A device for extraction, manipulation and stretching of DNA from single human chromosomes - DTU Orbit (18/01/2019)

**A device for extraction, manipulation and stretching of DNA from single human chromosomes**

We describe the structure and operation of a micro/nanofluidic device in which individual metaphase chromosomes can be isolated and processed without being displaced during exchange of reagents. The change in chromosome morphology as a result of introducing protease into the device was observed by time-lapse imaging; pressure-driven flow was then used to shunt the chromosomal DNA package into a nanoslit. A long linear DNA strand (>1.3 Mbp) was seen to stretch out from the DNA package and along the length of the nanoslit. Delivery of DNA in its native metaphase chromosome package as well as the microfluidic environment prevented DNA from shearing and will be important for preparing ultra-long lengths of DNA for nanofluidic analysis.

**General information**

State: Published
Organisations: NSE-Optofluidics Group, NanoSystemsEngineering Section, Department of Micro- and Nanotechnology, Nano-Bio Integrated Systems Group, Biomedical Micro Systems Section, University of Oxford
Contributors: Rasmussen, K. H., Marie, R., Moresco, J. L., Svendsen, W. E., Kristensen, A., Mir, K. U.
Pages: 1431-1433
Publication date: 2011
Peer-reviewed: Yes

**Publication information**

Journal: Lab on a Chip
Volume: 11
Issue number: 8
ISSN (Print): 1473-0197

Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
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
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.718 SNIP 1.876
Web of Science (2010): Impact factor 6.26
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.673 SNIP 2.164
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.833 SNIP 1.849
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.441 SNIP 1.827
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 2.564 SNIP 1.61
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.52 SNIP 1.428
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.962 SNIP 1.823
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.126 SNIP 1.466
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.28 SNIP 0.904
Web of Science (2002): Indexed yes
Original language: English
Electronic versions:
  rsc[1].pdf
  DOIs:
  10.1039/c0lc00603c
Source: orbit
Source-ID: 277034
Research output: Research - peer-review › Journal article – Annual report year: 2011