Claims

1. System for analyzing a body fluid comprising

a collecting element (14) which receives the body fluid (32) in a reservoir (28),

a test element (18) designed to detect an analyte in the body fluid (32),

a transfer device (20) for making a fluidic connection between the collecting element (14) and the test element (18), and

a detection unit (22) which detects an analyte-specific measurement signal on the test element (18) during a measurement interval,

characterized in that
the transfer device (20) permanently brings the test element (18) into contact with the body fluid (32) located in the reservoir (28) during the measurement interval so that a liquid column (44) is maintained on a detection area (38) of the test element (18),

wherein the liquid volume of the reservoir (28) is defined such that the liquid column (44) over the detection area (38) does not fall below a minimum height for the duration of the measurement interval,

and the transfer device (20) is configured to physically separate the test element (18) and the collecting element (14) from one another after the measurement interval.

2. System according to claim 1, **characterized in that** the minimum height of the liquid column (44) is more than 10 µm, preferably more than 50 µm.

3. System according to one of the claims 1 to 2, **characterized in that** the test element (18) is designed to distribute the body fluid (32) two-dimensionally over a spreading area (46) during the measurement interval, and that the size of the spreading area (46) and the volume of the reservoir (28) are matched in such a manner that a liquid column (44) is maintained over the detection area (38) during the measurement interval.

4. System according to one of the claims 1 to 3, **characterized in that** the reservoir (28) has a depth between 50 and 150 µm, a width between 50 and 150 µm and a length of more than 1 mm, preferably about 2 mm.

5. System according to one of the claims 1 to 4, **characterized in that** the detection area (38) has a size in the range of 0.1 mm^2 to 1 mm^2.

6. System according to one of the claims 1 to 5, **characterized in that** the analyte-specific measurement signal is detected within a period of 0 to 15 s after making the fluidic connection between the collecting element and test element (14, 18).

7. System according to one of the claims 1 to 6, **characterized in that** the end of the measurement interval is determined as being when the change in the measurement signal per unit of time has reached a predefined value.

8. System according to one of the claims 1 to 7, **characterized in that** the collecting element (14) and test element (18) are spaced apart as separate components in an initial state and that the fluidic connection can be made

while actively moving the collecting element (14) and/or the test element (18).

9. System according to one of the claims 1 to 8, **characterized in that** the fluid is taken up by a lancing process and that the fluidic connection of the collecting element (14) to the test element (18) is not made until after the lancing process.

10. System according to one of the claims 1 to 9, **characterized in that** the reservoir (28) is formed by a capillary structure, in particular a linear capillary channel or capillary gap which is preferably open on one side.

11. System according to one of the claims 1 to 10, **characterized in that** the detection area (38) is formed by a dry chemistry layer (30) in particular based on enzymes for a photometric detection.

12. System according to one of the claims 1 to 11, **characterized in that** the collecting element (14) and the test element (18) can be separated again from one another after the measurement interval preferably by means of the transfer device (20).

13. Method for analyzing a body fluid in which

a) a fluidic connection is made between a collecting element (14) containing the body fluid (32) in a reservoir (28) and a test element (18) designed to detect an analyte in the body fluid (32),

b) an analyte-specific measurement signal is detected on the test element (18) during a measurement interval,

characterized in that

c) the test element (18) is permanently brought into contact with the body fluid (32) located in the reservoir (28) during the measurement interval so that a column of liquid (44) is maintained on a detection area (38) of the test element (18),

d) wherein the liquid volume of the reservoir (28) is defined such that the liquid column (44) over the detection area (38) does not fall below a minimum height for the duration of the measurement interval, and

e) the test element (18) and the collecting element (14) are separated from one another after the measurement interval.

What is claimed is:

1. A system for analyzing a body fluid comprising

a collecting element which receives the body fluid in a reservoir,

a test element designed to detect an analyte in the body fluid,

a transfer device for making a fluidic connection between the collecting element and the test element, and

a detection unit which detects an analyte-specific measurement signal on the test element during a measurement interval, wherein

the transfer device permanently brings the test element into contact with the body fluid located in the reservoir during the measurement interval so that a liquid column is maintained on a detection area of the test element,

the liquid volume of the reservoir is defined such that the liquid column over the detection area does not fall below a minimum height for the duration of the measurement interval; and

the transfer device is configured to physically separate the test element and the collecting element from one another after the measurement interval.

2. The system according to claim 1, wherein the minimum height of the liquid column is more than 10 µm, preferably more than 50 µm.

3. The system according to claim 1, wherein the test element is designed to distribute the body fluid two-dimensionally over a spreading area during the measurement interval, and that the size of the spreading area and the volume of the reservoir are matched in such a manner that a liquid column is maintained over the detection area during the measurement interval.

4. The system according to claim 1, wherein the reservoir has a depth between 50 and 150 µm, a width between 50 and 150 µm and a length of more than 1 mm.

5. The system according to claim 4, wherein the length is about 2 mm.

6. The system according to claim 1, wherein the detection area has a size in the range of 0.1 mm^2 to 1 mm^2.

7. The system according to claim 1, wherein the analyte-specific measurement signal is detected within a period of 0 to 15 s after making the fluidic connection between the collecting element and test element.

8. The system according to claim 1, wherein the end of the measurement interval is determined as being when the change in the measurement signal per unit of time has reached a predefined value.

9. The system according to claim 1, wherein the collecting element and test element are spaced apart as separate components in an initial state and that the fluidic connection can be made while actively moving the collecting element and/or the test element.

10. The system according to claim 1, wherein the fluid is taken up by a lancing process and that the fluidic connection of the collecting element to the test element is not made until after the lancing process.

11. The system according to claim 1, wherein the reservoir is formed by a capillary structure, in particular a linear capillary channel or capillary gap which is preferably open on one side.

12. The system according to claim 1, wherein the detection area is formed by a dry chemistry layer in particular based on enzymes for a photometric detection.

13. The system according to claim 1, wherein the collecting element is provided with a hydrophilic coating at least in the area of the reservoir.

14. The system according to claim 1, wherein the collecting element and the test element can be separated again from one another after the measurement interval preferably by means of the transfer device.