
Paper ID: 1570941010

Paper Title: Pump-Free Microfluidic System - Design, Fabrication and Feasibility Test

Authors: Thammawit Suwannaphan (King Mongkut's University of Technology North Bangkok Bangkok, Thailand); Alongkorn Pimpin, Paweena Thuwanut and Porntip Sirayapiwat (Chulalongkorn University, Thailand)

Email: thammawit.s@cit.kmutnb.ac.th

Abstract

We have developed a pump-free microfluidic system utilizing hydrostatic pressure that can induce culture media into the system without an external pump. In this study, we demonstrate the design, fabrication, feasibility test as well as comparing the flow rates between the calculation and actual experiment. The results show that the actual flow rate was about 0.001 ml/min at the beginning and decreased to 50% after 48 hours when using the initial liquid level of 6.2 cm in a 14.5-mm diameter tank. The developed system shows high potential for the application that needs low decrement rate of flow rate.
