


Biochrom Webinars: How to Demo and Sell a Microplate Washer


Tristana von Will

Applications Specialist and Product Manager
Microplate Instrumentation

Outline

- Features of the Biochrom's microplate washer
 - How to set up and run a new procedure for best results
 - How to beat the competition
 - Your questions
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- Decorative wavy lines in shades of blue and teal at the bottom of the slide.

Applications for Microplate Washers

- Critical instrument for obtaining consistent results and low background in a number of assays.
 - Top application is ELISA assays and similar assays such as E1A, R1A, L1A and F1A.
 - Critical for cell based assays such as HTRF, cytotoxicity, cell viability, and many more.
 - Specialize washer used for magnetic bead washing (requires magnets to prevent beads from being aspirated)
 - Specialized washers used for vacuum filtration (requires a mechanism for pulling fluid through a filter).
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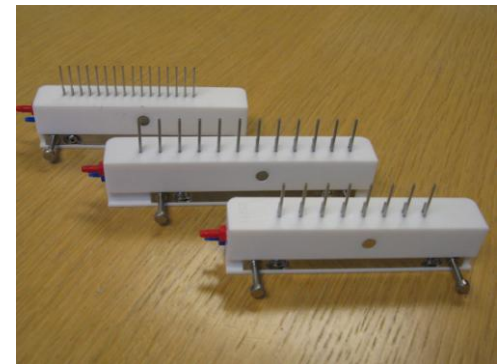
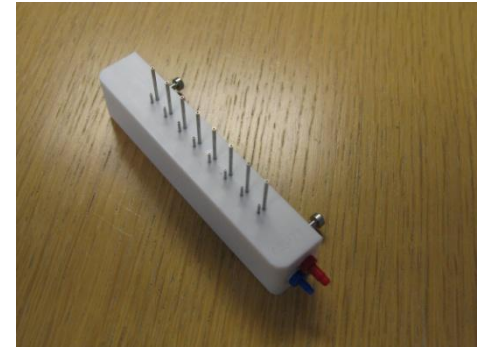
Biochrom Microplate Washers: Anthos Fluido-2 and Asys Atlantis



Biochrom Microplate Washers: Anthos Fluido-2 and Asys Atlantis



- < 1 μL residual volume!
- Digitally controlled aspiration and dispense diaphragm pump
- 20 unique plates, 20 cycles and 50 procedures can be defined.
- Automatic rinse setting and manifold cleaning tools
- Shaking and soak steps
- 8-way manifold supplied as standard
- 2 or 4 liquid line versions
- Optional 12-way and 16-way manifold for 96- and 384-well plates
- Use the manifold to teach the washer about the plate
- Dispense accuracy of <5% at 300ul across the plate (for 8 and 12 way manifolds) and <5% at 100ul across the plate (for 16 way manifold)



How to Demo a Washer



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Download the **Recommended Demonstration Procedure** from the Distributor Log In

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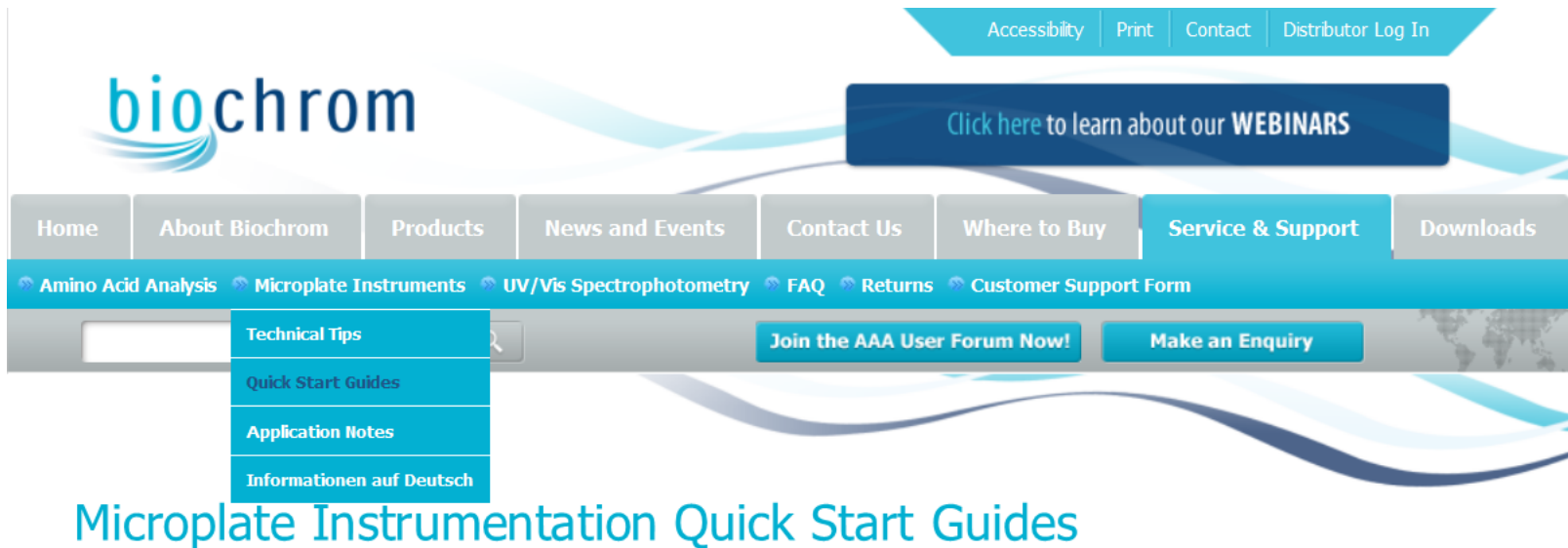
Biochrom Asys Atlantis Microplate Washer

