively through blood vessels to enable imaging of vascularity, blood pooling near tumors and inflammation, and vascular leakage** | | | | | | | | | | | | | |
| AngioSense® 680 EX and 750 EX | • | | • | | | • | | | • | | • | • | • |
| AngioSPARK® 680 and 750 | | | • | • | | • | • | | • | | • | | • |
| Superhance™ 680 | • | | • | | | • | | | • | | • | | • |
| GFR-Vivo™ 680 | | | | | | | | | | • | | | |
| **Optical Reporter Oncology Cell Lines and Microorganisms** | | | | | | | | | | | | | |
| Bioware® Brite Cell Lines | • | • | | | | | | | | | • | | • |
| Bioware® Microorganisms | | | | | | | | • | | | | | |
| RediFect™ Lentiviral particles | • | • | | | | | | | | | • | | • |

# MORE INSIGHTFUL RESEARCH RESULTS

PerkinElmer's comprehensive suite of fluorescent *in vivo* imaging agents enables unmatched imaging of a broad range of disease-related biomarkers and pathways in your research models. Our fluorescent agents and labels are optimized for use in the full range of PerkinElmer optical *in vivo* imaging systems, as well as other fluorescence microscopy systems and many *in vitro* and cell-based systems.



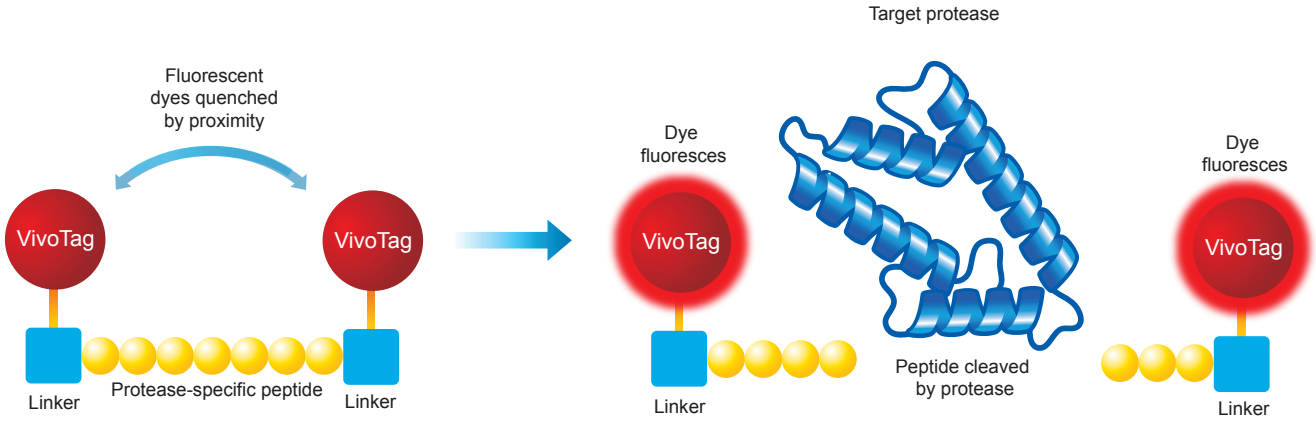

Fluorescent image of integrin activity in U-87 tumor by IntegriSense® 750

## FLUORESCENT *IN VIVO* IMAGING AGENTS

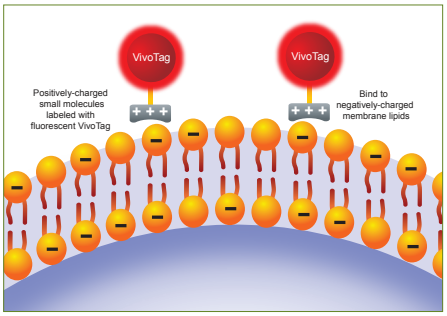
### Activatable Fluorescent Agents

Activatable agents are optically silent upon injection but are activated *in vivo* through cleavage by specific protease biomarkers of disease. Benefits include biologically specific readouts and high signal-to-noise at the target biology. The FAST platform represents the next generation of agents from PerkinElmer. Utilizing a novel small molecule design, the FAST agents offer improved specificity, accelerated activation profile, and earlier imaging timepoints.

