MicroBeta Trilux –

Your total solution

PerkinElmer™
life sciences.

PerkinElmer™
life sciences.

MicroBeta® TriLux is th

MicroBeta® TriLux is a truly universal counting instrument. It can count beta, gamma or luminescent labels on filters, in microplates or in tubes. There are 12, 6, 3, 2 or 1 detector versions and the samples can be in 384, 96 or 24 format.
In terms of detector design, sample handling, counter operation and running costs – all pivotal factors when deciding on a new counter – MicroBeta wins every time.

For basic research

MicroBeta is an "OPEN" system, designed for compatibility with any counting vessel manufactured by any other company. Detector construction, cassette sample handling, crosstalk correction and software compatibility are all designed to put the user in control of the instrument rather than have the limitations of the counter dictate the assay method.

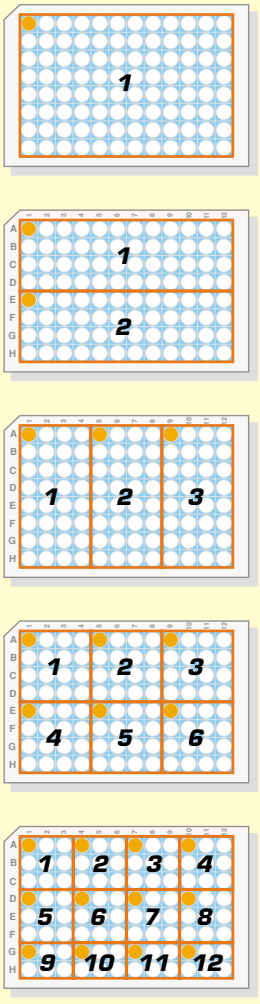
For high throughput screening

As both a high sample capacity stand-alone and as part of a fully automated system, MicroBeta has gained acceptance in high throughput screening laboratories around the world. With up to 12 detectors and only 9 readings per 96-well plate, it is the fastest plate counter available.

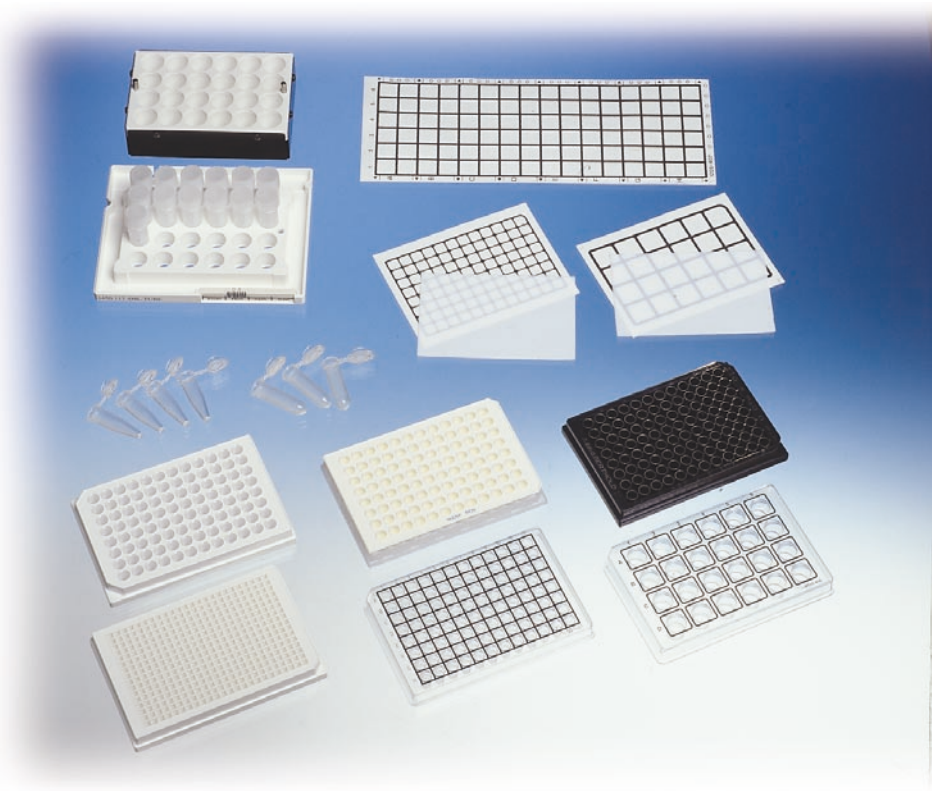
The Wallac logo - hallmark of quality and innovation

MicroBeta® TriLux comes from the company which pioneered plate counting. In 1987 the Wallac Betaplate™ was the world's first multi-detector liquid scintillation counter for filtermats. Later came MicroBeta, the very first microplate counter.
While leading the field, PerkinElmer Life Sciences has secured patents on numerous innovative techniques that help MicroBeta TriLux users to achieve reliable results while saving work, time, money and waste.

e best possible choice



Today's leading multidetector liquid scintillation and luminescence counter comes in five different detector versions.



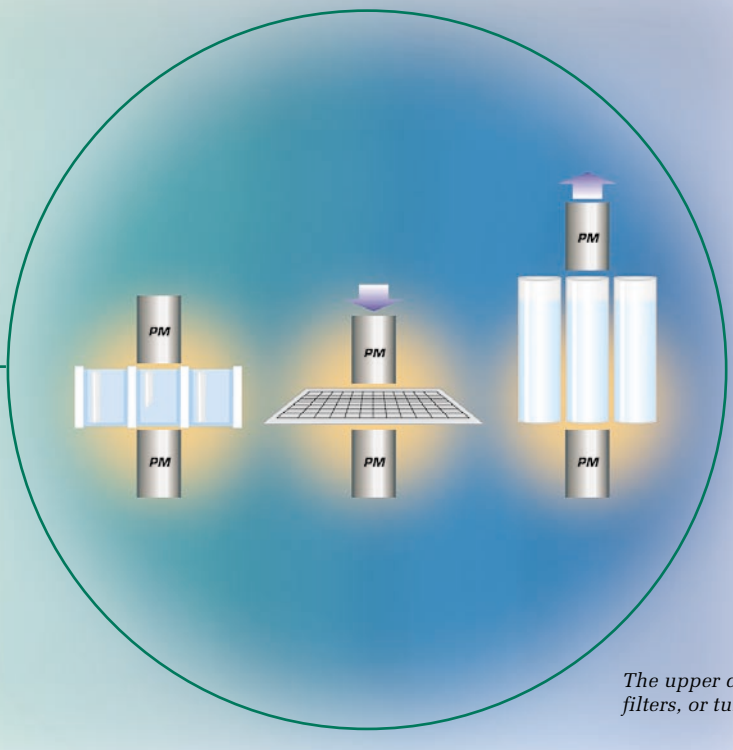
A selection of the filters, plates and other counting vessels commonly used with MicroBeta® TriLux

Easy GLP

Compliance with Good Laboratory Practice (GLP) is an essential feature of any analytical instrument, and like all other Wallac counters MicroBeta includes customized protocols for monitoring instrument performance over an extended period.

