

HUMAN HEALTH

ENVIRONMENTAL HEALTH

# DEEPEN YOUR UNDERSTANDING OF TUMOR BIOLOGY

## HypoxiSense™ Fluorescent Pre-clinical Imaging Agent

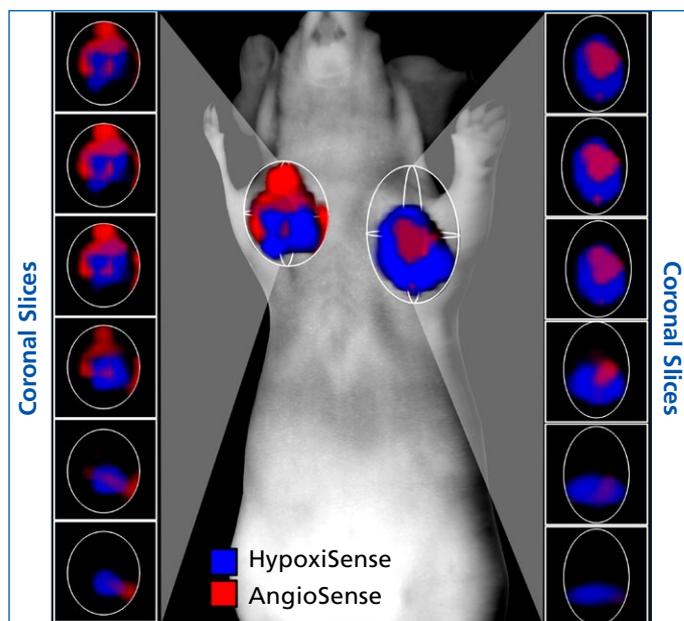
Hypoxia occurs in tumors as a result of the poor ability of their disorganized vascular networks to deliver blood borne oxygen. HypoxiSense detects the tumor cell surface expression of carbonic anhydrase 9 (CA IX) protein, which increases in hypoxic regions within many tumors, especially in cervical, colorectal, non-small cell lung tumors. Pairing HypoxiSense with optical fluorescent imaging technology allows you to image and quantitate tumor sub-regions undergoing hypoxia-related changes, non-invasively and *in vivo*.

HypoxiSense is ideally suited for detecting hypoxia-induced changes in CA IX expression during:

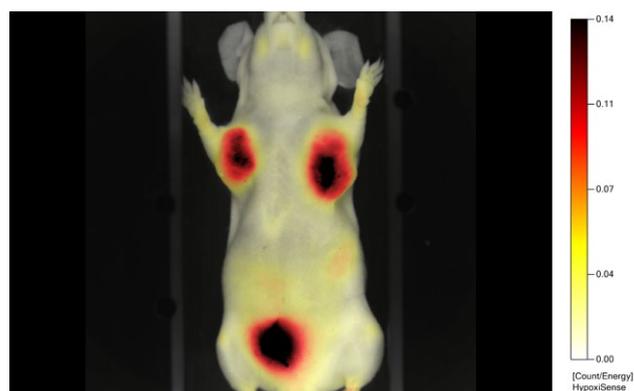
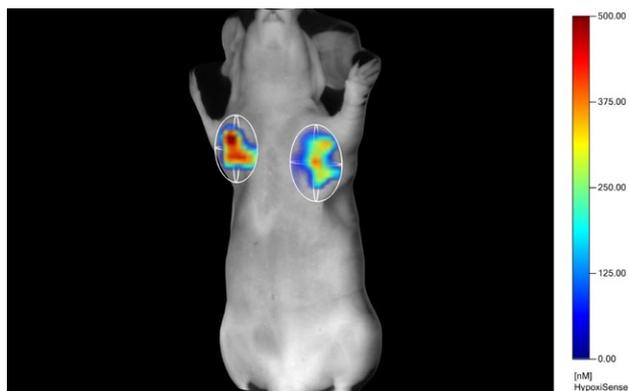
- Imaging *in vivo* mouse and rat tumors
- Assessing therapeutic efficacy in drug screening of tumor models
- Fluorescence microscopy of disease tissues

**For the first time, hypoxia can be measured non-invasively in living mice and rats, as well as in *ex vivo* tissue samples. It's the perfect solution for the *in vivo* hypoxia researcher.**

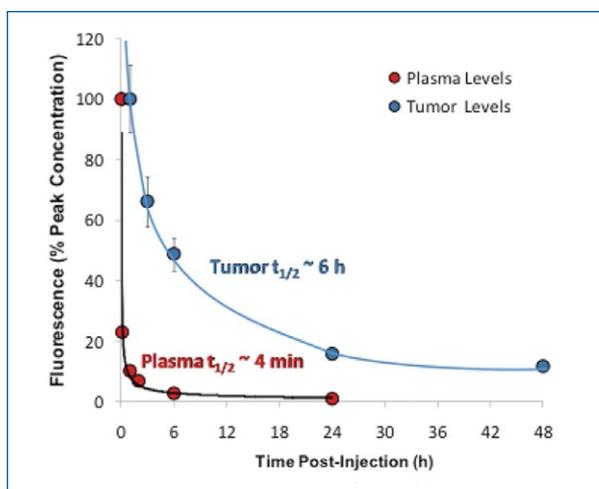
### Fluorescence Molecular Tomography Imaging



HeLa cervical cancer tumor cells were implanted in two subcutaneous sites on the upper mammary fat pads of a nude mouse and allowed to grow to 600 mm<sup>3</sup>. Simultaneous imaging with HypoxiSense 680 and AngioSense 750 in living mice reveals that both tumor hypoxia and vascular leak are occurring in both tumors. As expected, coronal slices of tomographic imaging datasets further show discrete regions of hypoxia throughout the tumors that do not co-localize with the sites of vascular leak typically associated with angiogenesis.



HypoxiSense enables imaging of tumor hypoxia in both tomographic (subcutaneous and deep tissue tumors) and planar (subcutaneous tumors) optical imaging systems. A representative mouse, bearing surface HeLa cervical cancer tumor xenografts, was injected intravenously with HypoxiSense and imaged 24h later using the FMT® 2500 Fluorescence Molecular Tomography imaging (left) and planar reflectance imaging (right).



HypoxiSense 680 clears from the bloodstream quickly, with a half-life of approximately 4 minutes, yet it accumulates within hypoxic regions in tumor tissue with a half-life of 6h. Tumor hypoxia can be detected as early as 3h post-HypoxiSense injection, with optimal signal to noise measured at 12-24h once circulating agent has completely cleared.

HypoxiSense is optimized for use on PerkinElmer FMT Quantitative Pre-clinical Imaging Systems, which enable deep tissue interrogation of biomarkers and disease mechanisms.

Name	Description	Part Number
HypoxiSense 680	Fluorescent Pre-clinical Imaging Agent, 10 mouse doses	NEV11070
HypoxiSense 680 trial	Fluorescent Pre-clinical Imaging Agent, trial size	NEV11072

For more information, please visit: [www.perkinelmer.com/hypoxia](http://www.perkinelmer.com/hypoxia)

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