

Accepted Manuscript

Title: Biomaterial-based microfluidics for cell culture and analysis

Author: Ruizhi Ning, Feng Wang, Ling Lin

PII: S0165-9936(15)30016-9

DOI: <http://dx.doi.org/doi: 10.1016/j.trac.2015.08.017>

Reference: TRAC 14585

To appear in: *Trends in Analytical Chemistry*



Please cite this article as: Ruizhi Ning, Feng Wang, Ling Lin, Biomaterial-based microfluidics for cell culture and analysis, *Trends in Analytical Chemistry* (2015), <http://dx.doi.org/doi: 10.1016/j.trac.2015.08.017>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Biomaterial-based microfluidics for cell culture and analysis

Ruizhi Ning^a, Feng Wang^a, Ling Lin^{a,b,*}

^aState Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, P. R. China

^bDepartment of Bioengineering, School of Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan

Highlights

- We reviewed materials for microfluidic fabrication and summarized three tendencies.
- Biomaterials play key role in 2D and 3D cell culture on-chip.
- Organ-on-chip was introduced with promising potential.
- The ways biomaterials participating in cell analysis were elaborated.

ABSTRACT

To make the microfluidics more functional and sensitive in biological applications, biomaterials for chip organization and function turn to be the key factor for leading microfluidics to a new area. Biomaterials used in microfluidics turned to be more various, complicated, and integrated, and polymers gradually take the chief position in bio microfluidics. The previous stage for microfluidics is microanalyzing in chemical and biology, including biomolecular analyzing. We believe that the biomaterial-based micro platform will take main responsibility for cell culture and analyzing *in vitro* in future, and it will bring a revolution to biology and medicine research and applications. In this review, we first conclude commonly used biomaterials in microfluidic construction. Then, biomaterials for cell culture on chip in 2D and 3D, as well as organ-on-chip mimicking are elaborated. Finally, cell observation and analysis also

* Corresponding author: Tel/Fax: +86-10- 64433585, E-mail: lin@icl.t.u-tokyo.ac.jp (L. Lin)

Download English Version:

<https://daneshyari.com/en/article/7688859>

Download Persian Version:

<https://daneshyari.com/article/7688859>

[Daneshyari.com](https://daneshyari.com)