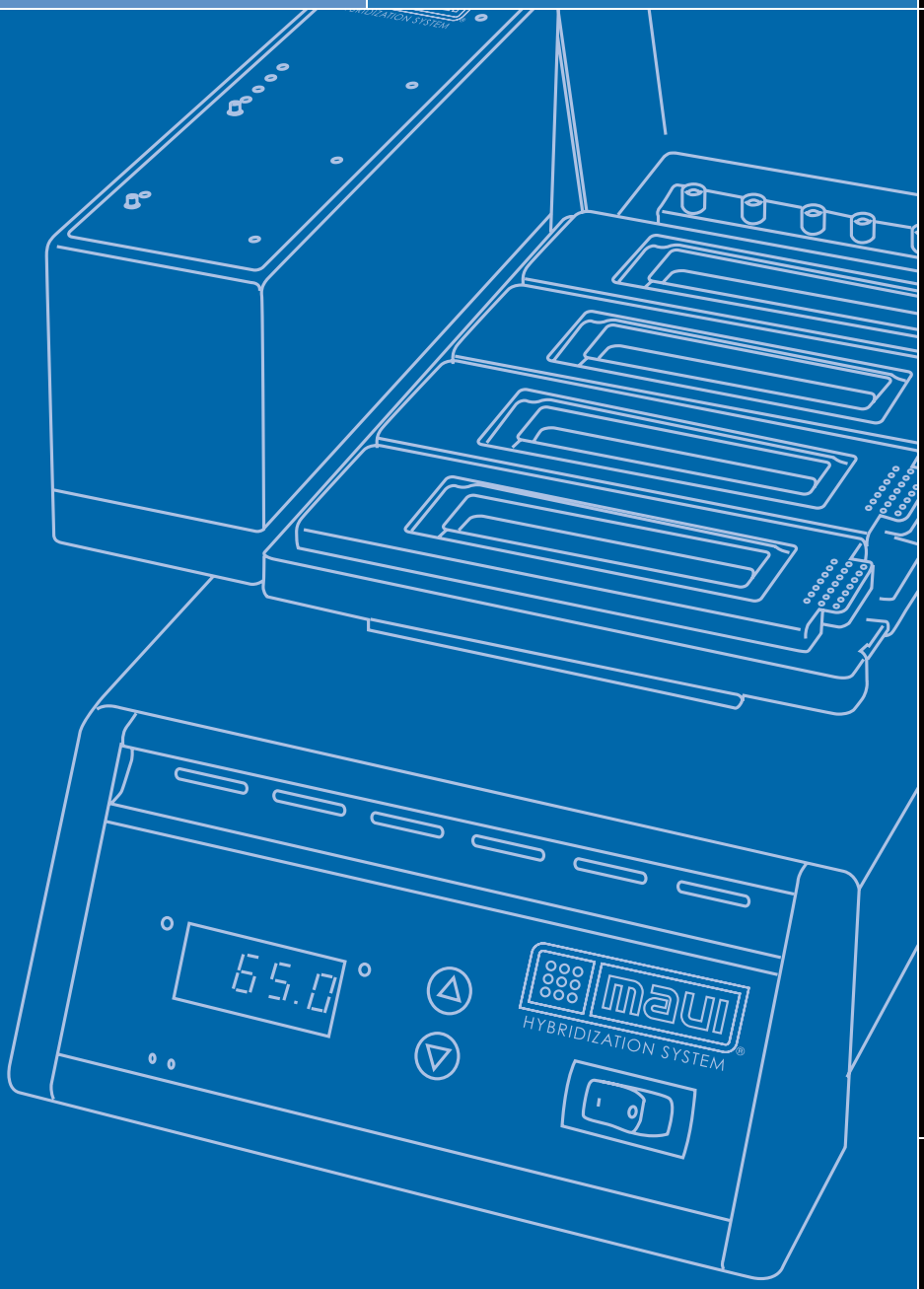
Superior Technology.

BRILLIANT RESULTS.

maui®
HYBRIDIZATION SYSTEM



BioMicro® SYSTEMS

www.biomicro.com

MicroArray Hybridization.

