

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

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Application
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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.

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See references of WO 2008151611A1

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US 2004069948 A1 20040415 - FEISST ARNO [DE], et al

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