

### **Rinsing**

1. Take the slide out of the hybridization chamber. Remove the cover slide and put the slide into rinsing buffer I (0.3×SSC, 0.1%SDS) at 42°C. Rinse for 2 min with gentle agitation;
2. Rinse the slide again 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.

### **Precautions**

1. Use 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 sample 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 OPAMinoSlide™ 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.

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# **CapitalBio OPAMinoSlide™**

**Cat. No. 420012**

## **User Manual**

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

**CapitalBio Corporation**

## General Introduction

CapitalBio OPAMinoSlide™ is specially designed and manufactured for the production of DNA microarrays. It is an excellent substrate for the attachment and hybridization of various kinds of nucleic acids. The electrostatic interaction between the positively charged amino groups on the slide surface and the negatively charged nucleic acid chains are strengthened after heating or UV crosslinking treatment. The surface wettability is specifically set to obtain optimal printed spot size and morphology. Low background fluorescence, high surface coating homogeneity and good spot morphology make CapitalBio OPAMinoSlide™ an ideal 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 ability.

## Key Features

1. Surface cleanliness guaranteed by clean-room production;
2. Precise slide dimensions: to ensure accurate printing production;
3. Uniform surface wettability;
4. Low intrinsic fluorescence and non-specific binding;
5. Homogeneous distribution of reactive amino groups;
6. Especially suitable for attachment of long oligonucleotides (>50-mer) and cDNA molecules;
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 Protocols

### Probe Printing and Immobilization

1. Prepare the printing probes in a suitable printing buffer at the recommended concentrations: 10-30 μM for oligonucleotides, and 50-400 ng/μl for PCR products;
2. Print oligonucleotide and PCR products using either contact or non-contact printing;
3. Bake the printed microarray in oven at 80°C for over 1 hour, or crosslink with UV light at 125-400 mJ/cm<sup>2</sup>;
4. Rinse the processed slide in rinsing solution, e.g. 0.2% SDS for 5-10 min, then rinse with water or ethanol. Blow-dry the slide using a nitrogen stream, or spin dry.

### Denaturing dsDNA (optional)

Hybridization signals are stronger if double-strand PCR probes are denatured into single-strands prior to hybridization. This procedure is recommended.

1. Dip the slide in boiling water for 2 min;
2. Dip the slide in ice-cold ethanol for 1 min. 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 the pre-mixed hybridization solution and cover slowly 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.