

Title (en)  
PROCESS FOR SEQUENCING AN INDIVIDUAL DNA MOLECULE

Title (de)  
VERFAHREN ZUM SEQUENZIEREN EINES EINZELNEN DNA-MOLEKÜLS

Title (fr)  
PROCEDE POUR SEQUENCER UNE MOLECULE D'ADN INDIVIDUELLE

Publication  
**EP 1017708 A2 20000712 (DE)**

Application  
**EP 98946308 A 19980810**

Priority  
• DE 19742227 A 19970925  
• EP 9805061 W 19980810

Abstract (en)  
[origin: DE19742227A1] An extended fibre point (1) is coated with photobiotin and irradiated with U.V. light, causing the photobiotin to bind with the fibre point. The fibre point is then brought into contact with streptavidin and submerged in a solution containing dyed copies of the DNA molecule to be sequenced. Biotin is also bonded to the 5' end of the dyed DNA molecules (4A). The biotin coupled to individual DNA molecules binds with the streptavidin at the fibre point. Light is coupled into the fibre to detect the thus obtained bonds. The evanescent field of said light excites a dyed DNA molecule to emit fluorescent light as soon as it binds with the fibre point. When a bond is detected, the fibre is immediately removed from the solution, and the fibre point is inserted into a microcapillary (5). The microcapillary is filled with a buffer solution containing exonucleases which decompose the DNA molecule base after base. The outlet (6) of the capillaries is located in the observation zone of individual molecule detection equipment. In order to improve the signal-noise ratio for individual molecule detection, the walls of the microcapillaries have a thickness in the area of their outlet which is distinctly smaller than 1/4 the wavelength of the exciting light.

IPC 1-7  
**C07H 21/00**; G01N 21/64; G01N 21/76; G01N 33/543; G01N 33/58

IPC 8 full level  
**C12Q 1/68** (2006.01); **C12Q 1/6874** (2018.01); **G01N 33/543** (2006.01); **G01N 1/34** (2006.01)

CPC (source: EP US)  
**C12Q 1/6874** (2013.01 - EP US); **G01N 33/54373** (2013.01 - EP US); **G01N 1/405** (2013.01 - EP US); **Y10S 436/80** (2013.01 - EP US); **Y10S 436/805** (2013.01 - EP US)

Citation (search report)  
See references of WO 9915543A2

Designated contracting state (EPC)  
AT CH DE FR GB LI

DOCDB simple family (publication)  
**DE 19742227 A1 19990401**; EP 1017708 A2 20000712; US 6225068 B1 20010501; WO 9915543 A2 19990401; WO 9915543 A3 19990520

DOCDB simple family (application)  
**DE 19742227 A 19970925**; EP 9805061 W 19980810; EP 98946308 A 19980810; US 50957900 A 20000613