Built around patent technology solution

At the very heart of the instrument, the detector



An important feature of MicroBeta TriLux is the twin photomultiplier tube detector design. This is the basis for coincidence counting, a robust technique which assures unsurpassed counting performance for beta and gamma labels. For luminescence counting too, separate high speed electronic circuitry provides a high dynamic range for samples in 384, 96 or 24-formats.

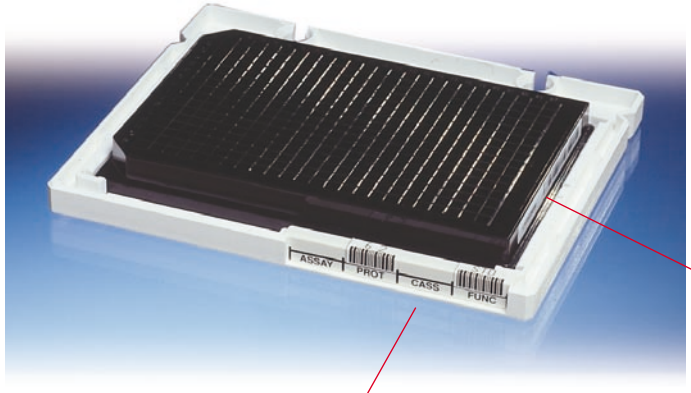
For counting opaque white plates, it is possible to count with just the upper PMT.

The upper detectors of MicroBeta® TriLux move to accommodate plates, filters, or tubes, which can thus be counted in the vertical position.

ted and proven
ns

Cassettes, for reliability and freedom of choice in sample handling

In the Wallac MicroBeta, samples are supported by a cassette-based sample changing mechanism. Samples are never stacked on top of each other and so the risks of contamination or sticking and jamming are minimized. Cassettes provide the only practical method of counting flexible plates, filtermats and tubes.



Counting protocol identification and other MicroBeta® commands are read from a reusable bar code sticker that is fixed to the cassette. This provides the most convenient and economical identification method.

For high throughput screening, when it is often imperative that each plate is positively identified, a second bar code reader is focused to read directly from the plate. This optional accessory is compatible with Code 39 and several other bar code languages.

A truly versatile inst and luminescence

Liquid samples – from 25 µL to 4 mL
The cassette handling system provides support for flexible plates, rigid plates and tubes and so every possible combination of requirements for sample volume and solvent resistance can be catered for. All types of liquid cocktail are equally suited to the detector system.

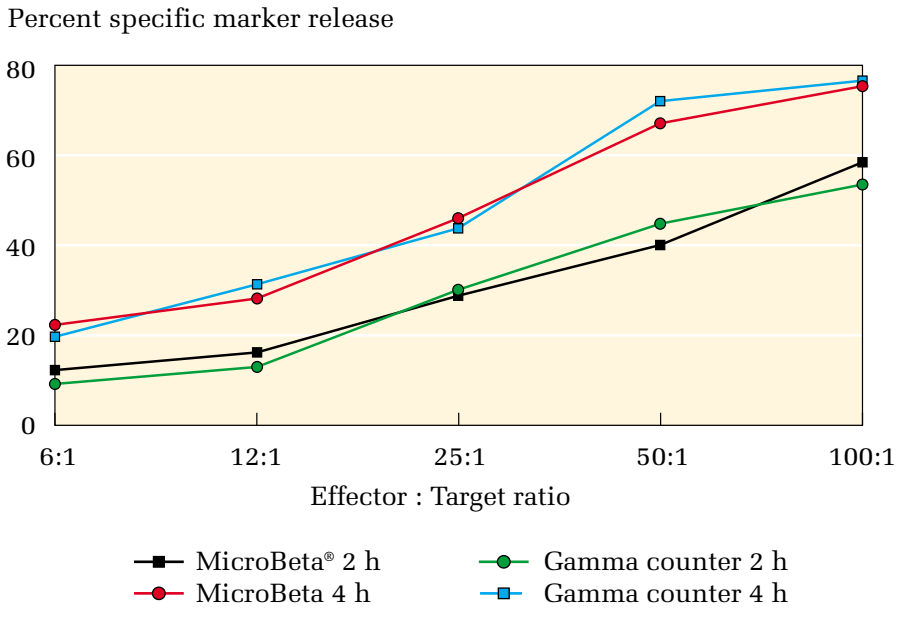
For isotopes that may give rise to isotopic crosstalk, like ^{32}P or ^{125}I, our exclusive crosstalk correction program can be enabled to improve sensitivity. Results can be reported in CPM or DPM, single or dual label. Supporting 384, 96 or 24 well formats, only MicroBeta® can provide this level of flexibility.

	Cocktail	CPM	DPM	Eff.%	Bkd	x-talk%
H-3*	Betaplate Scint	194666	334222	58	8	0.00
C-14*	Betaplate Scint	278168	307972	90	9	0.00
P-32	SuperMix	378437	382760	99	7	0.25
I-125	SuperMix	138247	227047	61	9	0.30
Cr-51	SuperMix	69223	248314	28	3	0.03

* sample in organic solvent

MicroBeta® TriLux crosstalk, background and efficiency figures for commonly measured nuclides. All measurements using the Wallac Isoplate™, 25 µL sample with 150 µL cocktail.

A popular choice for Chromium Release
Chromium release is a typical assay that is widely counted on the MicroBeta. Counting efficiency is five to six times more efficient than a gamma counter whilst the 8 x 12 format is maintained. The procedure is very straightforward. Supernatant is transferred to a new plate and after the addition of cocktail, sealing and shaking the samples are ready for counting.