CONSISTENT REPRODUCIBLE RESULTS.

The MAUI product line offers a unique solution for high-quality microarray hybridization results.

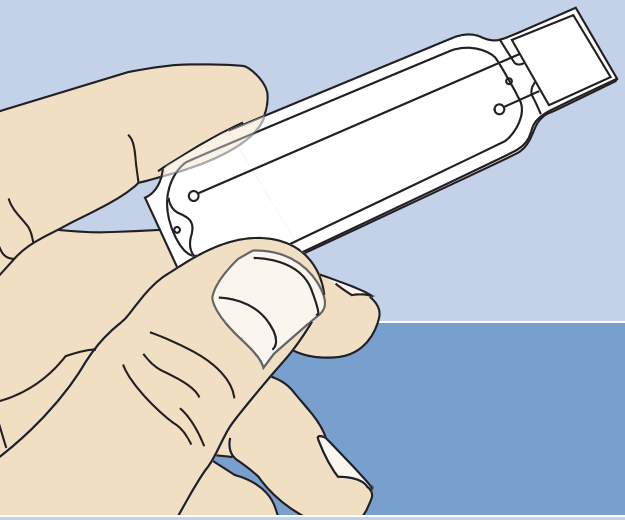
In the growing field of microarray research for gene expression studies, major pharmaceutical companies and research laboratories encounter the microarray bottleneck step of hybridization in achieving consistent and reproducible results. BioMicro® Systems strives to become the company to provide the standard for achieving superb microarray hybridization results.

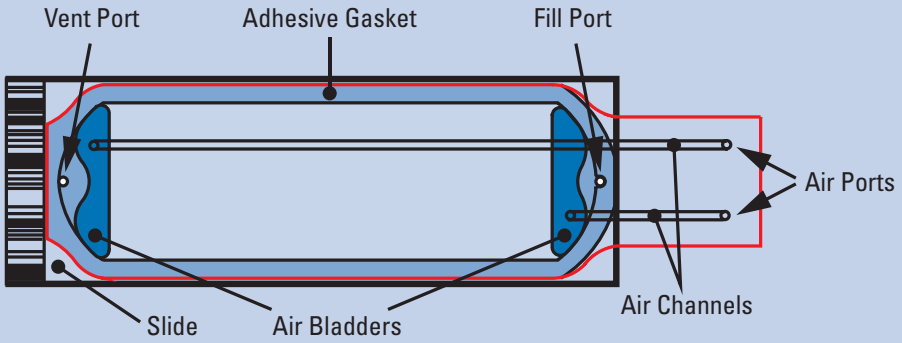
The MAUI® (MicroArray User Interface) line of hybridization products include two high-performance models of the MAUI Hybridization System, the MAUI 4-Bay System and the all new MAUI 12-Bay System for automating the fluid processing of microarray samples in low-to-high-throughput laboratories. The MAUI System integrates and optimizes the sample processing performed on microscope slide arrays via its patented instrument and MAUI Mixer hybridization chambers.

MAUI 4-Bay Hybridization System

The MAUI System boasts a dramatic 3 to 10 fold improvement in sensitivity over traditional hybridization methods as well as shorter hybridization times and greater uniformity of results.

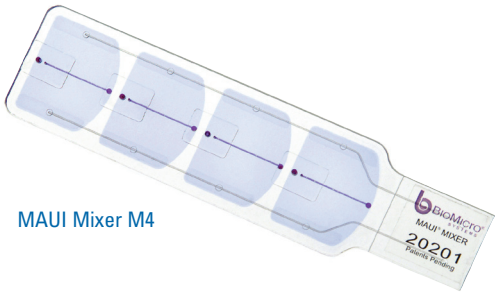
MAUI Mixer Technology





The key component to the MAUI System is the MAUI Mixer, a patented can be applied to any standard 1"x 3" microarray slide via an adhesive Air bladders within each MAUI Mixer alternately inflate and deflate to

MAUI Mixer A0



MAUI Mixer M4

MAUI Mixer M16

BioMicro Systems offers several standard MAUI Mixers. For additional details on other MAUI Mixer dimensions and custom MAUI Mixers, contact BioMicro Systems.