Recommended Demonstration Procedure

How to write a procedure

Download from the website from service and support section:

- How to Write a Procedure
- Quick Start Guide



The screenshot shows the Biochrom website's navigation structure. At the top right, there are links for Accessibility, Print, Contact, and Distributor Log In. The main navigation bar includes Home, About Biochrom, Products, News and Events, Contact Us, Where to Buy, Service & Support, and Downloads. Below this, a secondary menu lists Amino Acid Analysis, Microplate Instruments, UV/Vis Spectrophotometry, FAQ, Returns, and Customer Support Form. A search bar is present, and a dropdown menu is open under 'Microplate Instruments', showing options for Technical Tips, Quick Start Guides, Application Notes, and Informationen auf Deutsch. Two buttons, 'Join the AAA User Forum Now!' and 'Make an Enquiry', are also visible. The text 'Microplate Instrumentation Quick Start Guides' is overlaid at the bottom of the screenshot.

Main Menu

- Options within the main menu: **Run Procedure>Prime/Rinse>Def Procedure>Def Cycle>Def Plate>Setup>Service**
- The keypad is used to select choices that are presented on the screen directly above the key. To select option, highlight with the cursor and press enter. To opt out of any menu, press the key below **esc** (escape). To return to the previous option press the key below <<.



Setup

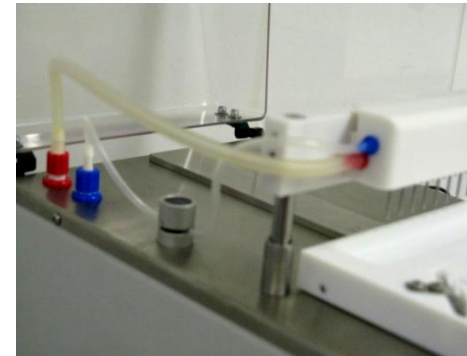
- Connect the tubing from the tops of the bottles to the back of the washer:
 - Red to red for waste, blue to blue for wash bottles, black to black for rinse bottles
 - Ensure that the tubing is securely fitted to the valve on the tops of the bottles and the back of the instrument

- Connect the larger diameter tubing to the red valve on the manifold and on the top of the washer. Thread the thinner tubing through the pinch valve.

- Confirm that the manifold slots in neatly to manifold holder.

- Plug in the lead. Turn on instrument at back panel.

- Go to Setup on the display and select the correct manifold, number of wash buffers connected, and any warnings: check liquid levels, emergency stop.
 - Only select liquid detectors if you have connected the optional physical sensors!



Prime/Rinse

- Prime liquid lines and rinse the manifold with 200 mL ddH₂O. Three options are available:
 - Manual-time and volume depending on depressing <Go>
 - Periodic-set volume and timed intervals for washing. Useful for keeping manifold clean between uses.
 - Auto-set volume but not time.
- Confirm that the manifold is aspirating and dispensing from all pins by observing aspiration and dispense

How to write a procedure

Use the manifold
to “teach” the
washer



Step 1: Define the plate

Can define
multiple cycles
per plate and per
procedure



Step 2: Define the cycle(s)