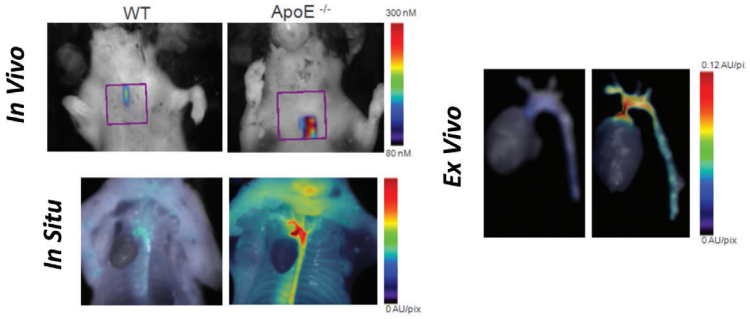
| Product | Product Description | Catalog Number |
|---|---|---|
| Cat B 680 FAST | Selective imaging of cathepsin B proteinases (Cat B). Optically silent in the inactivated state, becoming highly fluorescent when activated. | NEV11112 |
| Cat B 750 FAST | | NEV11098 |
| Cat K 680 FAST | Imaging of cathepsin K activity in oncology applications involving metastasis to the bone as well as a broad range of bone applications including bone loss, tumor-induced osteolysis and bone changes following arthritis. | NEV11000 |
| MMPSense 645 FAST | Imaging of MMP (metalloproteinase) activity is involved in many disease-related phenomena including cancer propagation, invasion and metastasis, rheumatoid arthritis and areas of cardiovascular disease. | NEV10100 |
| MMPSense 680 | | NEV10126 |
| MMPSense 750 FAST | | NEV10168 |
| Neutrophil Elastase 680 FAST | Fluorescent neutrophil elastase-activatable agent that is optically silent upon injection and produces fluorescent signal after cleavage by elastase produced by neutrophil cells. | NEV11169 |
| ProSense 680 | Versatile imaging of changes in cathepsin-based protease activity as seen in a number of pathological states and disease-related events including rheumatoid arthritis, cancer, atherosclerosis, angiogenesis and cardiovascular disease. | NEV10003 |
| ProSense 750 EX | | NEV10001EX |
| ProSense 750 FAST | FAST version of ProSense, with faster kinetics and a broader imaging window. | NEV11171 |
| PSA 750 FAST | An activatable *in vivo* fluorescent agent that detects and quantifies active PSA, and is selective against unbound and complexed PSA. | NEV11125 |
| ReninSense 680 FAST | Imaging of renin-angiotensin pathway associated with hypertension, kidney and cardiovascular disease. | NEV11079 |




Activatable agents mechanism of action




BacteriSense mechanism of action




IntegriSense Inflammation: Atherosclerosis (ApoE-/- mice)

## Targeted Fluorescent Agents

Optimized *in vivo* imaging agents that actively target and bind to specific biomarkers. Benefits include the agents' highly specific targeting to key biological mechanisms.

