

Title (en)
MICROFLUID AND NANOFLUID SYSTEM FOR THE DYNAMIC STRUCTURAL ANALYSIS OF LINEAR MACROMOLECULES, AND APPLICATIONS THEREFOR

Title (de)
MIKRO- UND NANOFLUIDSYSTEM ZUR DYNAMISCHEN STRUKTURANALYSE VON LINEAREN MAKROMOLEKÜLEN UND ANWENDUNGEN DAVON

Title (fr)
SYSTEME MICROFLUIDIQUE ET NANOFLUIDIQUE D'ANALYSE STRUCTURELLE DYNAMIQUE DE MACROMOLECULES LINEAIRES ET APPLICATIONS DE CE SYSTEME

Publication
EP 2170513 A1 20100407 (DE)

Application
EP 08758173 A 20080607

Priority

- DE 2008000948 W 20080607
- DE 102007027414 A 20070611

Abstract (en)
 [origin: WO2008151611A1] Fluidic systems in micrometric and nanometric fields are used as chip laboratories in modern biology and biochemistry, especially for the analysis of linear macromolecules (LM) multifolded in a complex manner, such as DNA. For the analysis, said macromolecules are unfolded at entropic barriers (EB) by means of a transport fluid (FL), and electromagnetically irradiated, and the transmission response is evaluated. Until now, unfolding and irradiation were carried out in separated process steps and structures. The novel microfluid and nanofluid system (NS) is characterised by a spatial and temporal synchronisation of the unfolding in a fluid channel (FK) and an irradiation channel (BK) in a photonic crystal (PK), i.e. a spatially periodic grid structure (PG) with grid openings (GO) having dimensions corresponding to the unfolding of the passing linear macromolecules (LM) and the used spectral region. The grid structure can, for example, be embodied as a nanocolumn field (NF). Such microfluid and nanofluid systems (NS) can fulfill complex functions as an integrated system on a common substrate, e.g. as a microbioreactor (MB) for cell-free protein biosynthesis, with a reaction chamber (RR) between two photonic crystals (PK1, PK2) and optionally with other devices for additional process steps.

IPC 8 full level
B01L 3/00 (2006.01); **G02B 6/122** (2006.01)

CPC (source: EP)
B01L 3/502761 (2013.01); **B82Y 20/00** (2013.01); **B82Y 30/00** (2013.01); **G02B 1/005** (2013.01); **G02B 6/1225** (2013.01); **B01L 2200/0663** (2013.01); **B01L 2300/0627** (2013.01); **B01L 2300/0887** (2013.01); **B01L 2300/0896** (2013.01); **B01L 2400/0421** (2013.01); **B82Y 15/00** (2013.01)

Citation (search report)
 See references of WO 2008151611A1

Citation (examination)
 US 2004069948 A1 20040415 - FEISST ARNO [DE], et al

Designated contracting state (EPC)
 AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)
 AL BA MK RS

DOCDB simple family (publication)
WO 2008151611 A1 20081218; DE 102007027414 B3 20090122; EP 2170513 A1 20100407

DOCDB simple family (application)
DE 2008000948 W 20080607; DE 102007027414 A 20070611; EP 08758173 A 20080607