**ABSTRACT**

New methods in obtaining a rapid and accurate detection platform has been an objective in the development of current point-of-care test kits. Nucleic acid testing had been placed as the new millennium diagnostic tool. The ability given in using nucleic acid testing leads diagnostic towards a more specific, sensitive and allows early stage detection of diseases. The system that is being explained in this presentation enables a specific reaction using direct isothermal amplification without the need of extraction, followed by capture detection at the point of care. Using specific primer pairs and capture chemistry, the detection of a simple positive or negative can be moved to a confirmatory test unlike the current screening test. Capture zone is designed using metal oxide or bonding chemistry. Using the Laser Microparticles or aggregation of Gold Nanoparticles, the binding spots can be visualized by naked eye. Personnel effort in conducting a test on this system is generally equal to any point-of-care system in the market. With the introduction of this system, healthcare diagnostics can be reported efficiently in time. Recommended in three various designs, the system is capable of being developed into a multiplex or microfluidic platform.

**PROPOSED DESIGN**

One-Step Amplification and Detection Device

- Sensitivity: 10^-10 M
- Accuracy: >90%
- Specificity: >99%
- Stability: 3 months
- Portability: Easy to carry
- User-friendly
- Wide range detection
- 100 fold more sensitive with a detection limit of 0.1-10 pfu of virus

**IDEA GENERATED**

- Development of Point-of-Care Rapid Test device to be used as a confirmatory test – equivalent to a Polymerase Chain Reaction sensitivity and specificity.
- Development of a one-step amplification and detection platform for personnel ease-of-use.
- The system can be used for the detection of various disease on a multiplex platform. Options of multiplex – multiple test lines on single test strip / multiple wells on a microfluidic platform.

**DESIGN INPUT**

- Expected and Acceptable performance criteria
- References
- Projects
- Photos

**REFERENCES**


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