SigmaScreen™ Ready-To-Coat Slides for Microarrays

Product Number **S 2940**
Store at Room Temperature

ProductInformation

TECHNICAL BULLETIN

Product Description

SigmaScreen Ready-To-Coat Slides for Microarrays are glass microscope slides manufactured to exacting specifications ready for custom surface modifications. These glass substrates may be modified using various commercially available silanes or by coating with poly-L-lysine.[1] 3-Aminopropyltriethoxysilane (Aminosilane),[2] 3-glycidoxypropyltrimethoxysilane (Epoxysilane),[3] aldehyde silane,[4] and 3-mercaptopropyltrimethoxy-silane (Mercaptosilane)[5,6] are among the silanes commonly used to coat glass slides for various applications including minisequencing,[5] primer extension assays,[7] microarray hybridizations,[1-3,6,8-12] and protein arrays.[4]

Each lot of slides is tested for autofluorescence, particulation, silane coatability/uniformity, and array printing after silane coating to ensure performance and lot-to-lot consistency. Both sides of each slide are uniformly clean.

Slide Dimensions: 75 mm X 25 mm X 1 mm

Precautions and Disclaimer

SigmaScreen Ready-To-Coat Slides for Microarrays are for laboratory use only, not for drug, household or other uses.

Storage/Stability

Store SigmaScreen Ready-To-Coat Slides for Microarrays at room temperature sealed in the storage bag provided. Use the slides in a clean environment. Particles can interfere with the coating process as well as the printing (arraying) process and can lead to background signal during detection. In addition, slide handling should be minimized. Touching of the printing surface, except by the printer, should be avoided.

Procedure

The clean slide substrate can be modified using any compatible custom surface chemistry or coating of choice. Coatings may be applied by dipping or vapor deposition. Dipping methods are generally necessary for polymeric, nonvolatile, and/or passive adsorptive coatings. Vapor deposition or dipping can be performed with reactive coatings such as volatile silanes. Coating optimization is generally coating specific. Coating slides is recommended when making surfaces that are not commercially available or when commercially coated slides are not satisfactory for an application. After the substrate is modified, remove any unbound material as necessary. The slides will then be ready for use as platforms for molecular immobilization, as in microarray printing and other applications.

Note: The surface properties of glass are known to be dynamic.[13] The presence of hydrocarbons and changes in humidity in laboratory air can affect the wettability (hydrophilicity) of any given glass surface. Dehydration over time as well as hydrocarbon adsorption may be considered normal aging properties that lead to an increase in hydrophobicity making glass surfaces less wettable and less coatable.

Related Products

(Sigma product numbers are given where appropriate.)

Product Name	Product No
3-Aminopropyltriethoxysilane	A 3648
3-Glycidoxypropyltrimethoxysilane	G 1535
3-Mercaptopropyltrimethoxysilane	M 1521
Poly-L-Lysine	P 2636
SigmaScreen APS Coated Slides for Microarrays	S 9936
SigmaScreen PLL Coated Slides for Microarrays	S 1313
Arrayer Calibration Solution	C 2110
Standard Microarray Spotting Solution	M 1435
ArrayHyb™ Hybridization Buffer	A 7718
ArrayHyb™ LowTemp Hybridization Buffer	A 3095
Microarray Hybridization Wash Pack	M 2185
GenElute™ Mammalian Total RNA Kits	RTN-10 RTN-70 RTN-350
GenElute™ mRNA from Total RNA Kits	MRN-10 MRN-70
GenElute™ PCR Purification Kit	GEN-PCR

References

1. Eisen, M.B., and Brown, P.O., DNA arrays for analysis of gene expression. Methods in Enzymology, **303**, 179-205 (1999).
2. Guo, Z. et al., Direct fluorescence analysis of genetic polymorphisms by hybridization with oligonucleotide arrays on glass supports. Nucleic Acids Res., **22**, 5456-5465 (1994).
3. Call, D.R. et al., Fabrication of DNA microarrays using unmodified oligonucleotide probes. BioTechniques, **30**, 368-379 (2001).
4. MacBeath, G., and Schreiber, S.L., Printing Proteins as Microarrays for High-Throughput Function Determination. Science, **289**, 1760-1763 (2000).
5. Lindroos, K. et al., Minisequencing on oligonucleotide microarrays: comparison of immobilisation chemistries. Nucl. Acid Res., **29**, 69 (2001).
6. Rogers, Y. et al., Immobilization of oligonucleotides onto a glass support via disulfide bonds: a method for preparation of DNA microarrays. Anal. Biochem., **266**, 23-30 (1999).
7. Kurg, A. et al., Arrayed primer extension: solid-phase four-color DNA resequencing and mutation detection technology. Genetic Testing, **4**, 1-7 (2000).
8. Zammatteo, N. et al., Comparison between different strategies of covalent attachment of DNA to glass surfaces to build DNA microarrays. Anal. Biochem., **280**, 143-150 (2000).
9. Schena, M., et al., Parallel human genomic analysis: microarray-based expression monitoring of 1000 genes. Proc. Natl. Acad. Sci. USA, **93**, 10614-10619 (1996).
10. Schena, M., et al., Quantitative monitoring of gene expression patterns with a complementary DNA microarray. Science, **270**, 467-470 (1995).
11. Schena, M. (Ed.), Microarray Biochip Technology, Eaton Publishing, Natick, MA, 2000, Product No. M 4309.
12. Schena, M. (Ed), DNA Microarrays, A Practical Approach, Oxford University Press, Oxford, England, 1999, Product No. D 6187.
13. Englander, T. et al., Dehydration of glass surfaces studied by contact angle measurements. J. Colloid Interface Sci., **179**, 635-636 (1996).

SW/MAM 3/02