Executive Summary

"Doctors are men who prescribe medicines of which they know little, to cure diseases of which they know less, in human beings of whom they know nothing." - Voltaire (1694 – 1778)

This remark made in the 18th century probably holds as true today in the 21st century as it did then. As mankind races to find solutions to an ever increasing number of diseases (bacterial, viral, genetic, lifestyle), "APTAMETRIX Pte Ltd." will provide a revolutionary weapon to the pharmacological & clinical diagnostics industry to help fight this war.

The goal of our enterprise is aimed at revolutionizing the dynamics of the medical diagnostics and pharmacological industries. At the heart of the idea is something called **'APTAMERS'**, artificial single strand nucleic acids that are able to bind to specific molecules like proteins and amino acids. The technology envisages the creation of DNA Aptamer Microarrays on a stable substrate (base) which then uses a particular protein's affinity to a specific Microarray sequence to aid bio-sensing. To really understand the strength as well as application of our business premise, consider the following: 1) Today, all non-standard diagnostics are time taking, non-conclusive and expensive. The reason is their reliance on antibodies, which give ambiguous results. For example in a suspected AIDS case, medicos generally start with a normal WBC count test and progressively recommend an ELISA test. The basic reason for moving in this manner is cost. They cannot afford to recommend an expensive test for only a distantly suspected cause. They therefore move slowly using a process of elimination which takes time. Although the money involved may justify the longer

time period, it may also translate into “fatal consequences”. The success of medical diagnostics is dependent on timing.

2) The Pharmaceutical sector today is experiencing cut-throat competition. The Mercks, Ciplas, & Eli Lilys of the world are in a critical race to launch the next block-buster drug. However, if we take a closer look, these companies spend nearly 10-12 years to come up with a commercially viable molecule. Out of this at least 5 – 6 years are spent on extracting the molecule, only after which, does research start on its medical characteristics and feasibility. IMAGINE how these dynamics would change if we can reduce this gestation period by 30% - 50%.

Over the last decade, a lot of separate research has been dedicated towards reducing the time lag in the extraction of the molecule and making diagnostics more affordable and more conclusive. We believe a common solution can be found using ‘Aptamers’. The mechanism works as follows - The DNA sequence of say an AIDS affected patient is extracted, then using a method called SELEX, we can find its gene sequence, and then synthesize these microarrays and base them on a substrate (silica chip or Glass). This chip can now be used to test the sample serum to diagnose if it had a particular protein (e.g. AIDS, malaria etc.). Any such protein shall bind itself (due to affinity) to these specific arrays. Using technology we can have more than one array on a chip and that would mean diagnosing a person for AIDS, Hepatitis, Malaria, Tuberculosis and many more disease using just one blood sample in one go. Current research confirms that these tests are conclusive in nature and very accurate. This is the Multi-array chip that we plan to launch commercially.

Are we the first ones? Frankly we are just the first movers in this product segment. The technology has long been within the corridors of research laboratories. We are the first ones to make an attempt to take it to the drug stores and the diagnostic labs. Although there already are a few companies making Aptamers for a particular disease or molecule, their applications are still very much within the advanced research labs. A probable reason for this is their decision to use Protein (not DNA) based Aptamers, which are very difficult to store (unstable) and therefore have an extremely short shelf life. Secondly the substrate they use are silica chips which are very expensive and therefore automatically rule themselves out of the kinds of mass applications we envisage. Our product will be differentiated by two technological qualities that will enable us to take it mass market – 1) Use of DNA based Aptamers and 2) Use of a **much cheaper** substrate (treated Glass) instead of Silica chips.

We firmly believe that cost advantage, longer shelf life and the ease of use of our product give us all the reasons to try making these chips the Tylenol, or a Hicks Thermometer of tomorrow. Healthcare diagnostics is a USD 3 Trillion sector out of which USD 1.5 Trillion is non-radiology (our segment) and is growing at a CAGR of 17%. This is our potential target market and our ability to succeed is restrained only by the limits of our own capability and imagination.