Hepatitis C virus diagnosis based on nanoparticles

Rapid, cost-effective diagnostic kit for Hepatitis C Virus extraction and detection

Business Summary

NG Diagnostics is a pre-start-up company aiming at developing affordable, reliable, accurate, cheap, and rapid nanoparticles-based assays for infectious diseases diagnosis and screening. Our strategy is based on the best utilization of various nanoparticles properties for developing of cost-effective and sensitive diagnostic kits for HCV. Our short plan is to large scaling up the developed HCV kit functional prototype (HepCeasy) into a licensed product, for HCV IVD in Egypt. Our long-term plan, is to establish a molecular diagnostics entity that is capable of competing globally using cutting edge research and technologies; and develop novel nanotechnology-based diagnostic assays for nucleic acids diagnosis from various sources.

Customer Problem

Egypt is the highest Prevalence country with HCV infection worldwide, and costs the Egyptian health care system about 3.8 billion dollars a year. Our main customer segments, including our partner the Egyptian MOH suffers from the high cost of the sophisticated of the advanced Molecular diagnostic equipment, labor intensive , long time test, diagnostics labs centralization, which form an obstacle for smoothly accesses to diagnostic tests, In addition to, the low reliability and efficacy of the conventional rapid tests, and ELISA that detects only antibodies. Thus, The WHO has recommended five approaches to eliminate hepatitis by 2030; the most important is the development of novel Molecular diagnostics kits to be used as Point of care without scarifying sensitivity, accuracy and specificity.

Our Solution

NG Diagnostics is developing a colorimetric nanotechnology-based diagnostic kit for Hepatitis C Virus detection. It is reliable, cheap and does not required highly trained technicians, with overall short time and detects the active virus not antibodies and could be integrated with any simple spectrophotometer existing in any diagnostic lab. A functional prototype has been established, with sensitivity and accuracy exceeds 90%, and low detection limit; which is in line with the WHO guidelines for the Point of care tests

Target market

Globally, it is estimated that market need and demand for screening tests are about 826 million and 178 million respectively for the next five years of which is driven by five countries (Pakistan, China, Egypt, Brazil and Morocco). Egypt, consumes annually, at least >2.5, 5, & 8 million tests for PCR, ELISA and Rapid HCV test respectively; with total import figure for HCV diagnostics reagents about 30 Million USD. HEPCeasy could fit in the market instead of the 13 million tests of rapid and ELISA within 2 years. Also, it could compete robustly with the PCR tests or limited PCR test usage to small number of patients and hence, decreasing the overall testing cost.

Competitors

As HEPCeasy designed for sensing the viral nucleic acid (active infection) in simple steps, compared to the immunoassays and the rapid tests that detect only antibodies and hence, will enhance the viral diagnosis. Moreover, the Real Time PCR – the gold standard – despite its high cost and time consuming will be out of the competition within the first 2-3 years due to its superior accuracy and sensitivity for any nucleic acid detection till now. HEPCeasy has the edge of compromising between the time, cost, and efficacy of the test so it will replace immunoassays and reduce the number of samples run by real time PCR. The risk will come for the PCR after our product reach a maturity level that could replace the Real-Time PCR, in some situations, which will enter the PCR companies in the competition equation.

Competitive Advantage

Our prototype is simple, rapid (30 minutes), detects RNA directly not antibodies which is not effective in immune-compromised patients, cheaper, and could be integrated with any spectrophotometer present in the clinical labs.

Customers & Partners

Our significant customers are the laboratory diagnostics, blood banks, liver institutes, & Kidney dialysis units. Our main strategic partner is the Ministry of Health, and the governmental hospitals, and the WHO. The IP will be assigned to HEPCeasy on sale or IPO.

Revenue Model

NG Diagnostics is expected to have market share with about 5-10% as a start according to the product-market-fit analysis done, with annual exponential growth by gaining more customers and reaching a certain level of maturity for customers' needs. The profit within the first 2 years will be directed to the R&D in addition to, changeable marketing plans according to customers' feedback and market needs. The main revenue streams will be generated from direct kits sales, and through distributors, also, producing deals with health insurance companies', MOH, is our main target/partner. In addition to, the small and big clinical diagnostics labs.

Exit Strategy

We estimate to get 10% of market share by the first year; and so, planning for IPO or acquisition in year 5 by a customer Diagnostic company to control NGDx company use in the marketplace.

Financials

	Year 1 USD (Estimated)	Year 2 USD (Estimated)	Year 3 USD (Estimated)
Revenue	140354.45	377641.18	670236.78
PBT	50344.53	52761.76	55504.84
Closing cash balance	90010	324879	614731.94

NG DIAGNOSTICS

Management

We are still in the prototype development stage; the structure of the company does not establish yet. However, we are currently 2 employees, CEO: Sherif Shawky and CTO: Mariam H.Eldin - 'Business mentor: Eng. Ahmed Alaa from American VentureWell'.

Achievements

90% of fully functional prototype has been developed, and the next stage will be finalizing the prototype, license the product and large-scale production.

Country of origin

Egypt

Contact

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