

Precautions

1. Use the slides in a clean environment. Particulates adsorbed on the surface will affect sample printing and impair analysis results.
2. Avoid all direct handling of the slide surface. Wear gloves when handling. Do not touch the surface area used for probe spotting.
3. When a slide without a barcode is used, ensure the spotted side is marked using an appropriate method to identify it.
4. To obtain the best results, use the CapitalBio OPAldehydeSlide™ before the expiry date.
5. After removal from the storage refrigerator, allow the package to warm to room temperature to avoid condensation. Remove the slide from the package just prior to use. Avoid long-time storage after the package has been opened.

Information

Chip Hybridization. For convenience and high signal reliability, hybridization is best performed using a CapitalBio BioMixer™ II Microarray Hybridization Station (Cat. No. 120030) and HybSet™ Microarray Hybridization Cassette (Cat. No. 420010) which both help to reduced edge-effects. The enhanced quality of hybridization is attested in recent publications such as Patterson *et al* (2006) *Nature Biotechnology* 24:1140-1150 and Shi *et al* (2006) *Nature Biotechnology*, 24:1151-1161.

CapitalBio Corporation

18 Life Science Parkway
Changping District
Beijing 102206
P. R. China
Tel: 86-10-80726868
Fax: 86-10-80726782
globalsales@capitalbio.com
www.capitalbio.com



CapitalBio OPAldehydeSlide™

Cat. No. 420022

User Manual

**For Laboratory Research Use Only
Not for Diagnostic Purposes**

CapitalBio Corporation

General Introduction

CapitalBio OPAldehydeSlide™ is specially designed and manufactured for the production of oligonucleotide microarrays. It is an ideal substrate for the attachment of amino-modified oligonucleotide molecules. The aldehyde groups on the surface of the slide and the amino groups on modified DNA molecules can form stable covalent bonds. The surface wettability is specifically set to meet the requirements for both contact and non-contact printing. Low background fluorescence, high surface coating homogeneity and good spot morphology make CapitalBio OPAldehydeSlide™ an excellent substrate for gene expression analysis.

Manufacturing and Quality Control

Modification of the slide surface is stringently controlled in a state-of-the-art clean-room. Slide products undergo rigid quality control inspections, including contact angle measurement to monitor surface wetting characteristics, background scanning for coating homogeneity and standard experiments for immobilization and hybridization reaction ability.

Product Description

1. Surface cleanliness guaranteed by clean-room production;
2. Precise slide dimensions: $25.2 \pm 0.2\text{mm} \times 75.5 \pm 0.2\text{mm} \times 1.0 \pm 0.05\text{mm}$;
3. Uniform surface wettability;
4. Low intrinsic fluorescence and non-specific binding;
5. Homogeneous distribution of reactive aldehyde groups;
6. Especially suitable for attachment of $-\text{NH}_2$ modified short oligonucleotide (<50-mer);
7. Slides are available with and without a barcode label (7 mm × 20 mm);
8. The barcode is inert to the hybridization and rinsing buffers and other solvents;
9. Slides have a shelf life of six months if stored sealed at 2-8°C.

Recommended Protocol

Probe Printing and Immobilization

1. Prepare printing probes using CapitalBio DNA Spotting Buffer (Cat. No. 440010) or 50% DMSO at the recommended concentrations of 10-30 μM for oligonucleotides, and 50-400 ng/μl for PCR products;
2. Print the probes using either contact or non-contact printing;
3. Incubate the printed microarray in a humid chamber at 37°C for over 12 hour;
4. Rinse the processed slide in rinsing solution, e.g. 0.2% SDS, then block it in blocking solution, e.g. sodium borohydride solution (0.15-0.3% in 1×PBS/25% ethanol mixer), for 5 min, then rinse the slide with water. Blow-dry the slide using a nitrogen stream, or spin dry.

Hybridization

1. Put the slide into a hybridization chamber with printed-side facing up. Add pre-mixed hybridization solution and slowly cover with a cover slip. Be careful not to introduce bubbles during the covering step;
2. Perform hybridization at 42°C overnight under 100% relative humidity. Hybridization may also be performed at other optional elevated temperatures for shorter times.

Rinsing

1. Remove the slide from the hybridization chamber. Remove the cover slip and immerse the slide in rinsing buffer I (0.3×SSC, 0.1%SDS) at 42°C. Rinse for 2 min with gentle agitation;
2. Then immerse the slide in rinsing buffer II (0.06×SSC) at 42°C for 2 min with gentle agitation. Blow-dry the slide using a nitrogen stream, or spin dry.