| Product | Product Description | Catalog Number |
|---|---|---|
| Annexin-Vivo 750 | *In vivo* targeting of membrane-bound phosphatidylserine exposed during the early stages of apoptosis. | NEV11053 |
| BacteriSense 645 | Fast-clearing, targeted probe which binds to negatively charged lipids on the bacterial cell membrane, enabling the monitoring of infection progression in real time. | NEV10080 |
| BombesinRSense 680 | Target and quantify up-regulation of bombesin receptors (BBR) *in vivo* associated with tumor proliferation. These receptors are also over-expressed in a variety of cancers. | NEV10090 |
| FolateRSense 680 | Highly specific and sensitive in detection of Folate Receptor protein. Can be used to closely monitor and quantitate tumor growth and metabolism. | NEV10040 |
| HypoxiSense 680 | Detects the tumor cell surface expression of carbonic anhydrase 9 (CA IX) protein, which increases in hypoxic regions within many tumors. | NEV11070 |
| IntegriSense 645 | Targets integrin $\alpha v\beta 3$ expressed in oncolo≠gy, atherosclerosis and angiogenesis disease models. | NEV10640 |
| IntegriSense 680 | | NEV10645 |
| IntegriSense 750 | | NEV10873 |
| OsteoSense 680 EX | Optimized imaging of bone turnover through binding of hydroxyapatite. | NEV10020EX |
| OsteoSense 750 EX | | NEV10053EX |
| OsteoSense 800 | | NEV11105 |
| TLectinSense 680 | NIR-labeled Tomato Lectin protein which has high binding affinity for glycoprotein N-acetylglucosamines on the surface of vascular endothelial cells. Use for vascular mapping *in vivo*. | NEV10060 |
| Transferrin-Vivo 750 | NIR-labeled transferrin detects transferrin receptor upregulation associated with the increased cell metabolic need for iron in cancer and inflammatory cells. Also detects normal iron metabolism in the liver. | NEV10091 |
| XenoLight® RediJect™ COX-2 Probe Explorer kit (5 injections) | Imaging probe that specifically detects the cyclooxygenase-2 (COX-2) | 133316 |
| XenoLight® RediJect™ COX-2 Probe Standard kit (20 injections) | | 133314 |
| XenoLight® RediJect™ COX-2 Probe Control dye (5 injections) | Non reactive control dye for COX-2 probe | 133349 |
| XenoLight® RediJect™ Bacterial Detection Probe 750 (5 injections) | NIR targeted probe for non-invasive detection of bacterial infections *in vivo* | 133397 |
| XenoLight® RediJect™ Bacterial Detection Probe 750 (20 injections) | | 133398 |
| XenoLight® RediJect™ Bacterial Detection Probe Control dye (5 injections) | Non reactive control dye for RediJect Bacterial Detection Probe | 133399 |
| XenoLight® RediJect™ 2-DG 750 Probe Explorer kit (5 injections) | NIR targeted probe for non-invasive imaging of glucose uptake *in vivo* | 760561 |
| XenoLight® RediJect™ 2-DG 750 Probe Standard kit (20 injections) | | 760562 |
| XenoLight® RediJect™ 2-DG 750 control dye (5 injections) | Non-reactive control dye for RediJect 2-DG 750 probe | 760567 |

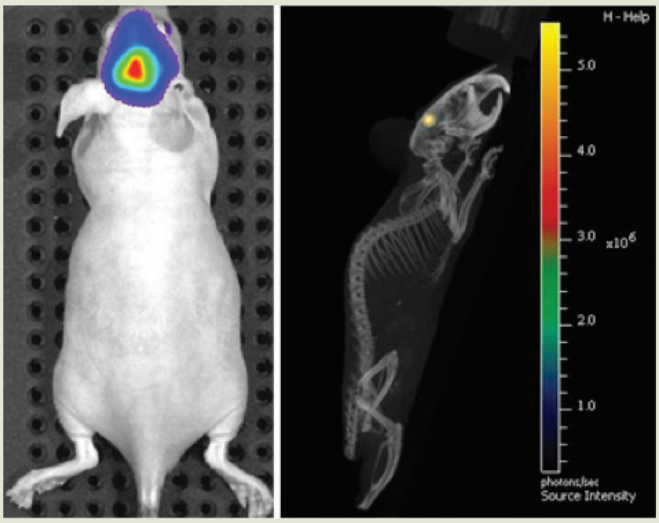
## Vascular and Physiological Fluorescent Agents

PerkinElmer's vascular and physiological agents are a range of highly fluorescent *in vivo* imaging molecules that remain highly stable and localized in the anatomy for various periods of time to enable imaging of disease physiology, vasculature, vascular permeability and angiogenesis.

