XenoLight RediJect Bacterial Detection Probe 750

XenoLight RediJect Bacterial Detection Probe is a Near Infrared (NIR) fluorescent agent for in vivo targeting of both gram positive and gram negative bacterial infections. This probe specifically targets the anionic phospholipids of bacterial cell membrane, and so targets gram negative bacteria slightly more efficiently than gram positive bacteria. RediJect bacterial detection probe is extremely bright, allowing sensitive detection of deep-tissue infections caused by a range of bacteria, including Staphylococcus aureus, Streptococcus pneumoniae, Pseudomonas aeruginosa, Salmonella typhimurium and Escherichia coli.

- Novel ready-to-use probe for in vitro and in vivo detection of bacterial infections
- Dispensed to image 5 animals (Explorer Kit) or 20 animals (Standard Kit)
- Detect Gram-negative and Gram-positive bacteria non-invasively
- In vivo imaging quality, validated on IVIS® and Nuance™ imaging systems

Available Kits
P/N 133397 - Explorer Kit (Image 5 animals/kit)
P/N 133398 - Standard Kit (Image 20 animals/kit)
P/N 133399 - Control dye

PROPERTIES:

Color and Form: Clear blue-colored solution in 1x PBS
Concentration: 10 nmoles/100 μL
Shipping Condition: The kit will be shipped in cold gel packs to avoid temperature variations
Volume per Vial:
Explorer Kit: 1 sterile amber vial containing 600 μL of probe at 10 nmoles/100 μL
Standard Kit: 4 sterile amber vials containing 600 μL of probe at 10 nmoles/100 μL
Storage and Handling: Store the probe at 4 °C and protect from light. For in vivo imaging studies we recommend an intravenous injection of 100 μL of probe per mouse. Allow the probe to warm up to room temperature before injection into the animal.

DYE CHARACTERISTICS:

Color and Form:
750 nm, Peak Emission: 780 nm
Ideal IVIS Spectrum Filter Sets:
Ex 745 nm/Em 800 nm
Alternatively you can also use the spectral unmixing filter sets using imaging wizard program in the Living Image® software.
In vitro targeting to gram negative and gram positive bacteria

Figure 1. (A) Gram-negative *Salmonella typhimurium* and gram positive *S. aureus* cells were pre-incubated with the probe for 15 minutes. Cell suspension was triple washed with PBS and cells were then re-suspended in PBS. The yellow circle shows cells not pre-incubated with the probe while the orange circle shows cells pre-incubated with the probe. Plates were imaged using IVIS Spectrum (Ex: 745 nm, Em: 800 nm). The chart on the right shows the targeting specificity of the probe. The graph shows more signal coming from gram negative than gram positive bacteria.

In vivo targeting affinity of the Bacterial Detection Probe 750

Figure 2. Four different concentrations (10^3–10^6 CFU) of *P. aeruginosa* and *S. aureus* were injected on the back of nu/nu mice. 10 nmoles of RediJect Bacterial Detection Probe were injected i.v. and mice were imaged 3 hours post probe injection. The mouse on the left was injected with the probe, the middle mouse got the bacterial injection but no probe, while the mouse on the right received the probe but no bacteria. Top panel are bioluminescent images while the bottom panel shows bacterial detection by the probe using fluorescent imaging. The probe shows better sensitivity with gram negative bacteria, where 10^3 CFU are easily detected.

Non-invasive detection of *Pseudomonas aeruginosa* in a thigh infection model

Figure 3. The right and left thighs of nu/nu mice were infected with bioluminescent *P. aeruginosa* Xen5. Once the infection was established 10 nmoles of RediJect Bacterial Detection Probe was injected and mice were imaged 24 hours post probe injection. The mouse on the right was not infected. Fluorescent images on the right clearly show the probe targeting the bacterial infection in the thigh.
Non-invasive detection of *Streptococcus pneumoniae* in a pneumonia model

**Figure 4.** The brightness of the bacterial detection probe allows for *in vivo* fluorescence imaging at depth in models like pneumonia. Nu/nu mice were infected with *S. pneumoniae* strain Xen10 intranasally and infection in the lungs was monitored in real time with bioluminescent imaging (A). 3D reconstructed BLI image was co-registered with micro CT using the Quantum FX micro CT system (B). RedIfect Bacterial Detection Probe was administered intravenously and mice were imaged using the transillumination (Trans- Raster 745/800) feature of the IVIS Spectrum. The probe targeting the lung infection can be clearly monitored non-invasively (C).

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

Learn more at www.perkinelmer.com/invivoreagents