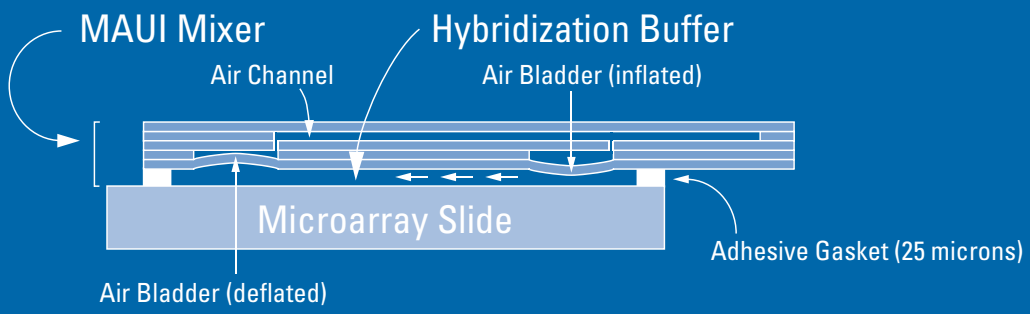
MAUI Mixer Overview

BioMicro Systems offers several standard MAUI Mixers to work with various microarray dimensions and hybridization temperature requirements. Researchers have the flexibility to run one hybridization experiment in a single chamber MAUI Mixer or multiple individual hybridization experiments on a single microarray slide. The MAUI System provides Active Mixing of concentrated, low volume samples by alternatively inflating and deflating air bladders at each end of the microarray via user-selected mixing parameters. Four MAUI Mixers fit seamlessly in the MAUI 4-Bay System, while the MAUI 12-Bay System can accommodate twelve MAUI Mixers.

MAUI Mixer Key Benefits

- Low Sample Volume (10-40 ul)
- Multiple Samples Processed Concurrently on a Slide
- Labeled Target Recovery/Buffer Exchange
- Adaptable to Various Microarray Configurations
- Minimal Sample Evaporation

MAUI Hybridization Chamber (side view)

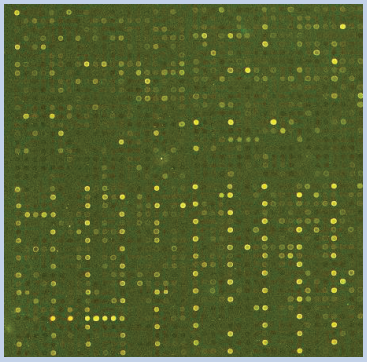


d, ultra-low volume, active mixing chamber. The MAUI Mixer
e gasket; forming a 25 µm high, sealed hybridization chamber.
mix fluids on the surface of the microarray slide.

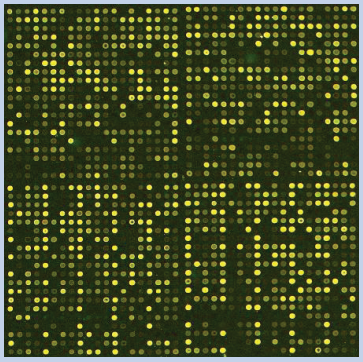
maui® HYBRIDIZATION SYSTEM

MAUI System Customer Data

Data showing increased sensitivity
Data courtesy of: Harvard Medical School, Partners Healthcare System
Cambridge, MA



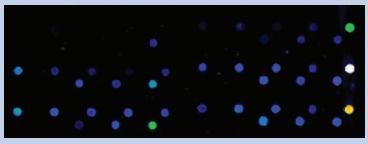
Coverslip Hybridization @ 42° C, 16hrs.



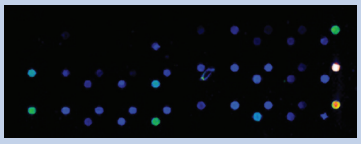
MAUI Hybridization @ 42° C, 16hrs.