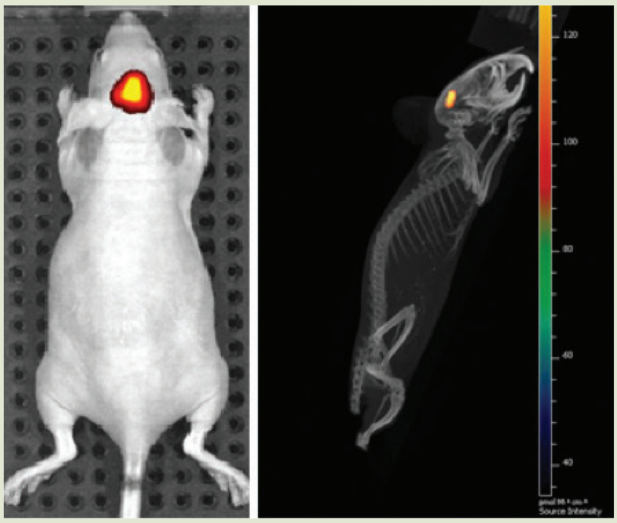
| Product | Product Description | Catalog Number |
|---|---|---|
| AngioSense 680 EX | Imaging of vascularity, perfusion and vascular permeability. Remains localized in vasculature for 0-4 h; accumulates in tumors and arthritic joints at 24 h. | NEV10054EX |
| AngioSense 750 EX | | NEV10011EX |
| AngioSPARK 680 | Imaging of vascularity, perfusion and vascular permeability; long pharmacokinetic profile. | NEV10149 |
| AngioSPARK 750 | | NEV10150 |
| GastroSense 750 | Imaging to monitor gastric emptying and the impact of various drugs on gastric motility; may also be used as an anatomical marker for the stomach. | NEV11121 |
| Genhance 680 (1 mg) | Small molecule fluorescence agent. Use as a control or in vascular permeability imaging. | NEV10117 |
| Genhance 680 (5 mg) | | NEV10130 |
| Genhance 750 (1 mg) | | NEV10118 |
| Genhance 750 (5 mg) | | NEV10177 |
| GFR-Vivo 680 | NIR fluorescent imaging agent to non-invasively determine glomerular filtration rate (GFR) *in vivo* in models of kidney disease, dysfunction, and drug toxicity. | NEV30000 |
| Superhance 680 | Imaging of vascularity, perfusion and vascular permeability; short pharmacokinetic profile. | NEV10116 |

## Multimodal Detection with Bioluminescent and Fluorescent Imaging Agents in the Same Animal Reveals the Context of Disease

Using fluorescent and bioluminescent imaging agents in conjunction with microCT and optical imaging instrumentation provides synchronization of functional and anatomical data, simultaneously and co-registered, for true quantitative 3D image data. Composite functional and anatomical imaging obtained by using fluorescent and bioluminescent agents together gives a clearer context and understanding of the mechanisms of disease. Imaging the reagent combination with the PerkinElmer IVIS® Spectrum CT and Quantum® FX enables the co-registration of microCT and optical image data for more complete biological assessment.




***In vivo* bioluminescent imaging of U-87 MG-Red-FLuc orthotopic tumor mouse.** In this study, 300,000 cells were implanted directly into the brain of nude mice and tumors were imaged two weeks post-injection. Three-dimensional DLIT (Diffuse Light Imaging Tomography) reconstruction of bioluminescent signal shows precise location of the brain tumor.



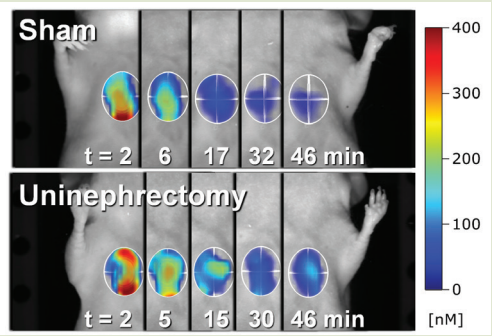
***In vivo* fluorescent imaging of same U-87 MG-Red-FLuc orthotopic tumor mouse.** Mouse was injected with a single dose of IntegriSense750 imaging agent to detect expression of integrin avb3 and imaged using the IVIS Spectum CT instrument 24 hrs post-injection. Three-dimensional FLIT (Fluorescent Imaging Tomography) reconstruction of the signal shows precise localization of the avb3 expressing tumor.

## Fluorescent Labels and Dyes

PerkinElmer fluorochromes and nanoparticles are designed specifically to enable customized development of novel superbright fluorescent imaging agents, with properties that are ideal for use in *in vivo* or *in vitro* imaging.

