

TECHNICAL INFORMATION

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Corning® Microarray Hybridization Chambers

Operating Instructions



For Research Use

Cat. No. 40080: Hybridization Chamber II

Cat. No. 2551: Hybridization Chamber

For the most current information about these and related products,
please visit www.corning.com/lifesciences.

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INTRODUCTION

Corning® Hybridization Chambers are designed to hold 25 x 75 mm microarray slides at constant humidity during hybridization incubations. The O-ring and retaining clips assure that the chamber remains watertight in waterbaths and airtight in hybridization ovens. When used in a water bath the chamber remains completely submerged, maintaining the set incubation temperature.

The original Corning Hybridization Chamber (Corning Cat. No. 2551) provides the ideal interior height and volume for use with one slide of the standard 1 mm thickness and a standard coverglass. The new Corning Hybridization Chamber II (Corning Cat. No. 40080) has an increased interior depth for use with raised-edge coverslips that are thicker or taller than the standard thin coverglass. This chamber can also be used with two arrays placed face-to-face and hybridized using a single labeled target.

Each hybridization chamber consists of a polycarbonate base (imprinted with CORNING), a replaceable O-ring (Corning Cat. No. 40001) that fits into the channel in the chamber base, a polycarbonate cover, and two metal retaining clips. When filled with 10 µL water, the two humidification wells in the chamber base maintain optimal interior humidity. The chambers are reusable and require minimal maintenance.

INSTRUCTIONS FOR USE

Handling and Care Instructions

To maximize the benefits of using Corning® Hybridization Chambers, follow these suggestions.

1. The metal retaining clips can fit very tightly, particularly on new chambers. Warming the clips under hot water expands them slightly, for ease in assembly and disassembly.
2. Before each use, examine the O-ring. Nicks or cracks on the O-ring risk seal integrity and indicate the need for O-ring replacement (Corning Cat. No. 40001). See O-ring replacement instructions (Page 6).
3. Once an array is in the chamber, carefully maintain its horizontal position. Tilting the chamber can cause slides and coverglass to move relative to one another, potentially causing smeared spots or loss of hybridization solution.
4. During assembly, make sure that clips are aligned with the base and cover edges. Clips that are not properly aligned to the chamber edges may allow leakage of air or water into the hybridization environment.
5. Wash all parts of the hybridization chambers thoroughly with mild soap and rinse with ddH₂O immediately after use. Allow chambers to dry in a clean environment.

APPLICATION FOR CORNING® HYBRIDIZATION CHAMBERS

Hybridization of One Microarray Using a Standard Coverglass

Hybridization Chamber Assembly

1. Clean a Corning coverglass (Corning Cat. Nos. 2870 or 2940) according to laboratory protocol. An ethanol rinse is recommended.
2. Pipette 10 µL distilled water into humidifying well at each end of chamber base.
3. Place slide, printed array side up, in base.
4. Pipette hybridization solution onto slide and cover with clean coverglass.
5. Place cover of hybridization chamber over base by aligning base posts with cover indentations.
6. While maintaining chamber on a horizontal plane, snap (**do not slide**) a metal retaining clip onto each side of chamber.
7. Place the hybridization chamber in a waterbath or oven (up to 65°C) according to prescribed hybridization protocol.

Hybridization Chamber Disassembly

1. Remove retaining clips; carefully lift off chamber top.
2. Remove array/coverglass assembly from chamber. Use tweezers and handle at bar code end of assembly.
3. Transfer array/coverglass assembly to first wash solution. Allow coverglass to separate from slide. Do not forcefully separate slide from coverglass.
4. Continue washes according to hybridization protocol.
5. Clean chambers. (Step 5 in the Handling and Care Instructions, see page 2.)

APPLICATIONS SPECIFIC TO THE HYBRIDIZATION CHAMBER II

Hybridization of One Microarray Using a Raised-Edge Coverslip

Hybridization Chamber Assembly

1. Follow manufacturer instructions for raised-edge coverslip in determining hybridization buffer quantities, placement of labeled target on array, and placement of coverslip on array.
2. Pipette 10 μL distilled water into humidifying well at each end of chamber base.
3. Position array/coverslip assembly inside the Hybridization Chamber II base and place cover on base.
4. While carefully maintaining chamber on a horizontal plane, snap (**do not slide**) a metal retaining clip onto each side of the chamber.
5. Place the hybridization chamber in a waterbath or oven (up to 65°C) according to prescribed hybridization protocol.

Hybridization Chamber Disassembly

1. Remove retaining clips, carefully lift off chamber top.
2. Remove array/coverslip assembly from chamber base. Use tweezers, handling at bar code end of assembly.
3. Remove coverslip as recommended by manufacturer.
4. Continue washes according to hybridization protocol.
5. Clean chambers. (Step 5 in the Handling and Care Instructions, see page 2.)