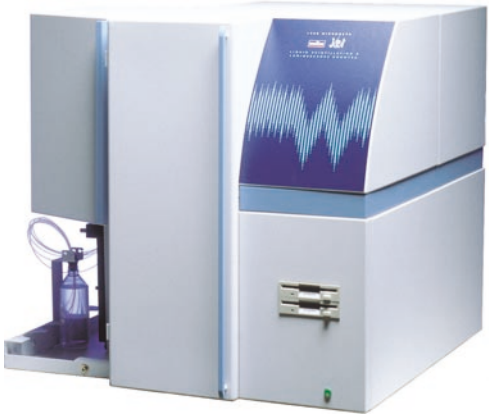
rument for LSC

Restrictions on the use of radioactive materials and increased disposal costs are adding pressure to the search for non-radioactive alternatives. The MicroBeta TriLux provides an opportunity to develop the increasingly popular “glow type” luminescence assays while routine use of radiolabels continues to be necessary. Separate, ultra fast electronic circuitry is employed in luminescence counting. Linear responses of up to 24 million counts per second are obtainable. All types of plates, filters and tubes can be counted. Up to 12 samples are counted at a time in 384, 96 or 24-well formats.

Temperature Control Option for Luminescence

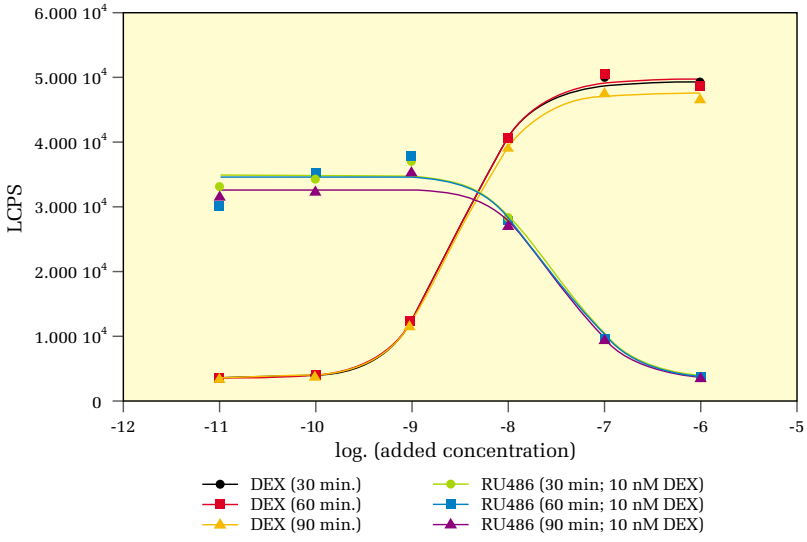
With MicroBeta, temperature control is not necessary for liquid scintillation counting. For some luminescence assays, however, a low and constant background may be desirable. The temperature control unit is a conveniently sized, solid state Peltier device that maintains a constant temperature of the upper PM tubes. The active temperature can be included in the printout.

Measure flash-type luminescence with MicroBeta® JET



The MicroBeta® JET, a sister product to TriLux, has built in reagent dispensers to allow flash-type luminescence.

Please contact your local representative for further details.



Measurement of ALP-reporter gene activity AMPPD® substrate measured using MicroBeta®

Wallac luminescence kits

New luminescence kits for use with MicroBeta TriLux include the Wallac GeneLux™ enhanced luciferase assay and the Wallac CytoLux™ assay. The latter represents a genuine high performance non-radioactive method for cytotoxicity and cell viability assay.

Consumables, cassettes an

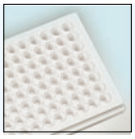
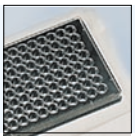
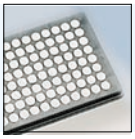
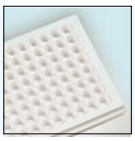
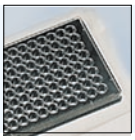
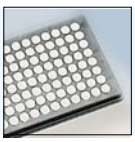
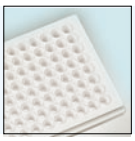
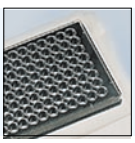
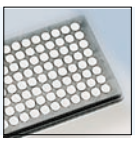
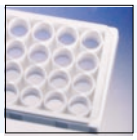
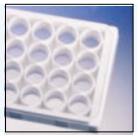
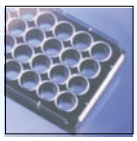
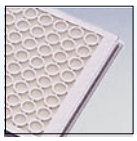
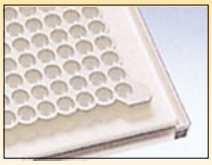
Plate	How to use it	Applications
 1450-401 96-well sample plate, 250 mL, round bottom wells, flexible, made of PET-G.	During sample preparaton the plate may be used with support (1450-481). It is counted in 96-well cassette (1450-101) ❶ with either permanent seal (1450-461) or removable seal (1450-462). SuperMix or HiSafe scintillator is recommended.	Microvolume radiolabelled assays, Chromium Release, SPA, Cerenkov ^{32}P, Coated plate assays
 1450-514 or 1450-515 Isoplate high performance 96-well plate, polystyrene clear 350 mL flat bottom wells, rigid white exterior.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462). SuperMix scintillator is recommended.	Microvolume radiolabelled assays, SPA, Cerenkov ^{32}P
 1450-571 or 1450-572 Black Isoplate, high performance 96-well plate, polystyrene clear 350 mL flat bottom wells, rigid black exterior.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462).	Luminescence assays
 1450-581 or 1450-582 B & W Isoplate, high performance 96-well plate, polystyrene white 350 mL flat bottom wells, rigid black exterior.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462).	Luminescence assays
 1450-518 or 1450-519 Isoplate HB, high binding.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462). SuperMix scintillator is recommended.	Radiolabelled coated plate assays
 1450-575 or 1450-576 Black Isoplate HB, high binding.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462).	Luminescence coated plate assays
 1450-585 or 1450-586 B & W Isoplate HB, high binding.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462).	Luminescence coated plate assays
 1450-516 or 1450-517 Isoplate TC, tissue culture.	Used with rigid 96-well cassette,(1450-105) ❸ with SuperMix scintillator and either permanent seal (1450-461) or removable seal (1450-462).	Radiolabelled adherent cell assays
 1450-573 or 1450-574 Black Isoplate TC, tissue culture.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462).	Luminescence cell studies
 1450-583 or 1450-584 B & W Isoplate TC, tissue culture.	Used with rigid 96-well cassette,(1450-105) ❸ and either permanent seal (1450-461) or removable seal (1450-462).	Luminescence cell studies