| Product | Product Description | Catalog Number |
|---|---|---|
| AminoSPARK 680 (3 mg) | Nanoparticle fluorescent label for a target ligand. Superbright with extended pharmacokinetic profile and the ability for multivalent ligand coupling. | NEV10142 |
| AminoSPARK 750 (3 mg) | | NEV10143 |
| VivoTag-S 680 (1 mg) | Small molecule fluorochrome to label a target ligand. Optimized for single molecule loading. Amine-reactive for labeling via an NHS ester linkage. | NEV10121 |
| VivoTag-S 680 (5 mg) | | NEV10122 |
| VivoTag-S 750 (1 mg) | | NEV10123 |
| VivoTag-S 750 (5 mg) | | NEV10124 |
| VivoTag-S 750-MAL (1 mg) | Small molecule fluorochrome to label a target ligand. Optimized for single molecule loading. Thiol-reactive for coupling via maleimide chemistry to label free cysteines or thiol groups. | NEV11223 |
| VivoTag-S 750-MAL (5 mg) | | NEV11224 |
| VivoTag 645 (1 mg) | Amine-reactive near infrared fluorochrome for labeling via an NHS ester linkage to peptides, small molecules, proteins, antibodies or macromolecules. Optimized for *in vitro-in vivo* imaging. | NEV11173 |
| VivoTag 645 (5 mg) | | NEV11174 |
| VivoTag 645-MAL (1 mg) | Red fluorochrome for coupling via maleimide chemistry to label free cysteines or thiol groups. Optimized for *in vitro-in vivo* imaging. | NEV11273 |
| VivoTag 645-MAL (5 mg) | | NEV11274 |
| VivoTag 680 XL-MAL (1 mg) | NIR fluorochrome for coupling via maleimide chemistry to label free cysteines or thiol groups. Lower quenching than VivoTag-S 680. | NEV11219 |
| VivoTag 680 XL-MAL (5 mg) | | NEV11220 |
| VivoTag 680 XL (1 mg) | Fluorochrome for labeling small molecules, proteins, antibodies, nanoparticles or other macromolecules. Hydrolytically stable. Low self-quenching for higher loading. | NEV11119 |
| VivoTag 680 XL (5 mg) | | NEV11120 |
| VivoTag 680XL Protein Labeling Kit | An easy and convenient way to label up to 10 mg of protein. Each kit contains our superior *in vivo* optimized VivoTag 680XL (2 x 250 µg) and everything you need to carry out the reaction and purify the labeled protein. | NEV11118 |
| VivoTag 800 (1 mg) | Small molecule fluorochrome to label a target ligand. Optimized for high-density loading. | NEV11107 |
| VivoTag 800 (5 mg) | Small molecule fluorochrome to label a target ligand. Optimized for high-density loading. | NEV11108 |
| VivoTrack 680 Explorer | NIR water soluble cell labeling agent that can generate brightly-labeled and highly viable cells suitable for detection and longitudinal tracking *in vivo*. Contains 1 vial that can stain up to 2 x $10^8$ cells. | NEV12001 |
| VivoTrack 680 Standard | NIR water soluble cell labeling agent that can generate brightly-labeled and highly viable cells suitable for detection and longitudinal tracking *in vivo*. Contains 5 vials, each vial can stain up to 2 x $10^8$ cells. | NEV12000 |
| XenoLight® CF 680 Fluorescent Labeling Kit (3 labelings) | Label any peptide or protein with easy to use Kit. NIR wavelength for *in vivo* imaging | 125673 |
| XenoLight® CF 750 Fluorescent Labeling Kit (3 labelings) | | 125674 |
| XenoLight® CF 770 Fluorescent Labeling Kit (3 labelings) | | 125675 |
| XenoLight® CF 680 NIR Fluorescent Dye (1 µmole) | Reactive fluorescent dye for bulk protein or antibody labeling | 125676 |
| XenoLight® CF 750 NIR Fluorescent Dye (1 µmole) | | 125677 |
| XenoLight® CF 770 NIR Fluorescent Dye (1 µmole) | | 125678 |
| XenoLight® CF 680 Free Acid (1 µmole) | Non reactive control dye for XenoLight CF dyes of same wavelength | 760596 |
| XenoLight® CF 750 Free Acid (1 µmole) | | 760597 |
| XenoLight® CF 770 Free Acid (1 µmole) | | 760598 |
| XenoLight® DiR (25 mg) | NIR dye for non-invasive imaging of cell homing (stem cells, T cells) | 125964 |

## Measure Kidney Function Non-Invasively *in vivo*




Glomerular filtration rate (GFR) is the gold standard in kidney function assessment and is used to determine progression of kidney disease and drug-induced kidney toxicity. GFR-Vivo™ 680 is a near infrared (NIR) fluorescent-labeled form of inulin in a spectral region providing low background and high tissue penetration (ex/em = 670/685 nm) for *in vivo* application.