Experimental results
1. Average spot size detection increase = 15%
2. Average raw signal Cy5 increase = >5X
3. Average raw signal Cy3 increase = >5X
4. Average background = same
5. Spot detection increase = 2.3X (from 32% to 73%)

Data showing reduced hybridization times
Data courtesy of: DNA Chip Research, Inc., JAPAN



Coverslip Hybridization
16hrs./Cy3/Scanner PMT65



MAUI Hybridization System
4hrs./Cy3/Scanner PMT65

Customer Comments

"The use of the MAUI Hybridization System has made a significant difference in the sensitivity and reproducibility of our experiments and simply stated, has increased our confidence in the results. The System itself is easy to use, reliable and has been an integral component in the standardization of our hybridization protocols."

The Biosensors Group,
Naval Research Laboratory

"The MAUI System is a highly economical instrument indispensable not only for microarray core facilities but also for the high throughput microarray user. We have used it for both high speed quality control applications…and for the typical array experiment. We are surprised at the tenfold increase in sensitivity and the exceptional high signal to background ratios and strongly recommend this instrument to our users."

Laboratory for MicroArray Technology,
University of Connecticut Medical School

"The BioMicro MAUI System is very simple to use, utilizes very small volumes, and is quite effective at minimizing background, improving hybridization uniformity and increasing signal."

– Lance Miller, Genome Institute of Singapore

MAUI Hybridization System.

HIGH-THROUGHPUT CAPABILITY.

MAUI 12-Bay Hybridization System

MAUI System Overview

Each MAUI System (MAUI 4-Bay System and MAUI 12-Bay System) is comprised of consumable MAUI Mixer hybridization chambers and a base unit, which provides the mixing action and maintains a constant incubation temperature. The MAUI Mixer adheres to the microarray slide via an adhesive gasket forming a uniform, low volume, sealed hybridization chamber. This chamber is clamped into one of the heated slide bays in the base unit, where hybridization takes place. The effect of Active Mixing™ on the sample is significant enhancement of sensitivity relative to other hybridization methods.

MAUI System Key Benefits

- 3-10 fold Increase in Sensitivity
- Consistent and Reproducible Results
- Thorough and Efficient Active Mixing
- Easy to Use
- Minimal Maintenance
- Shorter Hybridization Times

PRODUCT SPECIFICATIONS

maui® HYBRIDIZATION SYSTEM

DIMENSIONS (width x depth x height)	Cover Open	20 x 37 x 39 cm (4-Bay) 29 x 73 x 14 cm (12-Bay)
	Cover Closed	20 x 37 x 17 cm (4-Bay) 29 x 73 x 30 cm (12-Bay)
WEIGHT		7.94 kg (4-Bay) 19 kg (12-Bay)
CAPACITY		4 slides (4-Bay) 12 slides (12-Bay)
SLIDE FORMATS		24.9 – 25.5 mm x 75.4 – 76.4 mm
ELECTRICAL REQUIREMENTS	Power Voltage	210 W (heating) 12 W (mixing) (4-Bay), 580 W total (12-Bay) 100–110 V 60 Hz (standard) 220-230 V 50 Hz (optional)
TEMPERATURE	Ambient Operating Temperature Incubation Temperature Range Temperature Control Precision	16.5-27.5˚C (61.7-81.5˚F) Ambient to 65˚C ± 0.5˚C
MIXING PARAMETERS		Four pre-programmed mix modes (4-Bay) Two pre-programmed mix modes (12-Bay)

BioMicro® SYSTEMS

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For sales and additional information on MAUI Products, or a free MAUI System demonstration, contact sales@biomicro.com

MAUI SYSTEM PUBLICATIONS

Gains in sensitivity with a device that mixes microarray hybridization solution in a 25-um-thick chamber. Anal. Chem. 74: 6413-6417. Adey, N.B., M. Lei, M. T. Howard, J. D. Jensen, D. A. Mayo, D. L. Butel, S. C. Coffin, T. C. Moyer, D. E. Slade, M. K. Spute, A. M. Hancock, G. T. Eisenhoffer, B. K. Dalley, and M. R. McNeely. (2002).

For a current list of MAUI System publications, visit biomicro.com/articles.html

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