

NEWSLETTER

TUESDAY 22/11/2022

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CHOOSING THE RIGHT MICROPLATE READER

For a quick assessment of enzyme activity or protein and nucleic acid quantification, microplate readers have become a reliable and obvious choice for any lab. Microplate readers are everywhere, in drug discovery, basic research, bioassay validation, and biopharmaceutical manufacturing, with applications ranging from simple ELISAs to high-throughput detection.

WHAT IS A MICROPLATE READER?

A microplate reader is an instrument designed to analyze samples in microplate wells. Microplate varies in different formats, featuring from 6- 1536 wells, allowing many samples to be analyzed in a short time.

TYPES OF MICROPLATE READERS

In the event of choosing a microplate reader, one should decide the detection modes that they will be using. There are two types of microplate readers: single-mode microplate readers and multimode microplate readers.

SINGLE-MODE MICROPLATE READERS

A single mode is designed to have a single detection mode only: either absorbance, fluorescence or luminescence. This limits the flexibility of use but there are times when single mode reader might be all your project needs. It offers better sensitivity and reliability than multimode microplate readers and is generally cheaper, freeing up your fund to purchase other lab equipment.

MULTIMODE MICROPLATE READERS

If the lab is supporting multiple users with simultaneous ongoing projects, you might want to consider multimode microplate readers. They are more complex and expensive than a single-mode reader, but offer great flexibility by accommodating all the detection modes in a single instrument.

DETECTION MODES

ABSORBANCE

Absorbance readers operate by spreading a specified light wavelength across the microplate; with wavelengths in the range of UV to Near Infrared light. Measurements are made based on how much light is absorbed by the molecules in each well. This detection method is used in countless assays- ELISA assays, Cell viability assays, and protein quantification assays.

FLUORESCENCE

Fluorescent signals are measured when a light source passes through a filter of a selected wavelength and excites fluorophore, the fluorescent molecule. The wavelength is then converted to emission wavelength. With a diverse array of fluorophores, this detection mode can be catered to applications such as receptor studies, immune assays, or protease assays.

LUMINESCENCE

A luminescence reader does not require excitation from a light source, but rather chemical reactions to spark a light signal. It is often used with kinase assay, or ATP measurement, or luciferase assays.

FINAL THOUGHTS...

If you have extra funds and a variety of assays to run, a multimode reader is your ideal choice to go. When you know the assays and the kits that you'll be using throughout, in that case, a single-mode reader is all you need.