**PSVue® 749 Targets infectious foci in mice**

Publication: Targeting Apoptosis for Optical Imaging of Infection

Results reported in Molecular Imaging and Biology online:03 May 2011 demonstrated that PSVue® 749 can target PS on the outer leaflet of apoptotic or necrotic neutrophils as well as gram-positive microorganisms. Bacterial infection and sterile inflammation were induced in separate groups of mice. Imaging of targeted PSVue® 749 was performed using Kodak Multispectral FX-Pro system. Images were visible at 5 min post-injection. At 3 h post-infection target to background intensity ratios were 6.6 ± 0.2 and 3.2 ± 0.5 for infection foci and inflammation, respectively. The following figure shows optical images of a mouse with bacterial infection.

**Dynamic optical imaging of bacterial infection with PSVue 794**

Confocal microscopy of normal and apoptotic neutrophils as shown in the following figure confirmed excellent specificity of PSVue® 749 for outer leaflet PS.

Authors and Affiliations: Mathew L. Thakur¹, Kaijun Zhang¹, Bishnuhari Paudyal¹, Devadhas Devakumar¹, Maria Y. Covarrubias³, Changpo Cheng², Brian D. Gray¹, Eric Wickstrom², Koon Y. Pak⁴

¹Department of Radiology, Thomas Jefferson University, 1020 Locust Street, Suite 359-JAH, Philadelphia, PA 19107
²Department of Biochemistry Molecular Biology, Thomas Jefferson University, Philadelphia, PA USA
³Bioimaging, Kimmel Cancer Center, Thomas Jefferson University, Philadelphia, PA USA
⁴Molecular Targeting Technologies, Inc, West Chester, PA USA
**CellVue® NIR815 for General Cell Membrane Labeling**

**CellVue® NIR815** tracks human umbilical cord blood stem cells within an intervertebral disk explant.

Results reported in the *2011 Rush Orthopedics Journal* demonstrated success using CellVue® NIR815 fluorescent dye to track stem cell survival in rabbit disk culture. Human umbilical cord blood-derived mesenchymal stem cells (hUCB-MSC) were stained with CellVue® NIR815 and transplanted into cultured rabbit intervertebral disk explants. Cells continued to fluoresce green after 1 month in culture. When these green images are overlapped with a noninjected rabbit disk that has a red background fluorescence the resulting color for the stem cells has a yellow fluorescent appearance (figure below). The fluorescent color diminished only slightly over the 4-week culture period.

![Rabbit Intervertebral Disk Organ Explants injected with human umbilical cord mesenchymal stem cells labeled with CellVue and cultured in vitro for 4 weeks](image)

Figure courtesy of Dr. Ana Chee

**Authors and Affiliations:** Department of Orthopedic Surgery, Rush University Medical Center, Chicago, Illinois (Drs. Ana Chee, Yejia Zhang, and Howard An); Department of Rehabilitation Medicine, Thomas Jefferson University, Philadelphia, Pennsylvania (Drs. Dessislava Markova and Vladimir Markov and Mr. Chander Gupta); and Department of Cell Biology, School of Osteopathic Medicine, University of Medicine and Dentistry of New Jersey, Stratford, New Jersey (Dr. Biagio Saitta).
**PSVue**


- Li J., Gray B., Pak KY., Ng CK. J *Optimization of labeling dipicolylamine derivative, N,N’-(5-(4-aminobutoxy)-1,3-phenylene)bis(methylene)bis(1-(pyridin-2-yl)-N-(pyridin-2-ylmethyl)methanamine), with three 18F-prosthetic groups as potential imaging agents for metastatic infectious disease*. Labelled Compounds and Radiopharmaceuticals 2012; in press.


**CellVue**


**NeuroVue**


**SRFluor**