Fluorescence molecular tomographic (FMT) imaging of the heart was used to detect and quantify blood levels of GFR-Vivo 680 at multiple time points, providing the necessary data to calculate the clearance rates in individual animals. Following an intravenous bolus of GFR-Vivo 680 in SKH-1E mice, FMT® images were acquired at 1, 5, 15, 30, and 45 minutes post-injection GFR-Vivo 680, in combination with FMT heart imaging, provides a non-invasive fluorescent imaging approach to generate consistent GFR measurements in models of kidney disease, dysfunction, and drug toxicity.

# LUMINESCENCE AGENTS

### XenoLight Bioluminescent/Chemiluminescent Substrates

PerkinElmer offers bioluminescent substrates in two easy-to-use formats that fit your laboratory workflow for *in vivo* imaging.

XenoLight RediJect substrates in pre-formulated, ready-to-use kits, reduce preparation time and effort, while still delivering ultimate sensitivity and reproducibility that is critical for accurate quantitation. Optimize your work flow patterns and obtain better results by minimizing batch-to-batch variation with batch controlled lots.

Also available is XenoLight RediJect Ultra, the same preformulation but with a rapidly clearing fluorescent dye to validate your substrate injection, and provide you with confidence in your data quality.

XenoLight D-Luciferin offers the same sensitivity and high performance in lyophilized form, available in gram and bulk quantities.

All PerkinElmer substrates have been optimized and validated in multiple biophotonic imaging applications including *in vivo* using the PerkinElmer IVIS® Imaging Systems.

| Product | Product Description | Catalog Number |
|---|---|---|
| XenoLight RediJect D-Luciferin (50 injections) | Pre-formulated in PBS, batch controlled D-Luciferin (K+ salt) ready for *in vivo* use | 770504 |
| XenoLight RediJect D-Luciferin Ultra (50 injections) | Pre-formulated in PBS, batch controlled D-Luciferin (K+ salt) for *in vivo* use<br>Includes a fluorescent marker to validate substrate injection | 770505 |
| XenoLight RediJect Coelenterazine h (50 injections) | Pre-formulated in PBS, batch controlled Coelenterazine h for *in vivo* use | 760506 |
| XenoLight RediJect Inflammation Probe, Explorer kit (5 injections) | Pre-formulated in PBS, chemiluminescent probe for monitoring inflammation | 760535 |
| XenoLight RediJect Inflammation Probe, Standard kit (20 injections) | Pre-formulated in PBS, chemiluminescent probe for monitoring inflammation | 760536 |
| XenoLight D-Luciferin (K+ Salt) (1-50 g) | Lyophilized bioluminescence substrate for *in vivo* imaging with Firefly Luciferase, in bulk | 122799 |

### RediFect lentiviral particles

RediFect™ lentiviral particles are self-inactivating, recombination incompetent lentiviral particles carrying red-shifted firefly luciferase (*Luciola italica*) or green-shifted Renilla luciferase (*Renilla reniformis)* transgene under control of the stable UbC promoter. Get rapid, stable and efficient transduction of a wide variety of mammalian cells including most cancer cell lines, primary, stem, and non-dividing cells.

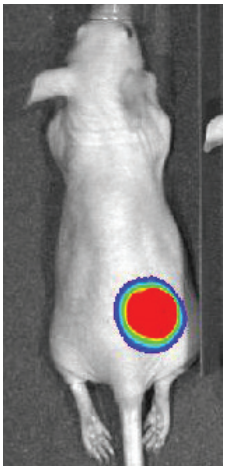
| Product | Product Description | Catalog Number |
|---|---|---|
| RediFect Red-Fluc-Puromycin | Lentivirus particles containing red-shifted firefly luciferase with puromycin as selection marker | CLS960002 |
| RediFect Red-Fluc-GFP | Lentivirus particles containing red-shifted firefly luciferase and Green Fluorescent Protein (GFP) | CLS960003 |
| RediFect Green Renilla-Puromycin | Lentivirus particles containing Green Renilla luciferase with puromycin as selection marker | CLS960004 |

# BIOWARE® BRITE BIOLUMINESCENT ONCOLOGY CELL LINES

Expand your oncology models to deep tissue tumors with brighter, red-shifted cell lines. PerkinElmer's new Bioware® Brite light-producing cell lines are significantly brighter than other firefly luciferases. *In vitro* studies have shown that Red-Fluc is 10-20 fold brighter*. Available in a wide range of cancer models including breast, colorectal, lung, and prostate, the cells have been stably transduced with the red-shifted firefly luciferase gene from *Luciola Italica* (Red-Fluc), for a brighter, red-shifted signal.

