Title (en)

Device for identifying constituents in a fluid

Title (de)

Vorrichtung zum Nachweis von Bestandteilen in einem Fluid

Title (fr)

Dispositif de détection de composants dans un fluide

Publication

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Application

EP 07021342 A 20071031

Priority

EP 07021342 A 20071031

Abstract (en)

The device for determining the concentration of components in blood useful in a kit, comprises a measuring zone (3), two detection reagents for directly or indirectly interacting with the components, an opening (9) for bringing a fluid, a filter arranged between the opening and the measuring zone, a fluid inlet zone arranged between the opening and the filter, a ventilation system, a further measuring zone, and a zone for provisioning a blank value and/or a calibration value. The component to be detected or to be determined is a substance present in organisms and/or a biological molecule. The device for determining the concentration of components in blood useful in a kit, comprises a measuring zone (3), two detection reagents for directly or indirectly interacting with the components, an opening (9) for bringing a fluid, a filter arranged between the opening and the measuring zone, a fluid inlet zone arranged between the opening and the filter, a ventilation system, a further measuring zone, and a zone for provisioning a blank value and/or a calibration value. The component to be detected or to be determined is a substance present in organisms, a biological molecule, a medicinal substance and/or a protein. The presence and/or the concentration of the component in the measuring zone are determinable by luminescence, fluorescence, autofluorescence, chemiluminescence, electrochemiluminescence, spectral absorption photometry and/or bioluminescence. The filter is formed to separate solid components of the blood flowing-through the filter, subsequently to separate the solid and the liquid phase of the blood from each other and to separate serum or plasma from the blood. A pressure lying over ambient pressure is exercised on the blood. The blood is introduced through the filter into the measuring zone under the pressure. The pressure lying under the ambient pressure prevails in the device. The detection reagent is provided in the measuring zone and changes its optical characteristics during interaction. The opening has a one-way valve, and a luer-lock. The fluid inlet zone is formed and/or delimited by a flexible film. The device is a one-way-device and is compatible with commercial detection devices. The device has measures of a commercial cuvette or other commercial measuring vessels and a diameter of 10 mm and/or a length of 50+- 15 mm, or an adapter is adjusted to the size of a commercial cuvette. The ventilation system is connected with a measuring chamber by a narrow groove or a gap. The measuring zone is present in the form of a small tube with the ventilation system. The first detection reagent in the device is present above the measuring zone and is immobilized at the determined area in the measuring zone. The detection reagent is Pico-Green(RTM: Ultrasensitive fluorescent nucleic acid stain), Alexa(RTM: Superior fluorescent dyes), ethidium bromide, and SYBR(RTM: Asymmetrical cyanine dye) or Sytox(RTM: Fluorescent nucleic acid stain). Independent claims are included for: (1) a method for determining the concentration of components in blood by a device; and (2) a kit.

Abstract (de)

Die vorliegende Erfindung betrifft eine Vorrichtung und ein Verfahren zum Nachweis, insbesondere zur Bestimmung der Konzentration, von Bestandteilen in Blut oder Wasser. Weiterhin betrifft die vorliegende Erfindung die Verwendung einer Vorrichtung bzw. eines Verfahrens zur Bestimmung von Bestandteilen in Blut. Schließlich bezieht sich die Erfindung auf einen Kit, umfassend die Vorrichtung und einen Fluoreszenz-Standard. Die Vorrichtung nach Fig. 1-7 umfasst einen Messbereich (3) sowie einen mit diesem in Fluidverbindung stehenden Filterbereich (5). Der Filterbereich (5) und der Messbereich (3) sind vorzugsweise über einen ersten Fluidkanal (7) miteinander verbunden. Die Vorrichtung (1) weist vorzugsweise ferner eine Öffnung (9) auf, die vorzugsweise als Luer-Lock und weiterhin bevorzugt mit einem Ein-Wege-Ventil ausgebildet ist.

IPC 8 full level

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