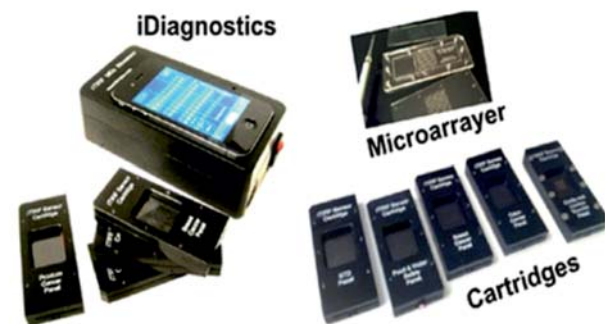


Mega-diagnostics in the Palm of Your Hand

- Ultimate sensitivity - the ability to detect diseases at early stages.
- Superior confidence - minimal rate of false-positive and false-negative responses.
- Fast results - providing test results within 5 minutes - easy logistics.
- Minimal requirement to sample preparation allows for home use.
- Single TIRF microchip can analyze over 100 different biomarkers at once.
- Simultaneous detection of DNA, RNA, proteins, and metabolites provides accuracy of diagnosing and prognosing.

Open Source i-Diagnostics Platform Creates Global Biosafety Infrastructure



Reader ~\$400,

cartridges ~\$1-10

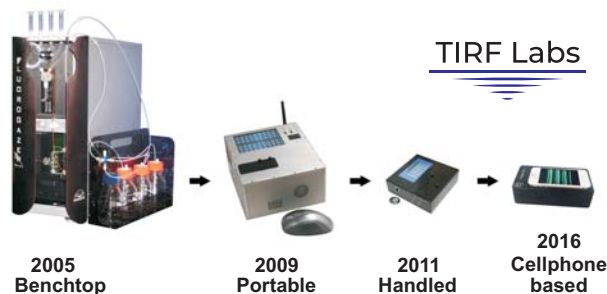
Let's Change the Future of Healthcare Together
visit www.i-Diagnostics.net

TIRF Technology is Mature



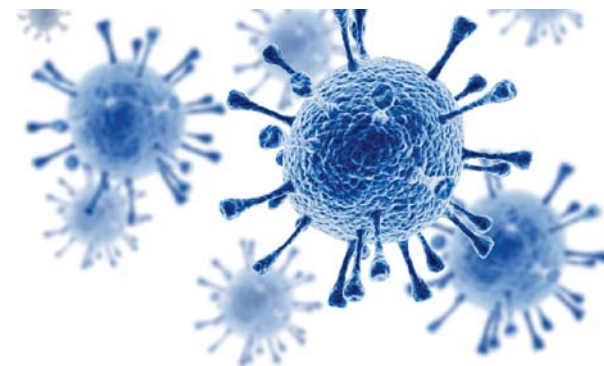
Numerous research groups are using our analytical-grade TIRF instruments that are capable of detecting single molecules. As Open Source platform, TIRF Labs will share with our partners the complete set of TIRF tools and consumables and provide technical support, including on-

Downsizing TIRF Microarray Biosensors



2013 - our TIRF microarray instruments were favorably evaluated against alternative detection systems by the US Department of Defense. **2016** - We extended 2D TIRF microarrays into the 3rd dimension using silk protein as lightguide and assay chamber. **2018** - We optimized the system to allow detection by smartphone camera and reduced the cost below \$400 for the reader and \$1-10 for the cartridge.

TIRF Labs, Inc., 106 Grendon Place, Cary
Research Triangle Park, NC 27519 USA
i-diagnostics@TIRF-labs.com
www.i-Diagnostics.net



i-Diagnostics

The Handheld Future of Precision Medicine



Rapidly and accurately detects COVID-19, Ebola, MERS, Zika, HIV, STD, other infections, cardiovascular disorders, cancers, Alzheimer's, other neuro-diseases, prognoses health and longevity.



TIRF Labs

A Step Ahead of Any Disease

www.i-Diagnostics.net

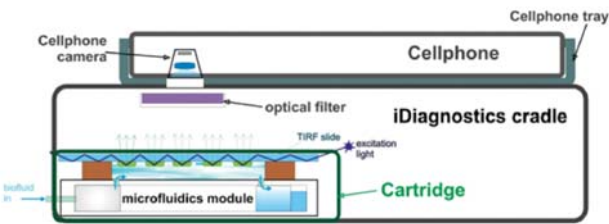
i-Diagnostics Device

Built on the most sensitive detection platform, capable of single molecule detecting, this handheld device brings enabling technology to the new dimensions in diagnostics.

Real-time TIRF microarrays minimize false-negative and false-positive results. Confidence is the key to diagnostics.

