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Customizing kits for diagnosis of infectious diseases

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Customizing kits for diagnosis of infectious diseases

India is a highly populated country with large tracts of sub-tropical and tropical environment, where the control of vector-borne infectious diseases has become particularly challenging.

India is a rapidly developing country but poverty is still a common place. About 90 percent of the population lives in conditions where they are at risk of being bitten by mosquitoes or sand flies.

Construction sites, a common sight in Indian cities, are frequently associated with pools of stagnant water which form an ideal breeding ground for insect vectors such as mosquitoes. Unfortunately, there are no proven effective vaccines against most tropical infections and insects such as mosquitoes or sand flies have often become resistant to insecticides, which makes combating their spread all the more difficult.

The net result is that India remains home to a variety of tropical and neglected tropical diseases. The term "tropical diseases" covers all forms of vector-borne infections encountered in the tropical zone, while the term "neglected tropical diseases" (or NTDs) covers most tropical infections except for malaria and dengue. In both cases, such infections are commonly found in India, where the combination of tropical weather, humid environments and unsanitary conditions around habitations, provide a fertile breeding ground for mosquitoes and sand flies.

We have developed diagnostic kits for detection of intestinal disorders caused by Giardia and Cryptosporidium parasites. Now these reagents have become the bench mark for testing the water samples in UK and Europe. These intestinal parasites can be prevented by testing drinking water across the world.

Our portfolio of specialist products cover medical problems in the developed and underdeveloped worlds. Rather than developing high revenue earning products, Cellabs wanted to focus on greater world problems and help patients in the low economic worlds. We provide high quality testing kits for reliable diagnosis of infectious diseases across the world.

With an objective to develop custom-made kits for infectious diseases, we work with the Walter Reed Army Institute of Medical Research, Maryland, US, to develop a complete panel of diagnostic devices for leishmania infection.

At Cellabs, we have made progress towards the identification of people, who are exposed to malaria before the appearance of symptoms. We have developed a reliable malaria antibody diagnostic test to assess exposure to malaria. This assay, called Pan Malaria Antibody, CELISA, detects exposure to all four main species of human malaria including *P. falciparum*, *P. vivax*

, *P. malariae* and *P. ovale*, of which the first three are relevant to India.

This assay could be useful in Indian regions that are non-endemic for malaria, in order to assess whether local people are exposed to the infection or not and to help control seasonal malaria outbreaks following the monsoon rains. Indians move around in significant numbers for festivals, business or pilgrimages. Such movements of population from non-endemic to endemic regions often result in travellers being exposed to malaria.

Cellabs has recently developed a novel and highly sensitive invitro diagnostic test to overcome the shortfalls of traditional Giemsa microscopy. The Rapimal-FA test is a direct immuno fluorescence microscopic test where a monoclonal antibody labelled with a fluorescent dye (FITC) is used to stain directly, the malaria parasites in blood smears. We have also developed another immuno fluorescence test for malaria targeting P. vivax parasites. These two immuno fluorescence tests are useful for analyzing blood smears of actual malaria parasites. They provide a simpler, quicker and more reliable way to diagnose malaria infection than conventional Giemsa microscopy, even at low parasitemia.

Cellabs has also recently developed another in vitro diagnostic test for malaria that is ideally suited for use in blood banks and which provides a highly sensitive detection even at low parasitemia, where conventional Giemsa microscopy commonly fails to provide a reliable diagnosis. This new assay, Quantimal pLDH CELISA, can measure the number of malaria parasites in infected patient blood samples down to a few parasites, per microlitre of blood.