Plate or vial	How to u
 1450-402 24-well sample plate, 1 mL, flat bottom wells, flexible, made of PET-A.	During sa may be u It is coun with eith or remov SuperMi is recom
 1450-408 Heatsealable 24-well sample plate, 1 mL, flat bottom wells, flexible, made of PET.	During sa may be u It is coun with hea SuperMi is recom
 1450-601 or 1450-602 Visiplate 24-well sample plate, 2 mL, polystyrene, flat bottom wells	Used wit plate cas with Sup permane
 1450-603 or 1450-604 Visiplate TC, tissue culture.	Used wit plate cas with Sup permane
 1450-605 or 1450-606 Black Visiplate TC, tissue culture.	Used wit plate cas and perm
 FlashPlate® and Scintiplate scintillant coated 96-well microplate, or 1450-501 or 1450-502 ScintiPlate 96-well microplate manufactured with scintillating solid phase.	Counted cassette (permane
	Flashpla 384-well 384-well is used.
 Standard 96-well plates	May be c 96-well c and eithe (1450-46 seal (145 SuperMi
 24-well cell culture plates	Counted cassette (insert tul permane SuperMi
 Eppendorf tubes	Counted (1450-10 SuperMi

❶ 
Cassette 96-well 1450-101

❷ 
Cassette 24-well 1450-102

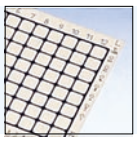
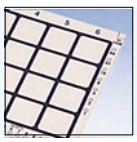
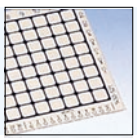
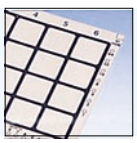
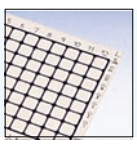
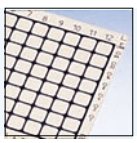
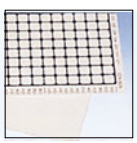
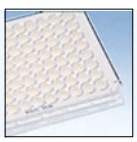
❸ 
Rigid 96-well cassette 1450-105

❹ 
Corning cassette 1450-110 used with insert tubes 1450-109

❺ 
24-well cassette 1450-102 with 1450-108 adapters

❻ 
4 mL tube cassette 1450-117

nd scintillators for MicroBeta®

se it	Applications	Filter or tube	How to use it	Applications
ample preparation the plate sed with support (1450-481). ted in 24-well cassette (1450-102) ❷ er permanent seal (1450-461) able seal (1450-462). x or HiSafe scintillator mended.	Microvolume radiolabelled assays, Chromium Release, SPA, Cerenkov ^{32}P	 4 mL tubes, e.g. 1200-421	Counted using the 4mL tube cassette (1450-117) ❻. SuperMix scintillator is recommended.	Microvolume LSC
ample preparation the plate sed with support (1450-481). ted in 24-well cassette (1450-102) ❷ t seal (1450-463). x or HiSafe scintillator mended.	Microvolume radiolabelled assays	 1450-421 Filtermat A, 8 x 12 format glassfibre.	Counted in filter cassette (1450-104) ❼ using Betaplate Scint or MeltiLex solid scintillator.	Labelled cell assays
h rigid 24-well sette (1450-110) ❹ erMix scintillator and nt seal (1450-461)	Radiolabelled assays requiring large sample sizes	 1450-422 Filtermat A, 4 x 6 format glassfibre.	Counted in filter cassette (1450-116) ❽ using Betaplate Scint or MeltiLex solid scintillator.	Labelled cell assays
h rigid 24-well sette (1450-110) ❹ erMix scintillator and nt seal (1450-461)	Radiolabelled adherent cell assays	 1450-521 Filtermat B, 8 x 12 format glassfibre, double thickness.	Counted in filter cassette (1450-104) ❼ using Betaplate Scint or MeltiLex B/HS solid scintillator.	Receptor ligand binding assays
h rigid 24-well sette (1450-110) ❹ anent seal (1450-461)	Luminescence cell studies	 1450-424 Filtermat B, 4 x 6 format glassfibre, double thickness.	Counted in filter cassette (1450-116) ❽ using Betaplate Scint or MeltiLex B/HS solid scintillator.	Receptor ligand binding assays
using rigid 96-well (1450-105) ❸ with nt seal (1450-461).	See Wallac Application Note 1450-1000	 Betaplate™-format filtermat, e.g. 1205-401, with 6 x 16 format	Cut into 4 parts and counted in filter cassette (1450-107) ❾ using Betaplate Scint or MeltiLex solid scintillator.	All types of filter application
te is also available in format. With this the cassette (1450-130) ⓬		 1450-522 DEAE filtermat for negatively charged compounds, 8 x 12 format glassfibre.	Counted in filter cassette (1450-104) ❼ using Betaplate Scint or MeltiLex solid scintillator.	Enzyme assays, e.g. reverse transcriptase
ounted using cassette (1450-105) ❸ r permanent seal 1) or removable 0-462) with x cocktail.	General applications	 1450-523 P30 filtermat for positively charged compounds, 8 x 12 format glassfibre.	Counted in filter cassette (1450-104) ❼ using Betaplate Scint or MeltiLex solid scintillator.	Binding positively charged compounds, e.g. protein kinases.
using rigid 24-well (1450-110) ❹ with bes (1450-109) and with nt seal (1450-461). x scintillator is recommended.	See Wallac Application Note 1450-0003	 1450-423 Nylon membrane, 8 x 12 format.	Counted in filter cassette (1450-104) ❼ using Betaplate Scint or MeltiLex solid scintillator, or in ^{32}P cassette ❿ without scintillator.	RNA/DNA dot blots, see Wallac Application Note 1450-1010
using 24-well cassette 2) with adapters (1450-108) ❺. x scintillator is recommended.	Microvolume LSC	 Millipore® Multiscreen® plate	Counted in Millipore cassette (1450-106) ⓫ with cassette liner (1450-433) using SuperMix or MeltiLex solid scintillator.	See Wallac Application Note 1450-984

