



# Planar Waveguide for Medical Diagnostics



Naval Research Laboratory

PLA, CRADA, SBIR

## Objective

- Field-robust medical laboratory testing is an urgent need for both military and civilian medical personnel.
- NRL developed a biosensor based on planar waveguide optical sensors for such an application.
  - Prototype was too expensive, not robust, and not repeatable.
- NRL signed a CRADA with Precision Photonics Corporation (PPC) to mature the prototype and develop inexpensive, disposable diagnostic cartridges.
- In 2009, the device was spun out of PPC as MBio Diagnostics, who continued to develop the product.



## Benefits to DoD and Warfighter

- The CRADA and PLA gave PPC and MBio direct access to the NRL researchers to maximize the maturation of the tech.
  - The rugged, compact device provides rapid (1-20 min), 'point-of-care' medical diagnostics in a field operational setting.
  - Much cheaper than traditional medical laboratory equipment.
- Phase II SBIR from DARPA (2018) for the development of a portable, multiplexed immunoassay system for sepsis.
- Developing counter-terrorism applications in collaboration with a prime contractor funded by BARDA.
- Agreements in place for acute cardiac triage, fast DNA detection, and traumatic brain injury.

## Impact

- The PLA enabled MBio to exist; currently 40 employees.
  - On track to grow to 500 employees by 2025.
- \$45M of equity and non-dilutive financing.
- Total valuation of MBio estimated at several hundred \$M.
- Commercial sales of water testing line began in 2018.
  - Expect ~\$1M revenue in 2019.
- Second product line, for animal health, launched in 2019.
- Working with clinicians at Walter Reed Medical Center to identify additional important medical applications within DoD.