



The Bio-Plex[®] Success Guide for Multiplex Immunoassays

Using **Luminex xMAP Technology**
Software and Hardware

BIO-RAD

May the Plex Be with You

Episode II: Return of the Data

Not too long ago, in a laboratory not too far away...

Luminex's xMAP technology was introduced to make your experiments faster and more efficient.

This is a success guide that includes a variety of tips and tricks for obtaining optimal results from your Luminex multiplex immunoassays.

Master Your Data,
Only Then Will You
Truly Be a
Multiplex Master

Having the right software can make all the difference.

Bio-Plex Manager™ software can help optimize your assay.

- Perform maintenance, protocol setup, data acquisition, and data analysis
- Use of the Start Up, Warm Up, and Calibration/Verify functions is recommended for best results

Perform the curve fit optimization to extend the assay working range and allow quantification of samples that might otherwise be considered out of range.

Standard curve recovery dictates overall accuracy of an assay.

- **More stringent specifications may be applied to specific targets**
- **The majority of newer Bio-Plex magnetic bead assays perform at 80–120%**

Have your Bio-Plex MCV plate handy when conducting calibration, validation, and maintenance functions.

Love Thy Machine
and it Will
Love You Back

Bio-Plex[®] 200 Reader (Luminex 200)

Proper maintenance and cleaning must be performed in order to preserve the longevity and reliability of the system.

Daily	Start up, calibrate, wash between plates, and shut down
Weekly	Sonicate needle, unclog, and check for leaks
Monthly	Validate and clean exterior surface
Every 6 months	Replace syringe seal and clean ventilation filter
Yearly	Replace sheath filter and air intake filter

**Do NOT allow tubing to
fall inside the instrument**

Ensure that the lot numbers are entered correctly and are not expired.

Verify that the microtiter plate is properly oriented and not warped.

Minimize downtime by having clean probe needles available when you flush and sonicate the system.

Perform washes between plates and follow startup and shutdown procedures.

(Under Instrument → Additional Functions):

- Run a **Drain and Backflush** 3 times consecutively while ensuring your waste cube is empty
- Run **Sanitize with bleach** 3 times and perform the **Alcohol Flush** 2–3 times after you run **Sanitize**

Run the **Unclog** function and note the bead flow rate:

- Bead rates during calibration should be 200–400 beads/sec with a clean probe needle

Bio-Plex[®] MAGPIX[™] Multiplex Reader (Luminex MAGPIX)

Proper maintenance and cleaning must be performed in order to preserve the longevity and reliability of the system.

Daily	Check fluid levels, daily startup, verify, and daily shutdown
Weekly	Clean probe needle, perform visual inspection, calibrate, remove clogs, and verify
Monthly	Clean exterior surfaces
Every 6 months	Replace syringe seal and O-ring and clean/replace air filters at bottom and back of analyzer
Yearly	Replace sample probe needle tube and replace drive fluid filter

Use sodium hydroxide (0.1 N NaOH) when running the Remove Clog routine. Clogs in the instrument can cause a calibration/verification failure.

Use Bio-Plex Manager software to perform an automatic probe needle height adjustment any time the probe needle is reinstalled.

Replace newly emptied waste fluid containers with a dry waste fluid container.

Ensure that the lot numbers are entered correctly, entering the incorrect or expired lot numbers will not provide optimum results.

Bio-Plex Manager™ MP software includes features that monitor performance and offers pragmatic solutions to optimize Bio-Plex MAGPIX multiplex reader performance.

If you have further questions, refer to the Bio-Plex MAGPIX multiplex reader product information sheet (Bulletin 6005), Luminex MAGPIX hardware manual, or contact the Bio-Rad Tech Support team.

Bio-Plex® 3D Reader (Luminex FLEXMAP 3D)

Proper maintenance and cleaning must be performed in order to preserve the longevity and reliability of the system.

Daily	System initialization, warmup, and shutdown
Weekly	Use software to perform weekly maintenance routine, remove clogs, clean the sample probe needle, calibrate the system, and visually inspect the instrument
Monthly	Clean exterior surfaces
Every 6 months	Replace and clean air filters and replace the syringe seal
Yearly	Replace the sheath filter

The Bio-Plex 3D reader should be warmed up again if the instrument is powered on but idle for more than 4 hours.

Recalibrate the instrument if the temperature changes by $\pm 3^{\circ}\text{C}$.

Make sure your beads are fully suspended during calibration/verification.

Ensure that the lot numbers are entered correctly, entering incorrect or expired lot numbers will not provide optimum results.

If you have further questions, refer to the Bio-Plex 3D suspension array system product information sheet (Bulletin 5967) or Luminex FLEXMAP 3D hardware manual.

For more assistance, you can reach Bio-Rad's tech support team at 1-800-4-BIORAD (6723) or visit our support website at **www.bio-rad.com/bio-plex**.

Follow us on Twitter **@bioradlifesci**.

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Laboratories, Inc.**

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Web site www.bio-rad.com **USA** 800 424 6723
Australia 61 2 9914 2800 **Austria** 01 877 89 01
Belgium 09 385 55 11 **Brazil** 55 11 5044 5699
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United Kingdom 020 8328 2000