❼

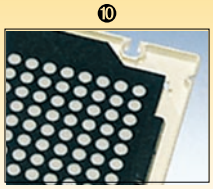
Filter cassette
1450-104

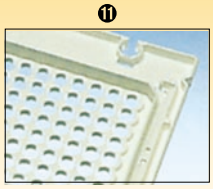
❽

Filter cassette
1450-116

❾

Filter cassette
1450-107

❿

^{32}P cassette
1450-118

⓫

Millipore cassette
1450-106
Cassette Liner
1450-433

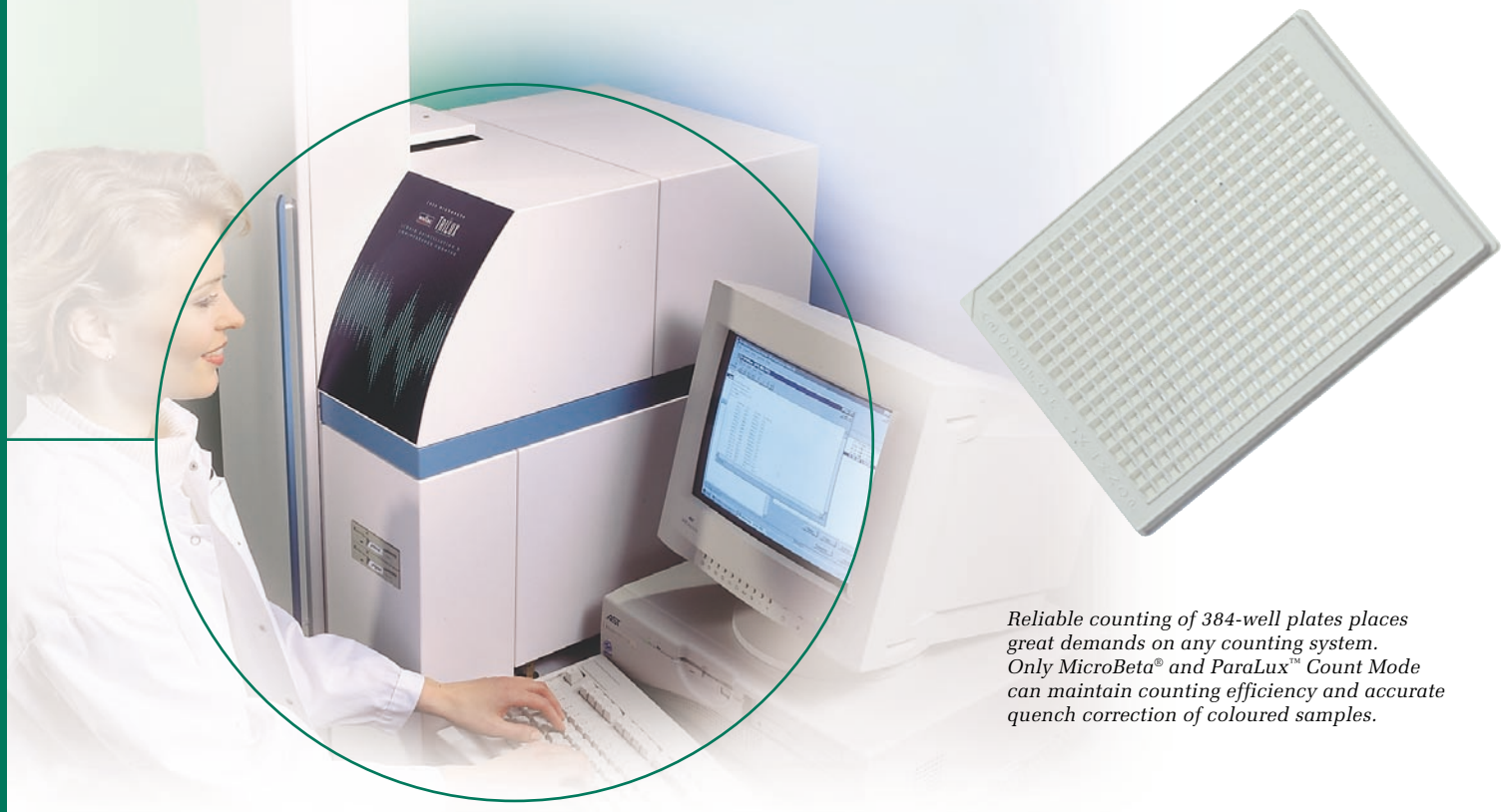
⓬

384-well cassette
1450-130

MicroBeta® TriLux wit
gives you a dedicate

MicroBeta® and SPA

Amersham's Scintillation Proximity Assay (SPA) represents a unique sample type for which a radical new counting method, ParaLux™ Count Mode, has been developed.

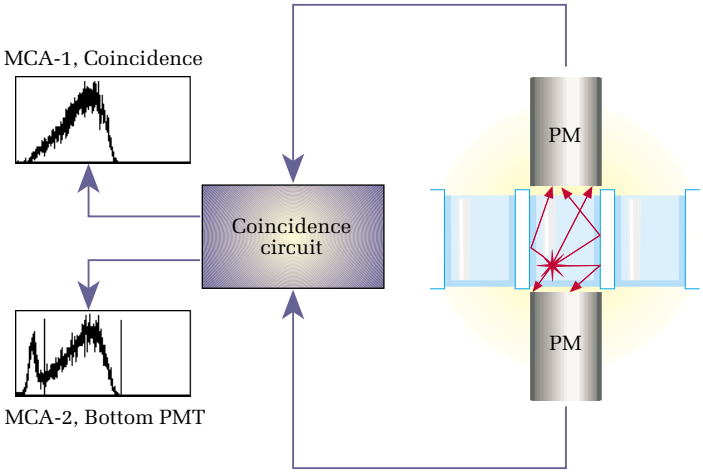


Reliable counting of 384-well plates places great demands on any counting system. Only MicroBeta® and ParaLux™ Count Mode can maintain counting efficiency and accurate quench correction of coloured samples.

