

**LAB-ON-CD SYSTEMS WITH MAGNETICALLY ACTUATED MICRO CHECK
VALVES AND/OR MAGNETIC IMMOBILIZATION**

ABSTRACT

The present invention provides lab-on-CD (LoCD) systems for conducting chemical and biological reactions. One of the LoCD systems comprises a microfluidic CD with at least one magnetically actuated micro check valve, said microfluidic CD having at least one sample reservoir, at least one reaction chamber, and at least one microfluidic channel connecting the at least one sample reservoir and the at least one reaction chamber; wherein the at least one magnetically actuated micro check valve is positioned to control the microfluidic flow in the at least one microfluidic channel; and a supporting CD with at least one magnetic element for providing a magnetic force; thereby when the microfluidic CD and the supporting CD are assembled into the LoCD system, the at least one magnetic element can move the at least magnetically actuated micro check valve so as to control the microfluidic flow in the at least one microfluidic channel.

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