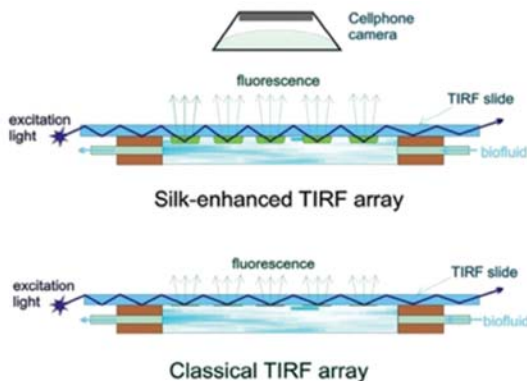
Detects 4 classes of biomarkers: DNA, RNA, proteins, and metabolites, which enables 4D images of the response.

Open source platform unites efforts of global network of scientists and doctors to prevent emergence and localize the outbreaks of infections.



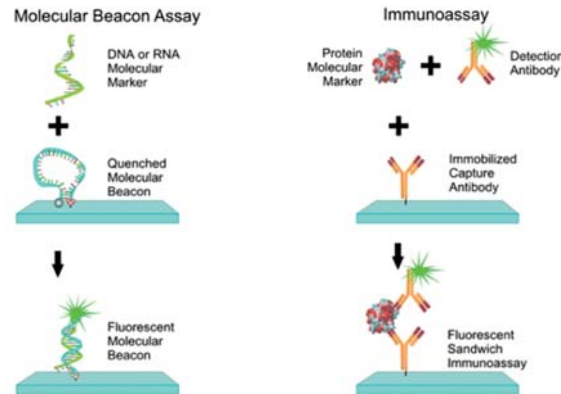
i-Diagnostics Technology (patent pending)

The underlying technology uses the phenomenon of Total Internal Reflectance Fluorescence (TIRF), which provides extremely thin layer of excitation light ~100 nm, thus removing the background interference, maximizing the sensitivity, and minimizing rate of false-positive and false-negative responses. Combined with microfluidics and nanotechnology, the ultrasensitive handheld device can detect and analyze over 100 different biomarkers simultaneously, on par with benchtop devices.



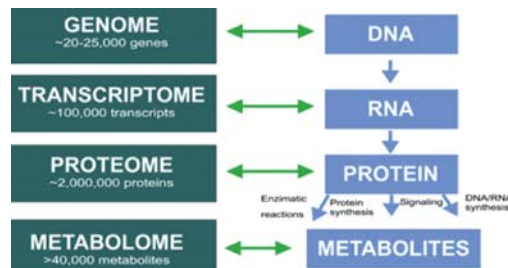
3D TIRF Real-time Microarray

Classical TIRF microarrays are 2D. In *i-Diagnostics* they are extended into the 3rd dimension using spider silk protein, which acts both as a lightguide and an assay chamber. The 3D TIRF allows encapsulating of bioassays into biologically friendly environment, where molecular beacons not only exhibit major gain in sensitivity, but also result in simplicity and the speed of the response.



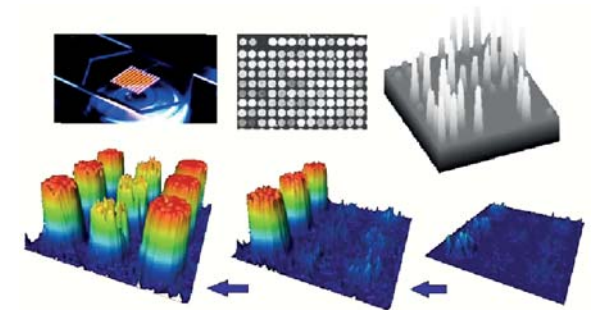
Detecting 4 Classes of Biomarkers Results in Mega-diagnostics for Precision Medicine

Typical technologies detect only one class of biomarkers. *i-Diagnostics* detects all 4 major classes of biomarkers simultaneously, DNA, RNA, proteins, and metabolites, allowing for designing of complex diagnostic panels necessary for the precision medicine. Scalability of *i-Diagnostics* can go from 10 to 100 and 1,000 biomarkers on a single microarray, making *i-Diagnostics* a genuine mega-diagnostics platform. Single *i-Diagnostics* test can replace dozen of conventional tests.



Open Source Platform Creates the Dimension of Intelligence

Complex diagnostics is powerful to use, but hard to develop. We pledge to make *i-Diagnostics* THE OPEN SOURCE platform - so that thousands research groups worldwide can develop their own applications using their areas of expertise. The envisioned global network will create the infrastructure preventing emergence and spread of infections. Diagnostic panels will be designed by researchers and inspired by doctors, patients, and other users. Making superior technology affordable is essential to spearhead joint effort in assay development, to global acceptance, and to expeditious regulatory process.



Real Time DNA/Protein detection by TIRF microarray

i-Diagnostics Applications

- Detection and diagnosing of infection diseases: COVID-19, influenza, Ebola, HIV, Zika, STDs, etc
- Diagnosis and prognosis of cancer
- Diagnosis and prognosis of cardiovascular diseases
- Diagnosis and prognosis of Alzheimer's, Parkinson's and other neurological disorders
- Drug development studies
- Longevity studies and popular efforts
- Food and water safety applications
- Civil and military biodefense applications
- Forensic applications
- Environmental applications
- Agricultural analyses and studies