

Non-binding Microplates

Microplates with Non-Binding Surface Properties for Biochemical Assays

High quality microplates with well-defined properties are essential prerequisites for reproducible results in advanced drug discovery. In addition to format and pigmentation, determining the best microplate surface for use within a specific application is a critical factor for successful high-throughput screening.

Polystyrene microplates with medium binding surfaces are commonly used for homogeneous biochemical HTS assays. Manufactured of carefully selected raw material batches, medium binding microplates demonstrate low reproducible biomolecule binding. As medium binding microplate surfaces are not physically modified, their surface characteristics are representative of pure polystyrene.

However, even low amounts of biomolecular binding (e.g. DNA, RNA, proteins, peptides) can cause an undesirable increase in background, resulting in decreased signal-to-noise ratio. Greiner Bio-One's non-binding microplate surfaces prevent unwanted non-specific binding, especially advantageous for sensitive biochemical assays.

Characterised by low protein, DNA, RNA and peptide binding properties (Fig. 1, Fig. 2) the new non-binding surfaces significantly increase assay sensitivity by reducing background and improving signal-to-noise ratio (Fig. 3).

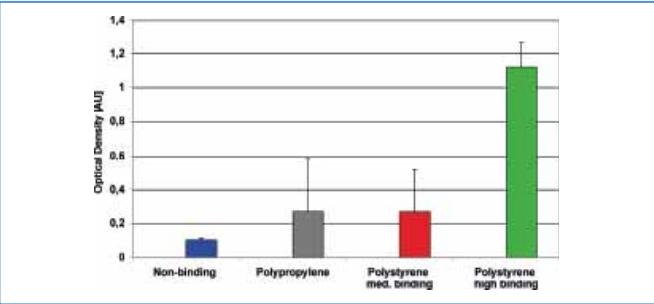


Figure 1:
Peptide binding (5.8 kDa) on different surfaces

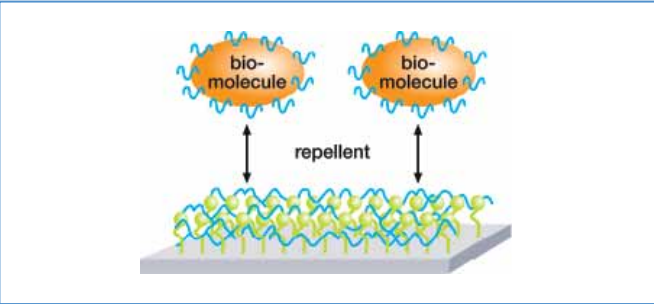


Figure 2:
Technology of the non-binding surface.
The hydrate layer, created by covalently linked functional groups, enables biomolecules to remain in solution, thereby preventing their binding to the surface.

Non-binding surfaces from Greiner Bio-One are achieved through a stable chemical modification to covalently link functional groups with the base polystyrene polymer. Under aqueous assay conditions a hydrate layer forms, preventing dissolved biomolecules from binding to the microplate surface (Fig. 2). As the non-binding surface is stable under common assay conditions (Fig. 4), there is no potential for degradation or leaching and resultant assay interference.

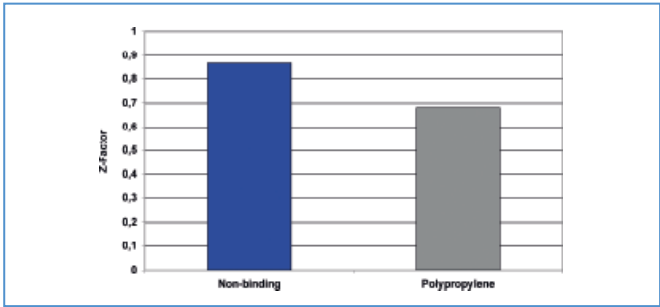


Figure 3:
Z-factor of a biochemical assay (Perkin Elmer TruPoint™ Caspase-6 assay). Comparison of non-binding versus polypropylene microplates. (The z-factor defines the precision of an assay; a factor of 1 represents the highest precision possible.) [1]

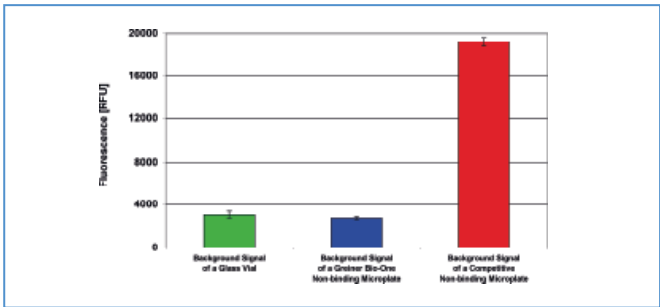
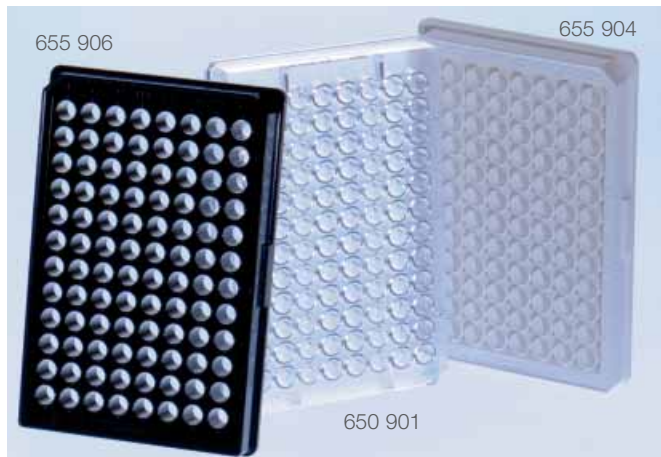


Figure 4:
Background signal using Quanti-iT™ Protein Detection Kit from Molecular Probes (Cat.-No. Q33210). The dye of the Quant-iT™ kit stains proteins as well as detergents. In the absence of protein, a high fluorescence signal indicates the presence of high amounts of dissolved detergents that have leached from the vessel surface.

