

ABSTRACT

ISOLATION DEVICE AND ISOLATION METHOD

An isolation device (100) includes an isolation chip (10, 10'), an oscillation system (70), a differential pressure driving system (50), a frequency conversion module (40), and a controller (60). The isolation chip (10, 10') includes a sample reservoir (11), a first chamber (12, 12'), and a second chamber (13, 13'). The first chamber (12, 12') and the second chamber (13, 13') are disposed on opposite sides of the sample reservoir (11). The oscillation system (70) includes a pressing assembly (20) and two ultrasonic generators (30). The pressing assembly (20) drives the ultrasonic generators (30) to move towards the isolation chip (10, 10') to make in contact with an outer surface of the first chamber (12, 12') and an outer surface of the second chamber (13, 13'). The frequency conversion module (40) controls the differential pressure driving system (50) to generate differential pressure in the first chamber (12, 12') and the second chamber (13, 13') alternately. The controller (60) controls the ultrasonic generators (50) to generate two ultrasonic waves when the differential pressure driving system stops to generate differential pressures in the first chamber (12, 12') and in the second chamber (13, 13'). The isolation chip (10, 10') and the ultrasonic generators (30) in the isolation device (100) are easily to be connected. The cost of the isolation chip (10, 10') is low, and the isolation efficiency is high, and clogging of the filtration membranes can be avoided. An isolation method is also disclosed.

Figure 2