Hybridization of Two Microarrays in a Hybridization Chamber II

This application is most effective when using slides with bar codes at the end of the printed surfaces. In this way, the bar codes create a space for the hybridization solution. When printing on the slides with bar codes, leave enough unprinted area at the top of the slides for the bar code from the facing slide to lie during hybridization.

Hybridization Chamber Assembly

1. Pipette 10 μL distilled water into each humidifying well at each end of chamber base.
2. Place one microarray slide printed side up, between the posts in base of the Hybridization Chamber II.
3. Pipette hybridization solution onto slide. Recommended volume is 55 μL .
4. Carefully lower second microarray, printed side down, onto first array so that hybridization solution spreads evenly between arrayed surfaces.
5. While carefully maintaining chamber on a horizontal plane, snap (do not slide) a metal retaining clip onto each side of chamber.
6. Place the hybridization chamber in a waterbath or oven (up to 65°C) according to prescribed hybridization protocol.

Hybridization Chamber Disassembly

1. Remove retaining clips, carefully lift off chamber top.
2. Remove slide assembly from chamber.
3. Transfer slide assembly to first wash solution. Allow slides to separate from each other. This process will take longer than the coverglass/array application. Do not forcefully separate slides.
4. Continue washes according to hybridization protocol.
5. Clean chambers. (Step 5 in the Handling and Care Instructions, see page 2.)

CORNING® HYBRIDIZATION CHAMBER MAINTENANCE

O-ring Replacement

1. Remove old O-ring from channel in chamber base. To pull the O-ring out of the channel, use fingernails, push with thumb, or pierce O-ring with a needle. Do not use tweezers or other hard objects to pry O-ring from the channel. Damage to the channel may result in an imperfect seal.
2. Place new O-ring in base channel. For ease of fit, place O-ring in one end of channel and using a thumb, apply pressure along O-ring working it into channel toward the opposite end of chamber base.
3. Perform chamber integrity check.

Chamber Integrity Check

1. Pipette approximately 1 mL of ddH₂O in chamber base and properly assemble chamber.
2. Choose a container large enough to accommodate complete submersion of hybridization chamber (chamber orientation is unimportant).
3. Prepare a very concentrated solution of dye in a volume large enough to allow submersion in chosen vessel (any water soluble dye works well; dye solution should be extremely dark in color).
4. Completely submerge closed chamber in vessel containing dye.
5. Place vessel in an oven overnight at hybridization protocol temperature.
6. Remove chamber from vessel. Completely remove dye from outside by rinsing exterior with water, then dry chamber.
7. Open chamber and visually examine the water from Step 1 for color. Color indicates need for O-ring repositioning or replacement.

CORNING® HYBRIDIZATION CHAMBER ORDERING INFORMATION

Cat. No.	Description	Qty/Pk	Qty/Cs
2551	Hybridization Chamber	-	5
40080	Hybridization Chamber II	-	5
40001	Replacement O-ring (fits both chamber styles)	-	5
2870	Coverglass, Square, No. 1½	1 oz	10 oz
2940	Coverglass, Rectangle, No. 1½	1 oz	10 oz

Related Corning Products

Coated Slides for Printing DNA Arrays

Cat. No.	Description	Qty/Pk	Qty/Cs
40015	UltraGAPS™ slides with bar code	5	25
40016	UltraGAPS slides without bar code	5	25
40017	UltraGAPS slides with bar code, bulk pack	25	25
40018	UltraGAPS slides without bar code, bulk pack	25	25

Pronto™ Reagent Systems for Hybridizing Arrays

Cat No.	Description	Qty/Cs
40021	cDNA Validation Kit	1
40022	cDNA Printing Kit	1
40023	cDNA Hybridization Kit	1
40024	Universal Validation Kit	1
40025	Universal Printing Kit	1
40026	Universal Hybridization Kit (25 hybridizations)	1
40028	Universal Hybridization Kit (10 hybridizations)	1

Pronto! Plus Systems for total RNA isolation, labeled target generation, and array hybridization

Cat. No.	Description	SV Total RNA Isolation	ChipShot™ Labeling System	Pronto Universal Hybridization System	Qty/Cs
40051	Pronto! Plus System 1	10	10	10	1
40052	Pronto! Plus System 2	-	10	10	1
40053	Pronto! Plus System 3	10	10	10	1
40054	Pronto! Plus System 4	-	10	10	1
40055	Pronto! Plus System 5	25	25	25	1
40056	Pronto! Plus System 6	-	25	25	1

