The Best Tool for Luminescence in Microplate Reading

The CLARIOstar with LVF Monochromators™ provides outstanding flexibility and high performance in all luminescence, BRET and NanoBRET™ assays. BMG LABTECH's advanced LVF Monochromator enables continuous wavelength as well as bandwidth optimization. Alternatively, assay-specific filters can be used.

Spectral scans

Most luminescence assays exploit a luciferase/luciferin reaction to produce a luminous signal. However, different luciferases show different emission profiles (Fig.1). Hence, spectral scans are necessary for the optimization of luminescence assays with unknown spectral information.

With its wavelength range of 320-740 nm, the CLARIOstar's LVF emission monochromator covers the spectrum of every commercially available lumiphore. Its selectable resolution of 0.1-10 nm ensures further fine-tuning possibilities for assay optimization.

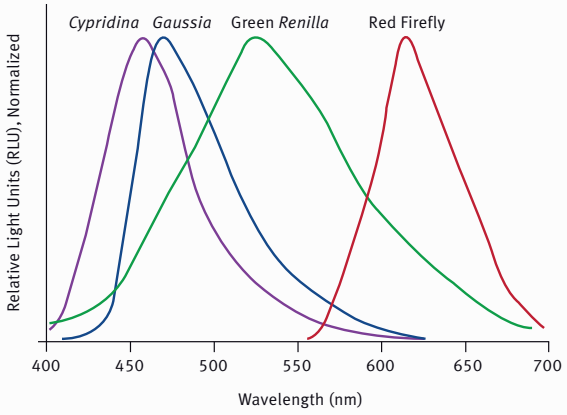

Fig. 1: Spectral emission profiles of luciferases used in Pierce™ Dual Assay Kits from Thermo Scientific. The emission of red firefly (λ_{max} = 613 nm) allows resolution from Green *Renilla* Luc (λ_{max} = 535 nm), *Gaussia* Luc (λ_{max} = 470 nm) and *Cypridina* Luc (λ_{max} = 463 nm).

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Filter-like performance for luminescence and BRET assays without compromising on flexibility

Continuous adjustable bandwidths

Broader bandwidths are advantageous in luminescence as they yield more light and enhance the sensitivity of the system. Bioluminescence Resonance Energy Transfer (BRET) assays also benefit from wider bandwidths (60 to 100 nm) and perform poorly on conventional monochromators with fixed or narrow bandwidths (Fig. 2).

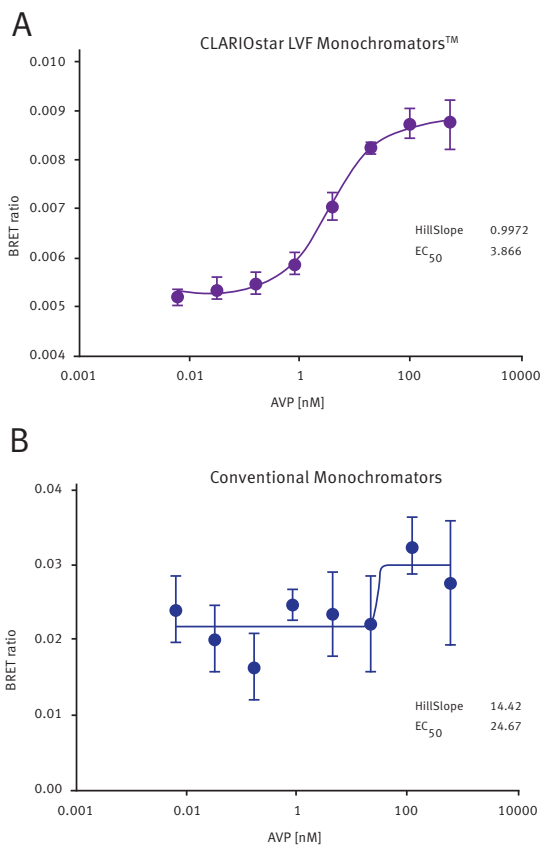

Fig. 2: AVPR activation by AVP. Stimulation with AVP causes an increase in association between AVPR and β-arrestin indicative of receptor activation. Data in (A) were obtained in the CLARIOstar using the LVF monochromator. Data in (B) were obtained with a microplate reader having a conventional monochromator.

The CLARIOstar is the only monochromator-based microplate reader on the market with adjustable bandwidths from 8 up to 100 nm. In addition, the unique design of the LVF Monochromator allows for higher light transmission. These features result in sensitivities never achieved before by a monochromator in luminescence.

Features

- Luminescence scans
- Continuously adjustable bandwidth from 8-100 nm
- Low-noise PMT for higher sensitivity and lower background
- 9 decades dynamic range
- Up to two onboard injectors
- Minimal cross-talk
- Lumiphore visualizer and library

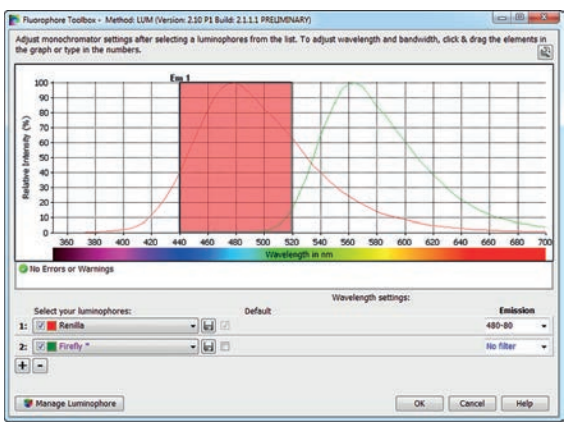

Fig. 3: Lumiphore visualization tool with integrated lumiphore library makes it easy to optimize wavelength and bandwidth setups.

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