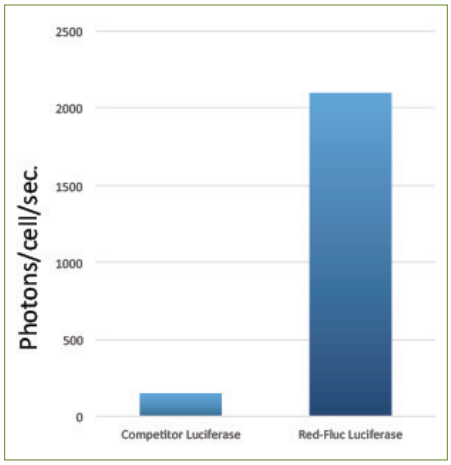
By emitting intensified, longer wavelength light, our bioluminescent oncology cell lines allow you to visualize and monitor the growth of deep tissue tumors *in vivo*.

The optimized Red-Fluc luciferase enables more sensitive *in vivo* optical imaging with less tissue attenuation so you can detect tumor development earlier, and monitor tumor growth and metastases in both subcutaneous and orthotopic models.



Bioluminescence image of HCT-116-Red-Fluc subcutaneous tumor

Bioluminescence image of U-87 MG-Red-Fluc orthotopic tumor




**In vivo* Comparison: Five million of both Red-Fluc HepG2 cells and competitor luciferase transduced HepG2 cells were injected s.c. in the flank of nude mice; tumors were imaged after five weeks. Red-Fluc transduced cells generate 15 times brighter BLI signal than the corresponding tranduced cells despite similar tumor size. (Peterson, et al. 2014) Brightness varies by cell line.

## Bioware® Brite cell lines labeled with enhanced Red-Fluc vector

| Product | Product Description | Catalog Number |
|---|---|---|
| HT1080-Red-Fluc | Human Fibrosarcoma Cancer Cell line. | BW 128092 |
| 4T1-Red-Fluc | Murine Breast Cancer Cell line | BW 124087 |
| GL261-Red-Fluc | Murine Glioma Cell line | BW 134246 |
| HepG2-Red-Fluc | Human Hepatic Cancer cell line | BW 134280 |
| PC-3-Red-Fluc | Human Prostate Cancer Cell line | BW 128444 |
| LnCaP-Red-Fluc | Human Prostate Cancer Cell line | BW 125055 |
| B16-F10-Red-Fluc | Murine Melanoma Cancer Cell line | BW 124734 |
| HCT-116-Red-Fluc | Human Colorectal Cancer Cell line | BW 124318 |
| HT-29-Red-Fluc | Human Colorectal Cancer Cell line | BW 124353 |
| Colo205-Red-Fluc | Human Colorectal Cancer Cell line | BW 124317 |
| U-87 MG-Red-Fluc | Human Brain Cancer Cell line, ideal for glioblastoma models | BW 124577 |
| NCI-H460-Red-Fluc | Human Lung Cancer Cell line, ideal for orthotopic lung tumor models | BW 124316 |
| K-562-Red-Fluc | Human Leukemia Cell line | BW 124735 |
| BxPC3-Red-Fluc | Human Pancreatic Cancer Cell | BW 125058 |
| MCF-7-IRed-Fluc | Human Breast Cancer | BW 119262 |
| A549-Red-Fluc | Human Lung Cancer | BW 119266 |
| LL/2-Red-Fluc | Murine Lung Cancer | BW 119267 |
| SKOV3-Red-Fluc | Human Ovarian Cancer | BW 119276 |

## BIOWARE® BRITE DUAL OPTICAL REPORTER CELL LINES

Oncology cell lines dual labeled with our brighter, red-shifted firefly luciferase (Luciola italica) Red-Fluc and Green Fluorescent Protein (GFP) let you get a better perspective on tumor growth and metastasis. With our Red-Fluc luciferase, you can monitor *in vivo* tumor development even in deep tissues, while the fluorescent protein allows for better *ex vivo* analysis.

