Microfabricated devices for oral drug delivery

Oral administration of drugs is most convenient for patients and therefore the ultimate goal when developing new medication. The physical barriers in the body, low pH of the stomach and degradation by enzymes in the gastrointestinal tract are a few of the obstacles to succeeding with oral drug delivery. Microfabricated devices show promise to overcome some of these hindrances and thereby improve the bioavailability of drugs after oral administration. There is an increasing focus on microfabricated oral drug delivery systems, and so far there have been three main groups of designs: patch-like structures, microcontainers and microwells. Here, we review the newest development in top-down microfabricated devices for oral drug delivery with coverage of the aspects of design, choice of material and fabrication techniques. Furthermore, the drug loading techniques and methods for testing are discussed. In addition, we discuss the future perspectives for microfabricated devices.

General information
State: Published
Organisations: Department of Micro- and Nanotechnology, Nanoprobes
Contributors: Nielsen, L. H., Keller, S. S., Boisen, A.
Pages: 2348-2358
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Lab on a Chip
Volume: 18
Issue number: 16
ISSN (Print): 1473-0197
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 6.05 SJR 2.158 SNIP 1.586
Web of Science (2017): Impact factor 5.995
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 5.98 SJR 2.162 SNIP 1.569
Web of Science (2016): Impact factor 6.045
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 5.74 SJR 2.239 SNIP 1.721
Web of Science (2015): Impact factor 5.586
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 5.6 SJR 2.555 SNIP 1.797
Web of Science (2014): Impact factor 6.115
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 5.9 SJR 2.397 SNIP 1.693
Web of Science (2013): Impact factor 5.748
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 5.35 SJR 2.405 SNIP 1.731
Web of Science (2012): Impact factor 5.697
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 5.76 SJR 2.54 SNIP 1.788
Web of Science (2011): Impact factor 5.67
ISI indexed (2011): ISI indexed yes