In SPA and CytoStar-T™ samples the activity is much closer to the lower PM tube than the upper one and so, especially in the case of coloured samples, MicroBeta® detector design provides the ultimate counting geometry.

h ParaLux™
d SPA counter

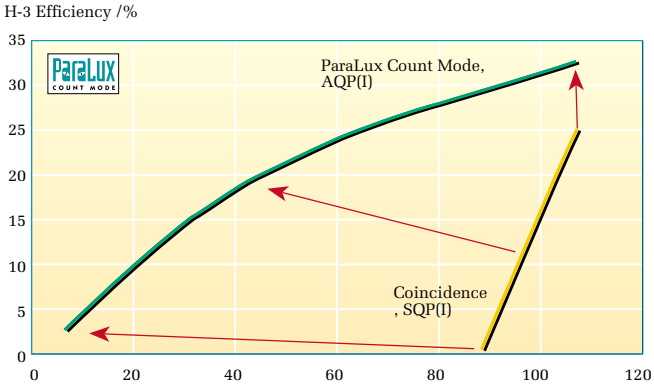
ParaLux Count Mode combines twin PM tube detection with dual multi-channel analyser (MCA) data analysis. Counting efficiency is up to 500% better than that achieved with any other counting method. A completely new quench parameter, AQP(I), is a genuine advance in counting technique. Superior DPM calculations at considerably higher levels of colour quench mean that time consuming and costly dilution and re-counting can be avoided. Improved DPM precision can also lead to overall shorter counting times.



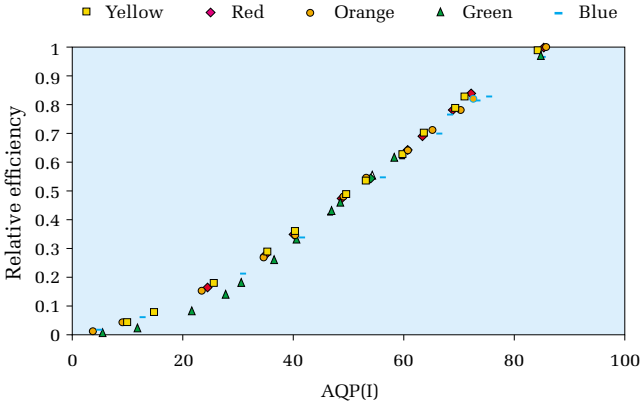
AQP(I) = MCA-1 / MCA-2

High Efficiency CPM = MCA-1 + MCA-2

Low Background CPM = MCA-1



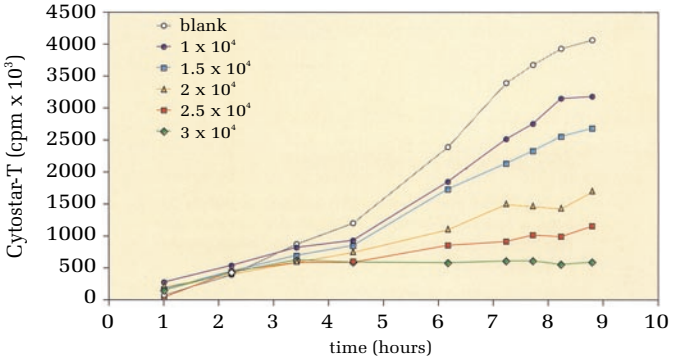
Comparison of tritium SPA colour quench series counted with conventional coincidence circuitry and ParaLux™ high efficiency mode.



ParaLux™ low background mode. Tritium SPA quench curves. AQP(I) provides overlapping colour quench curves. This permits the use of a single quench series for DPM calculations.

An optimum solution for Cytostar-T™ plates, too

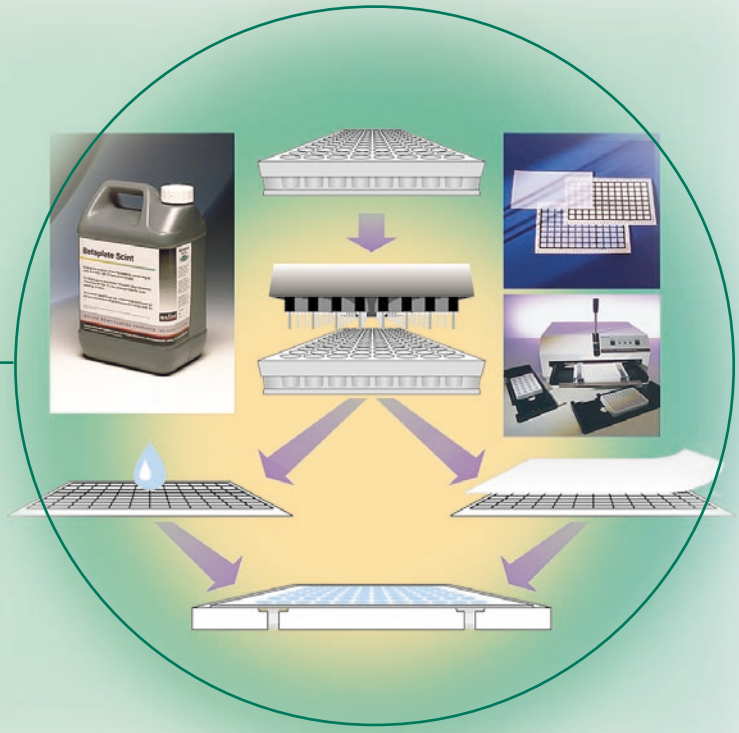
MicroBeta counters are ideal for work with monolayer cells on Cytostar-T plates. The scintillating base of these plates is directly over the MicroBeta's lower PM tube, to allow maximum capture of signal.



(¹⁴C) thymidine uptake into synchronous hamster lung V79 cells on 96 well Cytostar-T scintillating microplates.

MicroBeta®, the hig
lowest cost option

There are two methods of preparation for filter samples.



The MicroBeta® TriLux is the ideal solution for labelled cell studies, ligand receptor binding assays, enzyme assays and DNA/RNA hybridization assays. There are two important reasons why. Firstly, the superior sample handling afforded by the cassette support mechanism offers true versatility when considering samples harvested or spotted on to filtermats. Secondly, the twin PM tube detectors provide superior counting geometry. Compared to all other methods, tremendous savings in consumables costs, sample handling, counting time and waste volume can be made.

With liquid scintillator

Using liquid scintillator, the sample is put in a bag, a few millilitres of cocktail are spread over the filtermat, the bag is sealed and then placed in a cassette.