Reference plate
and cycle(s) to
the procedure



Step 3: Define the procedure



Define a plate

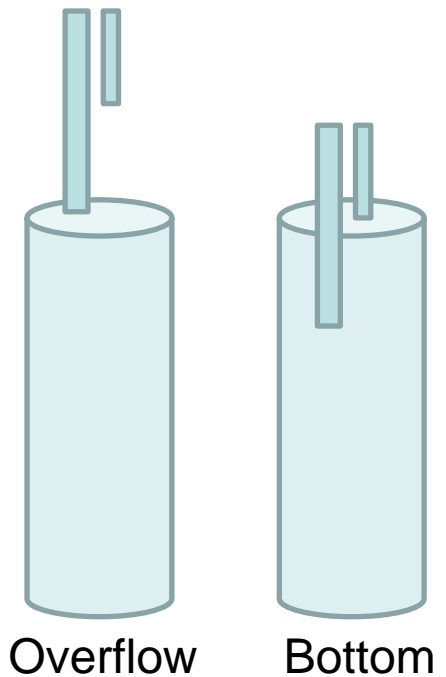
Use the manifold to teach the washer

- Select name using <enter> when <new> is shown. Select <Chg> and then <Sel> and <+> and <-> keys.
- Select manifold use 8 strip for 8-way manifold
- Select well shape: flat or round (round can be used for v-bottom as well)
- Select crosswise aspiration if flat bottom plate is used. Define the front and back of the well using the manifold. Now set Side Pos Front and Side Pos Rear using a reiterative process of selecting Mov and then the down arrow until the very front and back of the well are defined. Typical parameters are :
 - Side Pos Front: 2.5-3.0 mm
 - Side Pos Rear: -2.5 – 3.0 mm ↓



Define Plate

- Set Aspiration height. Use the manifold (select <Mov> and <↓> to determine the depth of the well and then move the pins up slightly to prevent bound material from being scraped by the pins.
 - Typical aspiration height: 15.3 mm
- Set Dispense position: Use <+> and <-> arrows to position the shorter dispense needles to the centre of the well. Use <Mov> and <↓> to confirm dispense pins are in the best position.
 - Typical dispense position: -1.8 mm
- Two types of dispense are possible: Overflow and Bottom. Select overflow for complete buffer exchange. Position the pins so the longer aspiration pins hover just above the top of the well.




Define Cycle

- Multiple cycles can be defined per procedure.
- Parameters to define are:
 - Time: 0.1-5 sec (0.1 second interval) of aspiration
 - Speed: high, med, low of aspiration
 - Dispense volume: 0-2000 μL (50 μL)
 - Power: high, med, low of dispense
 - Wash mode: Overflow or bottom of dispense
 - Shaking time: 0-10 seconds (1 second interval)
 - Soak time: 0-1000 seconds (10 second intervals)

Define Procedure

- Parameters to define
 - Wash buffers connected
 - Cycles to be used (up to 8 can be included in one procedure)
 - Final aspiration time
 - Final aspiration speed
 - Processing mode: Plate or strip: strip mode applies each aspiration and dispense to a row at a time.
 - Plate definition
 - Ask Strip Nr: if partial plate washing is desired (faster wash times)

Run Procedure

- If instrument has been turned on for more than 10 minutes without activity, a quick prime and rinse will occur automatically before the procedure starts.
 - Final residual volume should be $< 1\mu\text{L}$ if the method has been set up correctly.
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- Decorative wavy lines in shades of blue and teal at the bottom of the slide.

Troubleshooting

- If too much liquid remains in the wells after the final aspiration, consider changing the following parameters:
 - Lower speed of aspiration in cycle definition or procedure definition
 - Lower aspiration height in plate definition
 - Use crosswise aspiration
 - Adjust side position front and back in crosswise aspiration
- If signal is reduced in final assay, consider changing the following parameters:
 - Reduce power in cycle definition
 - Reduce speed in cycle definition
 - Raise the aspiration height

Major Features of Microplate Washers for Comparison

- Strip vs 96- or 384-way head
- Vacuum vs diaphragm
- Applications: ELISA assays (also E1A, R1A, L1A and F1A), magnetic bead assays and vacuum filtration (requires additional features such as magnets or capacity to pull fluid through a membrane).
- Residual final volume
- Automatic manifold cleaning
- Automatic liquid level sensing
- Automatic buffer switching
- Ease of procedure set-up

Awareness

Awareness Stat Fax 2600

- Residual volume <3 uL
- Vacuum pump
- Fully automatic reading
- Washes flat- round- and V-bottom plates and strips.
- Automatic calibration and alignment.
- 50 user-specified wash protocols.
- Programmable automatic rinse cycle.