### Bioware® Brite Ultra Green

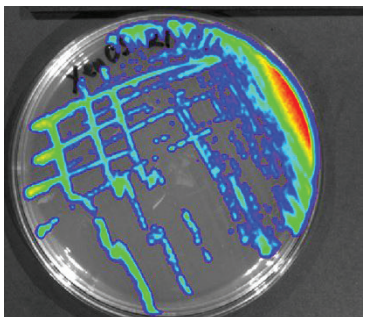
| Product | Product Description | Catalog Number |
|---|---|---|
| 4T1-Red-Fluc-GFP | Murine Breast cancer cell line dual labeled with Luciferase and GFP | BW 128090 |
| PC-3-Red-Fluc-GFP | Human Prostate cancer cell line dual labeled with Luciferase and GFP | BW 133416 |

## OPTICAL REPORTER MICROORGANISMS

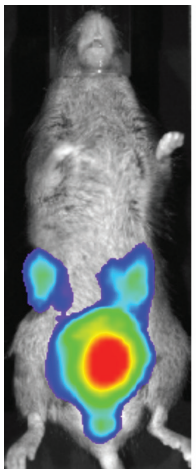
Optical *in vivo* imaging technology has been successfully used to non-invasively measure the spread of infection, monitor infection dynamics and determine the *in vivo* efficacy of antimicrobial compounds in various ID models. PerkinElmer offers various Gram positive and Gram negative bacteria labeled with bacterial Luciferase. One advantage of bacterial Luciferase is that it negates the use of an exogenous substrate like Luciferin.

| Bacterium | Parental strain | Catalog No. |
|---|---|---|
| *E. coli* | EPEC WS2572 (Xen14)<br>ETEC WS2583 (Xen16) | 119223<br>119225 |
| *L. monocytogenes* | ATCC 23074 (Xen19)<br>10403S (Serotype 1/2a wild-type strain) (Xen32) | 119237<br>119238 |
| *P. aeruginosa* | ATCC 19660 (Xen5)<br>PAO1 (Xen41) | 119228<br>119229 |
| *P. mirabilis* | ATCC 51286 (Xen44) | 119236 |
| *S. aureus* | 8325-4 (Xen8.1)<br>ATCC 12600 (Xen29)<br>ATCC 33591 (Xen31)<br>ATCC 49525 (Xen36)<br>UAMS-1 (Xen40) | 119239<br>119240<br>119242<br>119243<br>119244 |
| *S. dysenteriae* | 88A6205. Clinical isolate (Xen27) | 119231 |

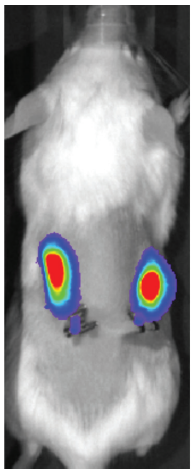
| Bacterium | Parental strain | Catalog No. |
|---|---|---|
| *S. pyogenes* | Strain 591, Group A, Serotype M49 (Xen20) | 119250 |
| *S. typhimurium* | FDA1189 (Xen33) | 119235 |
| *Y. enterocolitica* | 91A1854 Clinical isolate (Xen24)<br>WS2589 (Xen25) | 119232<br>119233 |



Xen05: *Pseudomonas aeruginosa*



Xen44: Monitoring migration of UTI infection from the bladder to the kidney non-invasively in real time



Xen5: P. aeruginosa infection on a biofilm

## Results. Smarter. Faster.

With a growing emphasis on translational insight, it is more important than ever to be able to examine the molecular mechanisms of disease and translate your *in vitro* models into *in vivo* results. PerkinElmer offers leading solutions and renowned expertise in assays, imaging and informatics that will help you bring it all together. Whether working in a well, cell or animal models large or small, now you can focus on your science, gain insight sooner, and succeed faster.

Contact us at 800 762-4000 (U.S.), 00 800 33 29 0000 (Europe) or 800 820 5046 (China).

Learn more at www.perkinelmer.com/invivoreagents

PerkinElmer *in vivo* imaging agents are optimized for use in our suite of optical preclinical imaging systems.

For laboratory use only. These products are intended for animal research only and not for use in humans.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