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Schaff et al.

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(54) **DEVICES, SYSTEMS, AND METHODS FOR CONDUCTING ASSAYS WITH IMPROVED SENSITIVITY USING SEDIMENTATION**

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(58) **Field of Classification Search**
None
See application file for complete search history.

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(57) **ABSTRACT**

Embodiments of the present invention are directed toward devices, systems, and method for conducting assays using sedimentation. In one example, a method includes layering a mixture on a density medium, subjecting sedimentation particles in the mixture to sedimentation forces to cause the sedimentation particles to move to a detection area through a density medium, and detecting a target analyte in a detection region of the sedimentation channel. In some examples, the sedimentation particles and labeling agent may have like charges to reduce non-specific binding of labeling agent and sedimentation particles. In some examples, the density medium is provided with a separation layer for stabilizing the assay during storage and operation. In some examples, the sedimentation channel may be provided with a generally flat sedimentation chamber for dispersing the particle pellet over a larger surface area.

15 Claims, 10 Drawing Sheets

