Extra! Extra! Read all about it: Attogene Universal Lateral Flow and *ELISA* Assay Kits have Enormous Nucleic Acid Readout Possibilities!

Attogene's Universal Lateral Flow and ELISA kits are the perfect tool for numerous applications. Here's four examples: First, they may be used to develop both qualitative and quantitative detection of amplicons that are produced using PCR, RPA, LAMP or any of the commonly used nucleic acid amplification techniques. Thus, our Attogene kits allow the power of these high sensitivity/specificity assays to be fully realized in your application. Second, Attogene kits have robust applications in quantifying enzyme activity (e.g. ribonuclease H, RNAses, CRISPR/CAS9, DNases) by simply exchanging the substrate in the kit with a version that is enzyme cleavable/compatible. For example, we provide a DNA/RNA hybrid substrate that can accurately quantify RNase H activity (customized RNAse H substrate version of our Universal Lateral Flow Assay kit AU2045). We have also created an optimized RNase A-type enzyme substrate (AU2042) to detect general contaminating ribonucleases and a DNase substrate version (AU2056) to detect DNase activity. Third, Attogene kits can also be used to readily detect nucleic acids using strand capture techniques. Great examples of this application include our on-strip nucleic acid hybridization starter kit (AU2061) and Nucleic Acid Lateral Flow (NALF) Barcode Test Strips (AU2065). Finally, our kits can be used to perform nuclease protection, northern-style analyses, strand exchange or other comparable nucleic acid detection techniques. Collectively, these products add to Attogene' s all-encompassing Universal Testing Systems which enable the rapid detection of nucleic acids (amplified or substrate).

The bottom line: both the Universal Lateral Flow and the ELISA platform essentially bypass the need for gel electrophoresis or fluorescent probe-based readouts needing expensive real-time PCR or fluorescent plate reader equipment and/or expertise it takes to perform absolute quantification. Because our Universal Nucleic Acid Detection kits utilize the same tags, they are interchangeable between ELISA and Lateral Flow techniques.

Did you know that Attogene has launched the **world's largest selection of Universal *Lateral Flow* Technology kits** that enable single or multiplex detection of amplification targets in a single reaction? Not to rest on our laurels, we've also

Figure 1. Depiction of the Universal Nucleic Acid ELISA Kit

enabled plug-and-play systems that integrate moving from gold particles to highly sensitive fluorescent particles for detection. These include in-house manufactured Europium (Eu), Quantum Dots (QDots) and Phycoerythrin (PE) that we have incorporated into all-encompassing nucleic acid detection workflows. Our Universal Lateral Flow Technology Kits are used in applications around the globe to address nucleic acid amplification technology (NAAT) needs for people, plants, animals and the environment.

(Drumroll please.....) We are now thrilled to present the newest addition to Attogene's Universal Nucleic Acid Detection Technologies, namely, our **Universal Nucleic Acid *ELISA***. The Universal Nucleic Acid *ELISA* test system is designed to conveniently, and directly detect nucleic acids, the enzymes that react with nucleic acids and/or perform nucleic acid hybridization studies. These Universal Nucleic Acid *ELISA* kits are specifically designed with a ready-to-use, Universal anti-FITC/FAM (EL2054-01) or anti-Digoxigenin (DIG) (EL2054-02) coated 96-well ELISA plates to conveniently capture dual-labeled nucleic acid molecules tagged with FAM/FITC or DIG. As shown in Diagram 1, following capture, streptavidin-conjugated HRP is added and binds a reporter nucleic acid tagged with Biotin. When a substrate contains both the capture tag (FAM/FITC or DIG) and the reporter tag (biotin) a signal is generated by the addition of the widely used chromogenic TMB substrate. Importantly, the signals generated are directionally proportional to the concentration of the captured dual-labeled nucleic acid. To enable the quantification of nucleic acids in the reaction we have included a set of dual-labeled nucleic acid standards, allowing for easy calculations using standard linear regression techniques.