Non-binding microplates are featured in 96, 384 and 1536 well formats in black, white and clear, including solid and µClear® film well bottoms.

- Characteristic features of the non-binding surface are:
- Ultra low non-specific biomolecular binding properties (proteins, DNA, RNA)
 - Long-term surface stability without degradation or leaching
 - Higher assay sensitivity with reduced background

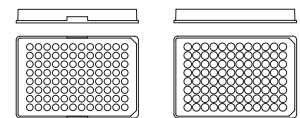
[1] Zhang et al.: Journal of Biomolecular Screening, Vol. 4 No. 2 (1999); 67-73



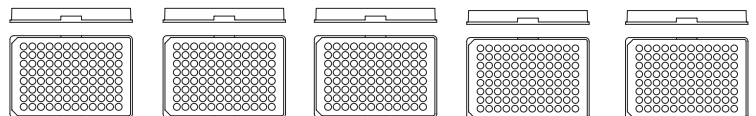
96 Well Non-binding Microplates

→ 96 Well Med. Binding and High Binding Microplates
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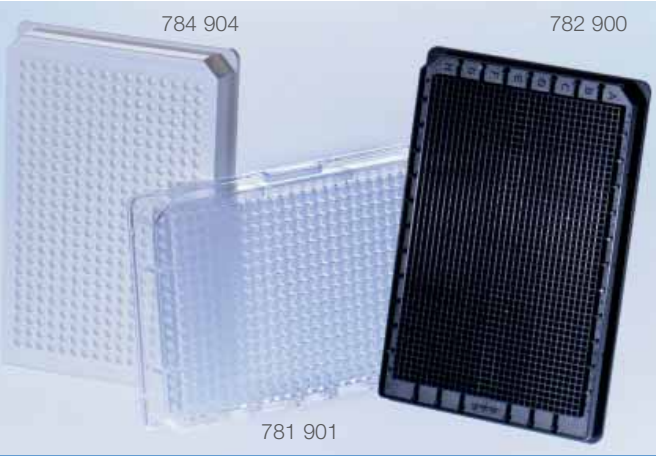
Free of detectable
DNase, RNase,
human DNA
non-pyrogenic



Cat.-No.	650 901	651 901
Well format	96 well	96 well
Well profile	U-bottom	V-bottom
Bottom	solid	solid
Colour	clear	clear
Binding	non-binding	non-binding
Sterile	-	-
Lid	-	-
Quantity per bag/case	10/40	10/40



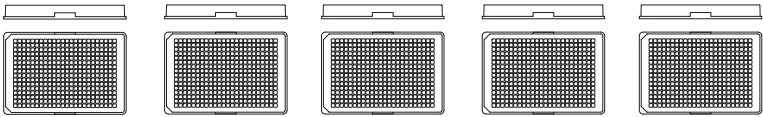
Cat.-No.	655 901	655 904	655 900	655 903	655 906
Well format	96 well	96 well	96 well	96 well	96 well
Well profile	F-bottom/ chimney well	F-bottom/ chimney well	F-bottom/ chimney well	F-bottom/ chimney well	F-bottom/ chimney well
Bottom	solid	solid	solid	μClear®	μClear®
Colour	clear	white	black	white	black
Binding	non-binding	non-binding	non-binding	non-binding	non-binding
Sterile	-	-	-	-	-
Lid	-	-	-	-	-
Quantity per bag/case	10/40	10/40	10/40	10/40	10/40



Free of detectable
DNase, RNase,
human DNA
non-pyrogenic

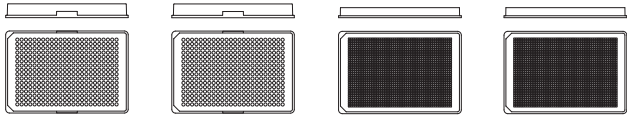
384, 1536 Well
Non-binding Microplates

- 384 Well Med. Binding and High Binding Microplates
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- 1536 Well Med. Binding and High Binding Microplates
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Cat.-No.	781 901	781 904	781 900	781 903	781 906
Well format	384 well	384 well	384 well	384 well	384 well
Well profile	F-bottom	F-bottom	F-bottom	F-bottom	F-bottom
Bottom	solid	solid	solid	µClear®	µClear®
Colour	clear	white	black	white	black
Binding	non-binding	non-binding	non-binding	non-binding	non-binding
Sterile	-	-	-	-	-
Lid	-	-	-	-	-
Quantity per bag/case	10/40	10/40	10/40	10/40	10/40

➡ New



Cat.-No.	784 904	784 900	782 904	782 900
Well format	384 well	384 well	1536 well	1536 well
Well profile	Small Volume™	Small Volume™	F-bottom	F-bottom
Bottom	solid	solid	solid	solid
Colour	white	black	white	black
Binding	non-binding	non-binding	non-binding	non-binding
Sterile	-	-	-	-
Lid	-	-	-	-
Quantity per bag/case	10/40	10/40	15/60	15/60
Plate design	HiBase	HiBase	HiBase	HiBase

➡ New

➡ New