

# A new multitechnology microplate reader enabling kinetic liquid scintillation studies with spectrometric analysis

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## Introduction – Microplate Liquid Scintillation counters

LSC is a commonly used technology in drug discovery. Radiolabelled tracers such as  $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{32}\text{P}$  and  $^{35}\text{S}$  are coupled to target molecules and measured from a variety of samples. Introduction of microplate scintillation counting technology improved sample throughput and handling significantly. Samples are measured from a variety of microplates including standard plates, filter based plates, and solid scintillator based plates. Commonly used technology is Scintillation Proximity Assay (SPA).

More recently a quest for more precise biological information has increased the need for new technologies such as measurement in different temperatures and studying kinetic changes within the samples.

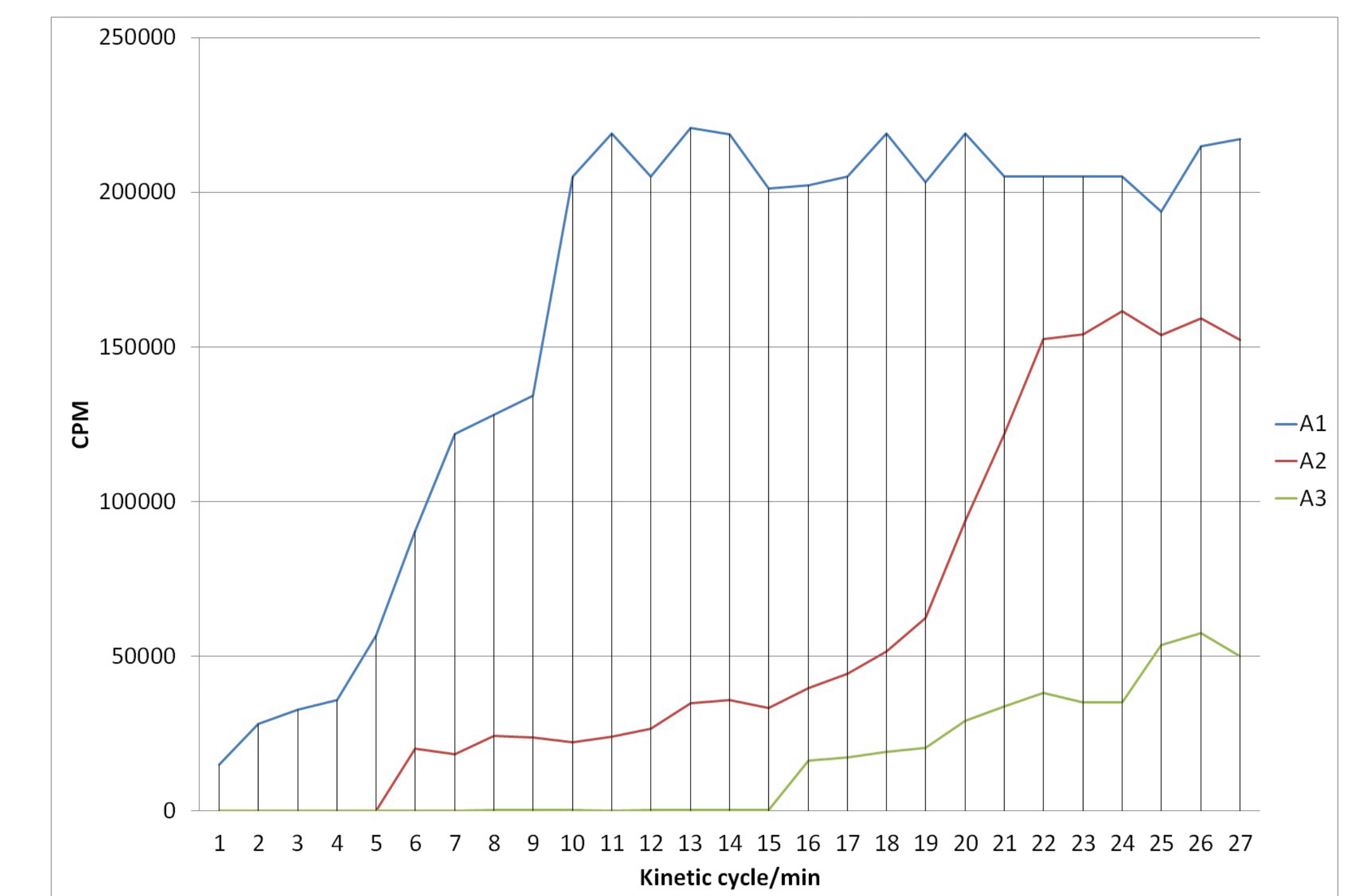
Also traditionally scintillation microplate readers have been single technology type instruments. Microplate readers have more commonly been used with spectrometric, fluorometric and luminometric assay technologies. A combination of these features has not been commonly available.



## Kinetic Liquid Scintillation analysis

The study shows an example of kinetic scintillation binding study. Samples are injected at different time intervals and the binding reaction is studied over time. The complete microplate carried was incubated at 37 degrees centigrade. The different samples show clearly the reaction speed after the point of injection.

*The graph opposite shows three different points of radiolabelled tracer injection and the reaction speed after the injection.*



## Spectrometric analysis

In addition to the liquid scintillation counting mode the Hidex Sense multimode microplate reader is equipped with a spectrometer. Protein quantification, enzyme activity and other photometric assays benefit from recording the spectrum. Ultrafast full spectrum readout is obtained in the Hidex Sense using a high sensitivity spectrograph. The sample spectrum is scanned in less than a second with no compromise on sensitivity.

## Conclusions

Liquid scintillation microplate combined with automatic reagent injectors and the capacity to incubate samples at selected temperatures greatly advances possibilities in pharmaceutical development. As a combination of a full scale multimode microplate reader Hidex Sense is a versatile tool for any drug metabolism laboratory.