BioTek

ELx50

- Syringe drive fluid delivery
- Automatic buffer switching
- Create, edit, delete and copy up to 75 programs from the keypad
- Link up to 10 programs
- Bottom washing and crosswise aspiration protocols



ELx405

- 96- and 384-well head manifolds
- Soak and shaking
- Magnetic bead and cell washing



Altura 100

- Accurate dispensing precision and low residual volumes
 - Precision CV = +/- 3% @ 300 μ L
 - Residual volume 3 μ L per well or 1 μ L when using sweep
- Up to 2 wash reagents, each with its own fluid pathways
- Plate sweep (crosswise aspiration for the lowest residual volumes)
- Up to 30 user programmable wash protocols
- Optional liquid level sensing in all reservoirs



Molecular Devices

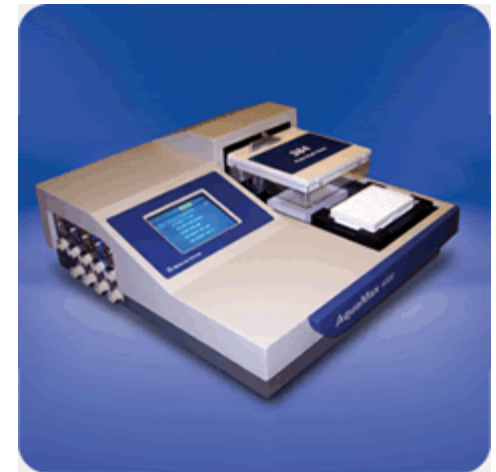
Multiwash III

- Small compact strip washer (wash bottles within case)
- 50 procedures storage
- Dispense volume dependent on manifold:
 - 8-port manifold: 50-1990 μL
 - 12-port manifold: 50-1650 μL
 - 2- to 8-port manifold: 50-1250 μL



AquaMax

- 96 and 384-well heads for ELISA or cell-washing
- Dispense precision: 96 well: < 4% CV @ 300 μL ; 384 well \leq 3% CV @ 100 μL
- Residual volume < 2 μL
- 2 or 4 liquid lines possible



Hydroflex

- Cell washing, ELISA, magnetic bead washing
- Drip mode for gentle cell washing
- Vacuum pump
- 8 or 16 strips washed at a time
- 50 – 3,000 μl in 50 μl steps for washing, 50 – 400 μl in 50 μl steps for dispensing



Hydrospeed

- Touchscreen
- ELISA, magnetic bead
- Vacuum pump
- 96- or 384-pin manifolds
- Up to 4 liquid lines



Thermo

Wellwash 4 Mk2

- Co-axial wash heads
- Programmable program cards
- 8-and 12-way wash heads



Wellwash

- Large color display
- Aerosol cover
- Automatic prime and wash



Versa

- ELISA, E1A, R1A, F1A, LIA, cell washing
- Crosswise aspiration
- Single and double 8-pin and 12-pin manifold available
- USB memory stick for protocol transfer
- Liquid level sensors



Handheld Washers

Nunc Immuno washers


- Autoclavable
- 8 or 12 needle option

Millipore Stat-Matic II

- Hand-held eight-port disposable manifold
- Can connected to a range of bottle sizes and can completely fill a microplate with one-handed operation



Why buy a Biochrom microplate washer

- Very low residual volume: <1 uL!
 - Precision, digital control of aspiration and dispense (diaphragm not vacuum pump)
 - Up to 4 liquid lines
 - Automatic buffer switching
 - Automatic prime and rinse
 - Bottom and overflow washing
 - Crosswise aspiration for flat bottomed plates
 - Soaking and shaking functions for the best results
 - Optional liquid sensors
 - Made in Cambridge
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- The bottom of the slide features several overlapping, wavy lines in various shades of blue, creating a decorative, fluid-like border.

Ordering Info



Part No	Description
80-4000-10	Biochrom Anthos Fluido 2 96 W2 Microplate Washer (2 liquid lines)
80-4000-11	Biochrom Anthos Fluido 2 96W4 Microplate Washer (4 liquid lines)
80-4000-12	Biochrom Anthos Fluido 2 384 W2 Microplate Washer (2 liquid lines)
80-4000-13	Biochrom Anthos Fluido 2 384 W4 Microplate Washer (4 liquid lines)
SG021101	Biochrom Asys Atlantis 2 Microplate Washer (2 liquid lines)
SG021102	Biochrom Asys Atlantis 4 Microplate Washer (4 liquid lines)
SB021011002	12 Channel Manifold
SB021013000	16 Channel Manifold
SB021046	Washer Maintenance Kit

Questions?

- Any new applications or features requested from the field?
- New competition?
- New instrumentation