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(54) Title: MICROFLUIDIC CHIP FOR SAMPLE PREPARATION AND SAMPLE PREPARATION SYSTEM INCLUDING SAME

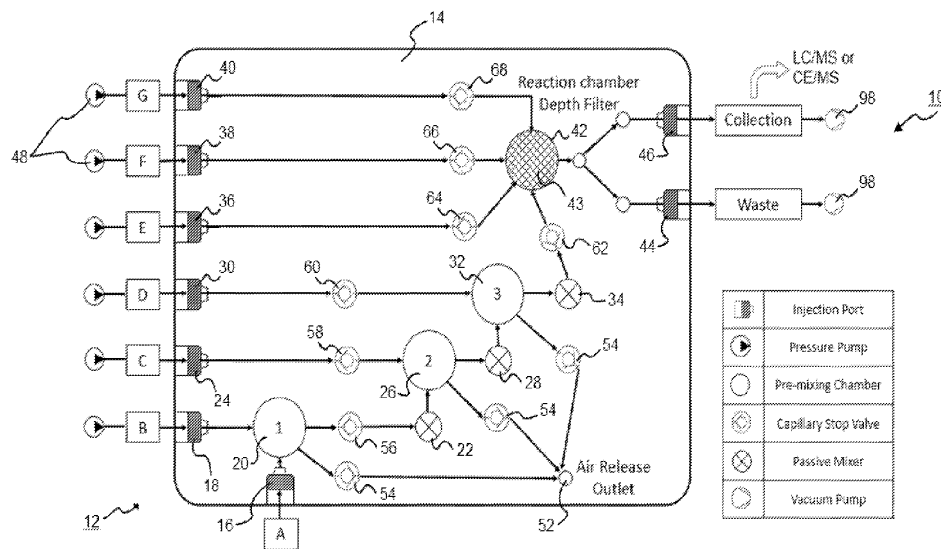


FIG. 1

(57) Abstract: A microfluidic chip for sample preparation and a sample preparation system thereof, wherein the microfluidic chip includes a chip body, a first chamber configured to receive a sample via a first injection port and a reducing agent via a second injection port, a first mixer in fluid communication with the first chamber and operable to mix the sample and a reducing agent from the first chamber to produce a denatured and reduced sample, a second chamber in fluid communication with the first mixer and configured to receive an alkylating agent via a third injection port, a second mixer in fluid communication with the second chamber and operable to mix the denatured and reduced sample with an alkylating agent to produce an alkylated sample, a third chamber in fluid communication with the second mixer and configured to receive a protein precipitation solution via a fourth injection port, a third mixer in fluid communication with the third chamber and operable to mix the alkylated sample with the protein precipitation solution to produce a

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precipitated sample, a reaction chamber in fluid communication with the third mixer and configured to receive a washing buffer via a fifth injection port, a digestion buffer via a sixth injection port and an elution buffer via a seventh injection port, a depth filter received in the reaction chamber, a first discharge port and a second discharge port in fluid communication with the reaction chamber.