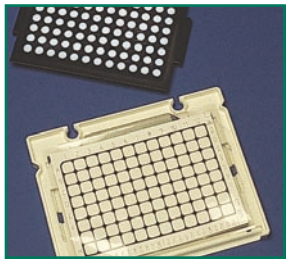
With solid scintillator

MeltiLex® is an easy-to-use alternative if the sample needs to be permanently fixed to the filter or if solid waste is preferred. You simply place the filtermat or filter plate on a sheet of MeltiLex and apply gentle heat with, for example, the Wallac MicroSealer or a hotplate.

hest efficiency, for filter counting

The method of choice for ^{32}P counting

For user convenience and superior counting efficiency, the ^{32}P cassette is used for ^{32}P labelled filter samples. Absolutely no sample preparation is required because solid scintillator is permanently fixed in the cassette. Filters can be counted wet or dry and because this is a non-destructive method, membranes used in DNA hybridization assays can be re-probed

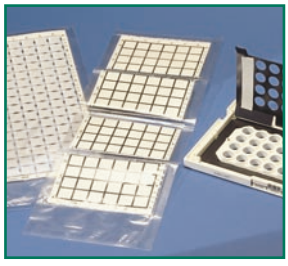


^{32}P cassette and ^{32}P labelled filter.

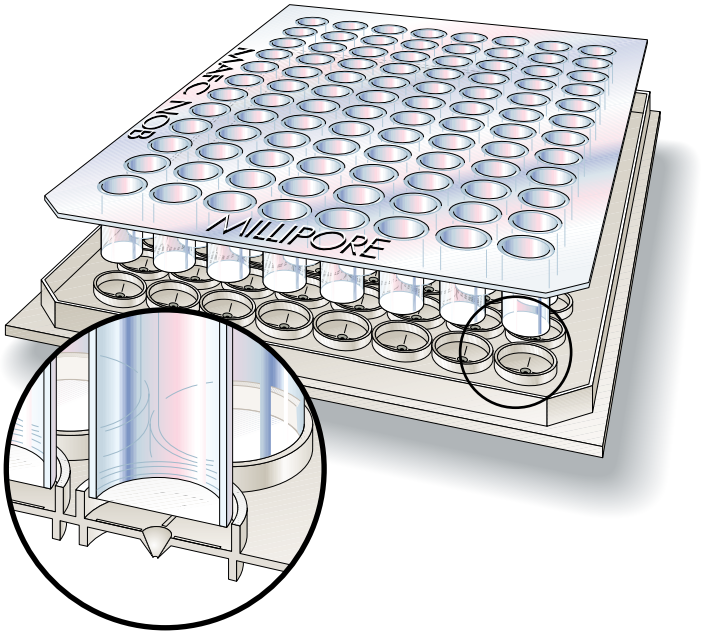
Count any type of filter plate - any way you want

MicroBeta detector geometry is ideal for counting filter plates.

As when counting from filters, samples can be prepared with either liquid cocktail or, if long term stability and solid waste is preferred, MeltiLex solid scintillator may be used.



In addition to a complete range of Wallac ready cut, printed filtermats, you can also use most standard filtermats including Skatron-type formats.



MicroBeta® is a particularly strong option for the MultiScreen Assay System. For fully automated systems or simply for user convenience, the MicroBeta offers the only facility to count with the underdrain intact.

Adherent cell studies

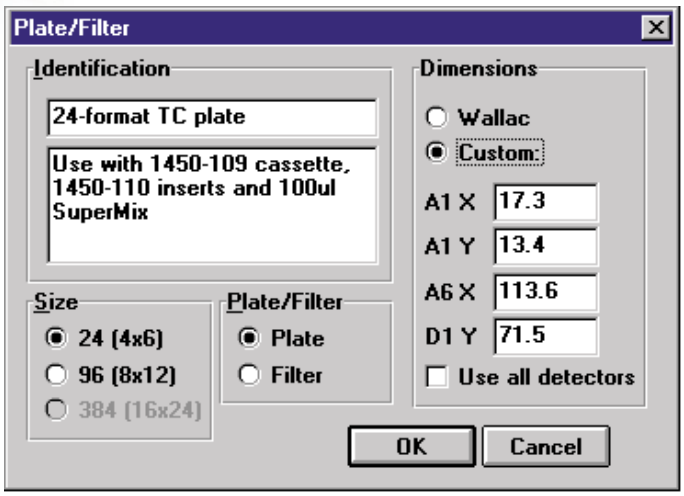
"Freeplate" counting with MicroBeta®

Specially treated Wallac Tissue culture grade microplates are available in 96- and 24-formats for both radiolabel and luminescence assays.

A variety of plates with opaque and clear wells are supplied individually wrapped with a lid.

For adherent cell assays that require traditional 24-well TC plates counting geometry can be optimised by the addition of white tubes prior to counting.

Specifications for all Wallac plates and most other commonly used plates are supplied with your MicroBeta®. For other plates you can easily input the plate dimensions.

