

EARLY STAGE DIABETES MARKERS

Urine-based point of care early diabetes screening tool

BACKGROUND

Diabetes is a complex, multisystemic, progressive chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the ineffectiveness of the insulin produced, resulting in increased concentrations of glucose in the blood, which in turn damage many of the body's systems. Type 2 Diabetes accounts for 90% of all diabetes cases and environmental factors such as lifestyle are a major contributor to the development of the disease. Currently, diagnosis of diabetes involves measurement of increased and sustained blood glucose levels. Sustained high blood glucose levels, however, cause irreparable tissue damage, suggesting that most people already have tissue damage once they are diagnosed with diabetes. At that stage, interventions would be aimed at slowing down progression but would not be able to repair internal tissue damage. It would, therefore, be important to be able to diagnose diabetes at a very early stage before irreversible tissue damage occurs. This would provide patients with a golden opportunity to change their life style (nutrition, exercise) and start treatment timeously to either slow or stop disease development.

TECHNOLOGY DESCRIPTION

The technology includes two marker serum proteins for the early detection of people at risk for diabetes. These proteins are differentially expressed long before fasting blood glucose increases and could potentially detect diabetes before the appearance of any clinical symptoms and before irreversible damage is done to the various organs and tissues. These markers are being incorporated in a point of care early diabetes screening kit.

VALUE PROPOSITION

The point of care early diabetes screening kit would be able to diagnose diabetes at a very early stage before irreversible tissue damage occurs, by identifying the presence of the markers in urine. This could be used as a preventative measure and allow for early intervention to either slow or stop disease development through lifestyle changes.

CURRENT STATUS

A point of care diagnostic prototype is being developed by a South African company. Preliminary results have confirmed a dose dependent response for one of the two prediabetic marker proteins, as well as specificity for the protein antigen. Further optimization of the device is in progress, after which the device will be validated on clinical samples.

INTELLECTUAL PROPERTY STATUS & PUBLICATIONS

Patent applications will be filed once the prototype device has been developed and validated.

OPPORTUNITIES

The SAMRC is seeking partners for the optimization and clinical validation of the point of care screening device, as well as commercialization partners for the technology.

FOR MORE INFORMATION PLEASE CONTACT:

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