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Sun et al.

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(54) **HARMONICS MICROSCOPE FOR MEASURING GLYCATED HEMOGLOBIN FRACTION OF SINGLE RED BLOOD CELL**

(58) **Field of Classification Search**
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G01J 3/027; G01J 3/2823; G01N 21/3103;

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(57) **ABSTRACT**

A microscope is provided to measure HbA1c fraction. The microscope measures the HbA1c fraction of a single red blood cell (RBC) in a trace blood sample. The HbA1c fraction can be measured through a non-invasive way while the RBC flows in a human epidermal microvessel, too. The microscope comprises a laser device, an upright microscope, a light splitter, a light detector, and a mainframe. Unlike traditional methods, the HbA1c fraction can be measured in vitro or in vivo at the level of a single RBC. Accurate measurement is achieved. Misdiagnosis rate is reduced. The microscope provides HbA1c fractions from hundreds of RBCs, instead of averaging HbA1c fractions obtained from a large number of blood samples. Hence, the present invention is a method of detecting a HbA1c fraction of a single RBC, and is a microscope supporting blood-drawing measurement and non-invasive measurement simultaneously.

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7 Claims, 4 Drawing Sheets