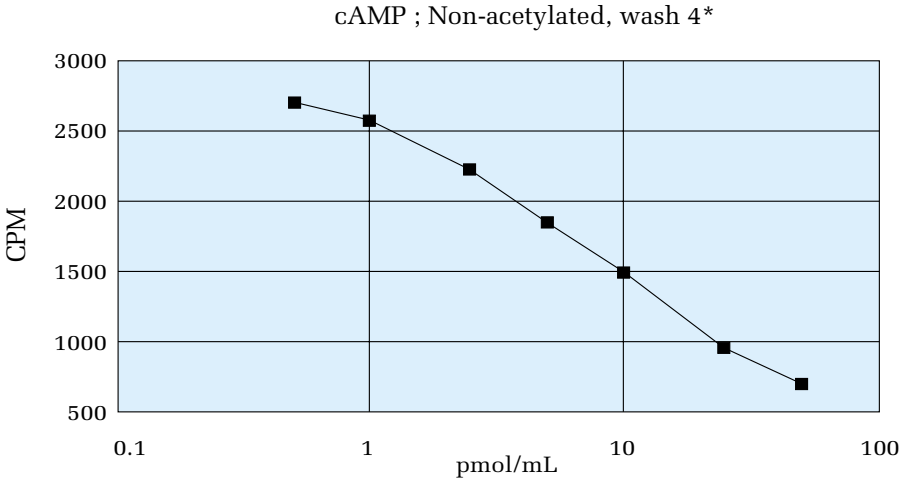


Scintillating plates for all your binding assays

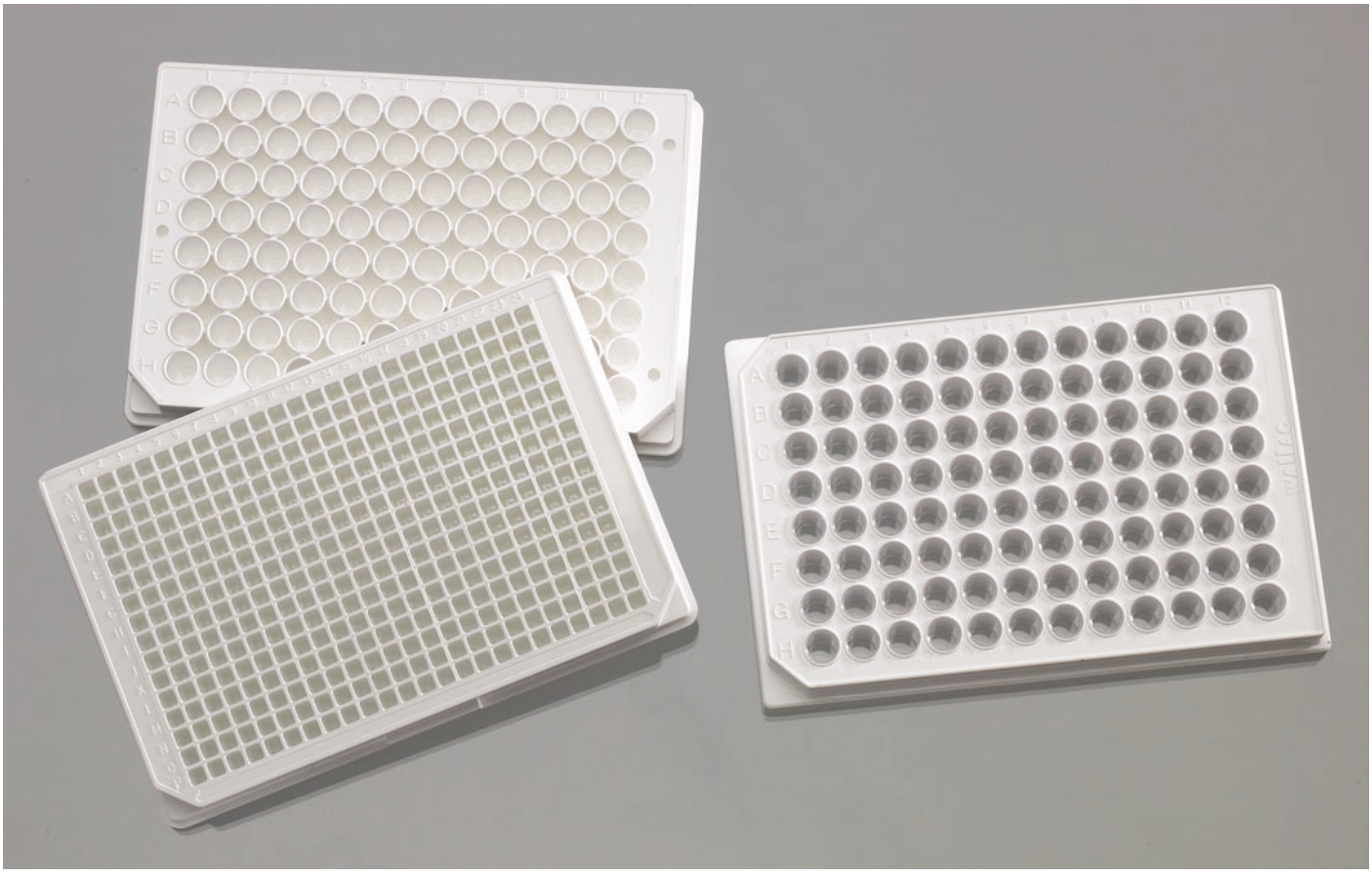
ScintiPlate® and FlashPlate® are designed for homogeneous radiometric assays. Employing the principle of scintillation proximity, only radiolabel that is bound to the scintillating surface of the well produces light.

FlashPlates are available in 96- and 384-formats and with a wide variety of surface coatings for immunoassay, enzyme, functional and binding assays.

ScintiPlates, in 96-format, are either plain or streptavidin coated. A tissue culture grade ScintiPlate is recommended for adherent cell assays.



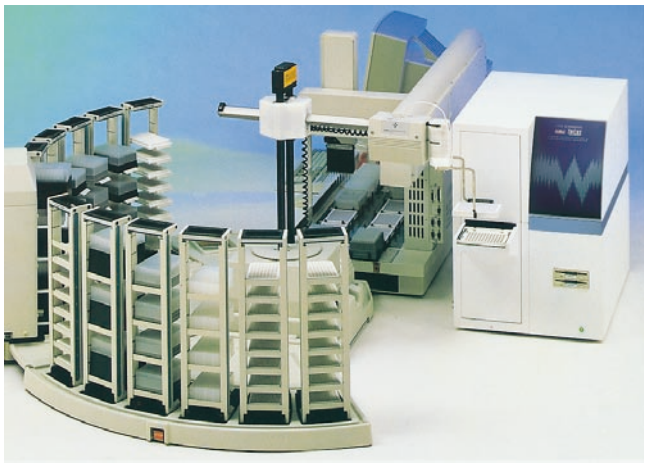
Measurement of cyclic AMP on FlashPlate with MicroBeta.



Whatever your application,whatever your lab type

The Wallac MicroBeta® comes as part of a comprehensive package including instrumentation, software, reagents and application support. Its users are found in academic research, and in industrial laboratories carrying out, for example, high throughput screening.

Whatever your specialization, as a MicroBeta user, the wide-ranging expertise of the PerkinElmer Life Sciences team in all aspects of plate counting is at your disposal.



For high throughput screening, MicroBeta forms a complete and seamless system integrated with the Beckman Biomek 2000 BioRobotics System.

PerkinElmer™
life sciences.

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