Micromechanical PDGF recognition via lab-on-a-disc aptasensor arrays - DTU Orbit (23/01/2019)

**Micromechanical PDGF recognition via lab-on-a-disc aptasensor arrays**

A plug-and-play CD-like platform is used to perform a statistical detection of platelet derived growth factor (PDGF) proteins through aptamer-based surface functionalization of multiple microcantilever arrays. When PDGF proteins bind to aptamer coatings, the cantilevers deflect. The deflection response is monitored by optical read-out units from a commercial DVD-ROM device. We report on the use of an improved sensing platform which facilitates measurements under continuous liquid flow and with temperature control. Also, the mechanical wobbling of the DVD-ROM platform has been minimized and the scanning system has been optimized in order to detect cantilever deflections in liquid with nanometer scale resolution. The capability of the sensing platform is demonstrated by detection of clinically relevant concentrations of PDGF proteins. We present statistical measurements on 100 microcantilevers at different concentrations of PDGF, ranging from 10nM to 400nM. Hereby it is possible to reliably characterize the averaged mechanical response of cantilevers as a function of protein concentration.

**General information**

State: Published
Organisations: Department of Micro- and Nanotechnology, Nanoprobes, Columbia University, Academia Sinica Taiwan
Contributors: Bosco, F., Bache, M., Yang, J., Chen, C., Hwu, E., Lin, Q., Boisen, A.
Pages: 154-159
Publication date: 2013
Peer-reviewed: Yes

**Publication information**

Journal: Sensors & Actuators: A. Physical
Volume: 195
ISSN (Print): 0924-4247
Ratings:
- BFI (2019): BFI-level 2
- Web of Science (2019): Indexed yes
- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Scopus rating (2017): CiteScore 2.79 SJR 0.699 SNIP 1.363
- Web of Science (2017): Impact factor 2.311
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 2.79 SJR 0.787 SNIP 1.627
- Web of Science (2016): Impact factor 2.499
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): CiteScore 2.73 SJR 0.826 SNIP 1.553
- Web of Science (2015): Impact factor 2.201
- BFI (2014): BFI-level 2
- Scopus rating (2014): CiteScore 2.41 SJR 0.866 SNIP 1.771
- Web of Science (2014): Impact factor 1.903
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): CiteScore 2.53 SJR 0.819 SNIP 1.762
- Web of Science (2013): Impact factor 1.943
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): CiteScore 2.34 SJR 0.91 SNIP 2.113
- Web of Science (2012): Impact factor 1.841
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): CiteScore 2.5 SJR 0.909 SNIP 2.103
Web of Science (2011): Impact factor 1.802
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.11 SNIP 1.85
Web of Science (2010): Impact factor 1.941
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.019 SNIP 1.666
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.977 SNIP 1.616
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.957 SNIP 1.457
Scopus rating (2006): SJR 0.896 SNIP 1.676
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.909 SNIP 1.737
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.945 SNIP 1.746
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.153 SNIP 1.496
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.928 SNIP 1.485
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.958 SNIP 1.472
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.485 SNIP 1.251
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.51 SNIP 0.936
Original language: English
Keywords: Platelet derived growth factor, Biosensing, Cantilevers, DVD-ROM, Lab-on-a-disc, Protein detection
DOIs: 10.1016/j.sna.2012.06.030
Source: dtu
Source-ID: n:oat:DTIC-ART:elsevier/387545750::28912
Research output: Research - peer-review › Journal article – Annual report year: 2013