[0019] In another aspect, the invention provides a microfluidic structure for flow control and delivery of a fluid to an analyzing area, comprising:

[0020] an extraction chamber in fluid communication with a draining chamber, fluid travelling from the extraction chamber to the draining chamber in a first direction; the draining chamber comprising a top reservoir and a bottom reservoir, the top and the bottom reservoirs having a substantially similar width in a second direction perpendicular to the first direction, and the bottom reservoir having a width in a third direction perpendicular to the first direction and the second direction, and the top reservoir having a width in the third direction larger than that of the bottom reservoir, the fluid flowing from the top reservoir into the bottom reservoir in the first direction;

[0021] an interface between the top and the bottom reservoir configured to redirect the flow of the fluid along the first direction and the second direction inside the bottom reservoir;

[0022] a distribution chamber, comprising a plurality of inlet channels connected with the bottom reservoir, the fluid flowing from the bottom reservoir into the plurality of inlet channels each inlet channel comprising an analyzing area connected with the bottom reservoir, splitting the fluid into a plurality of inlet channels; and

[0023] a porous absorbing material, spaced apart from the analyzing area by a non-porous portion of the channel, and configured to extract fluid from the fluid analyzing area.

[0024] In another aspect, the invention provides a method for flow control and delivery of a fluid via a microfluidic structure to an analyzing area, the method comprising:

[0025] extracting a fluid in the first direction from an extraction chamber to a top reservoir of a draining chamber;

[0026] directing the fluid from the top reservoir to a bottom reservoir of the draining chamber, the top and the bottom reservoirs having a substantially similar width in a second direction perpendicular to the first direction, and the bottom reservoir having a width in a third direction perpendicular to the first direction and the second direction, and the top reservoir having a width in the third direction larger than the width of the bottom reservoir, the fluid flowing from the top reservoir into the bottom reservoir in the first direction;

[0027] redirecting, by an interface between the top and the bottom reservoir, the flow of the fluid from the top reservoir to bottom reservoir such that fluid flows in the first direction and the second direction inside the bottom reservoir; splitting, by a distribution chamber comprising a plurality of inlet channels each inlet channel comprising an analyzing area connected with the bottom reservoir, the fluid flowing from the bottom reservoir into the plurality of inlet Channels; and

[0028] extracting, by a porous absorbing material spaced apart from the analyzing area by a non-porous portion of the channel, fluid from the fluid analyzing area.

[0029] In another aspect, the invention provides a microfluidic structure for separating bubbles from a fluid, comprising:

[0030] an extraction chamber in fluid communication with a draining chamber, fluid travelling from the extraction chamber to the draining chamber in the first direction; the draining chamber comprising a top reservoir and a bottom reservoir, the top and the bottom reservoirs having a substantially similar width in a second direction perpendicular to the first direction, and the bottom reservoir having a width in a third direction perpendicular to the first direction and the second direction, and the top reservoir having a width in the third direction larger than that of the bottom reservoir, the fluid flowing from the top reservoir into the bottom reservoir in the first direction; an interface between the top reservoir and the bottom reservoir, substantially perpendicular to the interface between the top reservoir and the bottom reservoir, wherein the interface is configured to separate a bubble above the interface from the fluid flowing in the first direction across the interface into the bottom reservoir.

[0031] In another aspect, the invention provides a method for separating bubbles from a fluid in a microfluidic structure, the method comprising:

[0032] extracting a fluid in a first direction from an extraction chamber to a top reservoir of a draining chamber;

[0033] directing the fluid from the top reservoir to a bottom reservoir of the draining chamber, the top and the bottom reservoirs having a substantially similar width in a second direction perpendicular to the first direction, and the bottom reservoir having a width in a third direction perpendicular to the first direction and the second direction, and the top reservoir having a width in the third direction larger than the width of the bottom reservoir, the fluid flowing from the top reservoir into the bottom reservoir in the first direction;

[0034] separating a bubble from the fluid using an interface between the top reservoir and the bottom reservoir, wherein in response to the flow from the top reservoir into the bottom reservoir in the first direction substantially perpendicular to the interface between the top reservoir and the bottom reservoir, a bubble above the interface is separated from the fluid flowing in the first direction across the interface into the bottom reservoir.

[0035] In another aspect, the invention provides a microfluidic structure for flow control of a fluid, comprising:

[0036] a fluidic channel, configured to guide a flow of a fluid comprising a drug in a first direction, the fluidic channel having a width in a second direction perpendicular to the first direction and a depth in a third direction perpendicular to the first direction and the second direction, the fluidic channel comprising a non-porous material and three non-concatenated channel portions segregated along the first direction by a reagent pad followed by a sensor pad in respect to the first direction, the sensor pad separated from the reagent pad by a channel portion, and having an absorption pad interfacing with a channel portion following the reagent pad, the sensor pad and the two channel portions along the first direction and not interfaced with the reagent pad or the sensor pad, the absorption pad comprising a fluid absorbing material;

[0037] the reagent pad, having a size in the second direction substantially similar to the width of the fluidic channel and having a size in the third direction substantially similar to the depth of the fluidic channel, and comprising a conjugate of a drug and label, wherein the conjugate is soluble in an oral fluid;