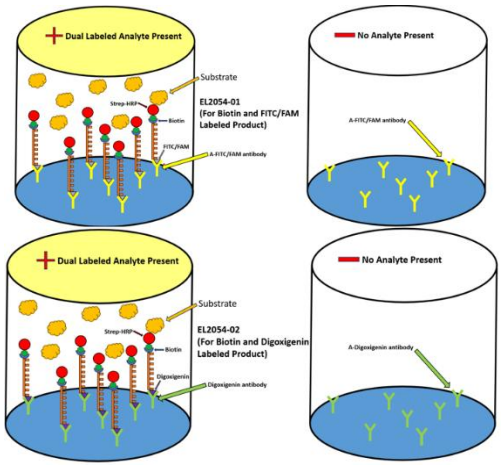

Diagram 1. Depiction of our Universal *ELISA* testing system. Shown in a single dual labeled substrate nucleic acid. It should be noted, the substrate used in these assays is endless in size, shape just requiring a biotin and either FAM/FITC or a DIG to be present on the substrate.

All tags (FAM/FITC, DIG and Biotin) are readily added to chemically synthesized nucleic acids and are similarly compatible with our numerous Universal Nucleic Acid Lateral Flow Assay Kits. This versatile system enables many possible applications and belongs to the growing list of Universal User-friendly nucleic acid testing systems containing, unique to the industry, nuclease resistant buffers.

The AU2054 Universal Nucleic Acid ELISA Kits Include:

- Anti-FAM/FITC (Kit 01) or Anti-Digoxigenin (Kit 02) coated 96-well plate
- Nucleic Acid ELISA Wash Buffer
- Streptavidin-HRP Conjugate
- TMB Substrate and Stop Solution
- Nuclease-Free Sample Diluent
- Calibration Standards for Absolute Quantification

Performance Snapshot

- Incubation Time: ~60 minutes
- Standard Range (attomole/µL): FAM/FITC: 0, 180, 300, 540, 640, 760
- Standard Range (attomole/µL): Digoxigenin: 0, 160, 340, 520, 700, 920

The Universal Nucleic Acid *ELISA* Kits use a standard ELISA plate reader (450 nm). For a rugged, reasonably cost ELISA reader please consider Attogene' s Chromate ELISA plate reader offering (Cat number: CO2035). We highly recommend this instrument.

To give you an idea of the performance of our ELISA system, a representative standard curve using dual-labeled nucleic acid standards is shown in Fig. 2. Since we know that its not just the data but also the analysis that is key to a successful test, Attogene offers an easy-to-use excel processing file for use with its ELISA kits upon request, please reach out to us at sales@attogene.com for additional details.

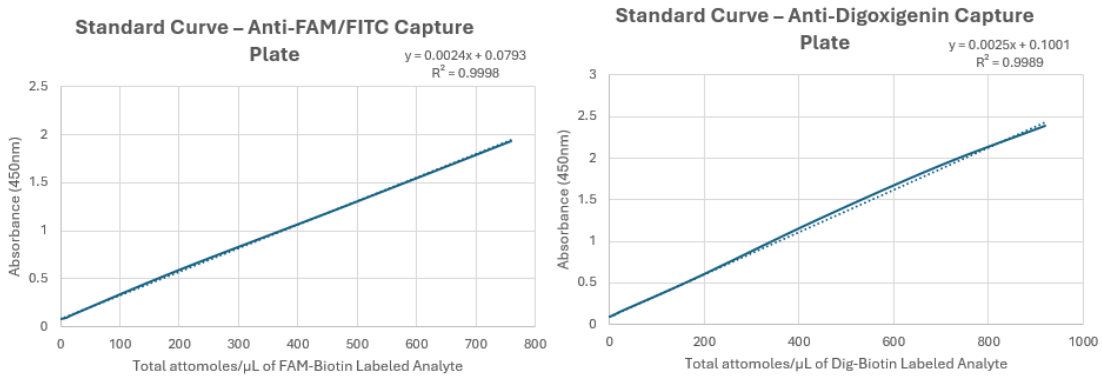

Figure 2. Linear regression curve using both the Anti-FAM/FITC and Anti-Dig capture plates. A set of control nucleic acid standards (included in the kit) are run alongside samples. The data depicted in the graphs demonstrates a high R2 value. These tests are very robust, adaptable and specific for the targets in the system.

Key Points to always keep in mind about Attogene:

1. Attogene has extended - and will continue to extend - its breath of testing products within the Universal Nucleic Acid Detection Field.
2. Attogene has the world's largest selection and world-class expertise in the industry.
3. Attogene is committed to developing unique testing techniques and applications for important industries.
4. Attogene has state-of-the-art Lateral Flow and ELISA testing services. For information on flexible service offering needs please contact ***bd@attogene.com***: