

e-Surf Microarray Slides

Product description

eSurf slides are standard 25x75 mm glass microscope slides, with an activated 3D surface for efficient coupling of bio-molecules.

The proprietary coating chemistry will covalently bind either amino-modified DNA (oligonucleotides, PCR products) or proteins for microarray applications.

eSurf 3D polymer provides optimal orientation to the bio-molecules resulting in:

- ✓ Less probe deposited
- ✓ Immediate binding of the probe to the support
- ✓ More efficient hybridization rate
- ✓ No fluorescent background
- ✓ Consistent results

Applications

eSurf slides are versatile substrates that can be used not only for DNA, but also for protein microarrays and therefore all possible applications of microarrays in genomics and proteomics.

eSurf slides bind amino-modified oligonucleotides and PCR products for SNPs and gene expression analysis, as well as proteins for profiling disease related proteins or studying protein-protein and drug-protein interactions.



It is all plain
"surfing"

e-Surf Microarray Slides

Active Glass Surfaces for Microarray Applications



Microarray analysis is revolutionary new science.

Nucleic acid, protein, antibody and tissue microarrays, can improve health care by providing rapid and affordable data for treatable and curable illnesses.

Microarrays applications include studies of development and human disease, drug discovery, genetic screening and diagnostics. The key feature of a microarray slide relies upon the surface chemistry used to coat the glass.

Stability, precision, repeatability, resolution, sensitivity, uniformity and signal to noise are strongly affected by the quality of the substrate. An inaccurately manufactured glass surface provides unreadable and unreliable results which are more critical in protein application.

A new age in Microarrays is now begun:

e-Surf is an innovative, high performance activated substrate for protein and nucleic acid microarray applications. The proprietary functional 3D polymer is an innovative concept, developed by our experts in microarray technology as well as in glass coating, offering enormous advantages over the traditional 2D sylanized glasses.

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Key Features

Surface characteristics

The coating layer on the glass surface is a linear polymer that is:

- ✓ adsorbed to the glass;
- ✓ high molecular weight;
- ✓ 3-dimensional;
- ✓ hydrophilic.

Uniformity

eSurf slides are uniformly coated with a thick 3D layer and show excellent consistency in terms of binding capacity. The continuous distribution of the active groups over the surface guarantees the uniformity of the spot and prevents irregularities often present over the other glass slides.

Long Shelf Life

The proprietary *eSurf* coating chemistry provides stability and robustness to the final product. When compared to other 3D glass slides shelf-life is much longer: months instead of weeks.

Versatile Substrate

eSurf slides binds either amino-modified DNA or proteins via NH_2 groups and is therefore suitable for both genomic and proteomics applications.

Binding capacity

Usually, the binding capacity of 2D activated glass slides for microarrays is quite limited and this often results in low signal levels.

Strong binding capacity of the support is fundamental for good results in terms of signal detection.

The proprietary *eSurf* coating chemistry provides a uniform and efficient 3D layer for covalent binding and optimal orientation of bio-molecules.

Less probe needed

The molecular structure of the modified surface and the distribution of active sites over *eSurf* slides, increase the immobilization rate of bio-molecules.

The end user needs less probe to achieve the same or even a better result and, on top, saves money.

Less background fluorescence

eSurf substrate and microarray noises are considerably lower than those observed with other commercially available substrates.

<i>e-Surf</i> SLIDES	OTHER 3D SLIDES
- Surface uniformly coated	- Variable surface
- Less probe needed	- Large amount of probe needed
- No UV lightening needed	- UV exposure needed (for membrane-coated slides)
- Extended shelf life	- Limited shelf life
- Can be used both for DNA and protein microarrays	- Alternatively dedicated to DNA or proteins
SURFACE PROPERTIES	
- Coupling group density	3.1 pmole/mm ²
- H ₂ O contact angle	42.3° ± 5.6
- Thickness	0.007µm ± 0.0022
- DNA immobilization yield	30%
- Protein immobilization yield	35%
- Substrate noise (Cy5)	1.2 times glass background (CV 5%)

e-Surf Performance

DNA binding and hybridization

In all the experiments showed, probes were printed onto *eSurf* slides using Packard's Biochip Arrayer and the results analyzed using Packard's Scan Array 5000.

Cy3-labeled oligonucleotide hybridized to its complementary spotted.



Cy5-labeled oligonucleotide hybridized to its complementary spotted.

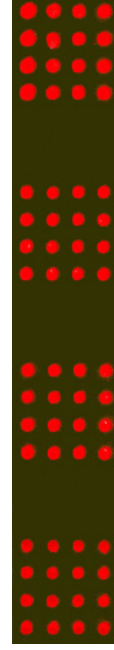
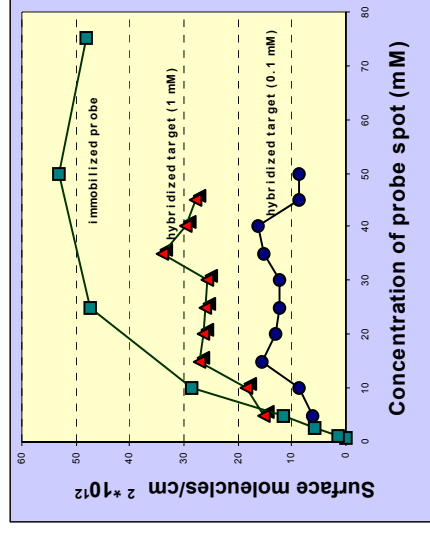


Figure 1 shows Surface molecules / cm² * 10¹² in relation to oligonucleotide concentrations arrayed onto *eSurf* slides, after hybridization with a specific DNA probe labeled with Cy5

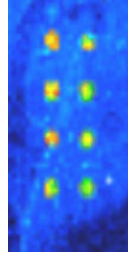


Protein immobilization and immunoassay

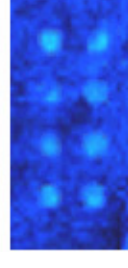
Probe: reagent grade Rabbit IgG.

Target: cy3-labeled anti-human polyvalent Immunoglobulins (Goat IgG fraction).

Rheumatoid factor positive control
Human serum pool
Titer 321 IU/mL



Rheumatoid factor negative control
Human serum pool
Titer ≤ 21 IU/mL



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