



(54)

/ ( ) : (i) ; (ii)

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WO - A - 99/05315

DNA) NTP 가 -가 (ssDNA) , / -가 DNA(ds

(i) / ( , NTP 가 NTP DNA ) ,

(ii) (radiation) /

가

2 가 2 -가 DNA 가

( 가 가 ) 가 (SPR)

DNA 가 NTP

, DNA 가 가 / ( moiety ) 가

PCT

" NA RNA " DNA RNA D (PNA)

" " NTP 가 - 가 - 가

(Dean et al, J. Biol. Chem(1992) 267:14129 - 14137; Bramhill et al, Cell(1988) 54:915 - 918; Schions et al, Cell(1988) 52:385 - 395).

20 (Abdel - Monem et al, Eur. J. Biochem.(1976) 65:411 - 449 & 65:431 - 440).

E. coli DnaB 가 (Xiong et al, J. Mol. Biol.(1996) 259:7 - 14). DNA - DNA 가 RNA RNA - 가

T7 gp4 (Egelman et al, Proc. Natl. Acad. Sci. USA, (1995) 92:3869 - 3873). E. coli RuvB (Stasiak et al, Proc. Natl. Acad. Sci. USA, (1994) 91:7618 - 7622), E. coli DnaB (Xiong et al, J. Mol. Biol.(1996) 259:7 - 14) 40 T (Dean et al, J. Biol. Chem.(1992) 267:14129 - 14137)

가

1 (family) (Gorbalenya et al, Current Opin. Struct. Biol. (1993) 3:419 - 429), (Lohman et al, Annu. Rev. Biochem (1996) 65:169 - 214 & Bird et al, Current. Opin. Struct. Biol (1998) 8:14 - 18). (Gorbalenya et al, Current Opin. Struct. Biol. (1993) 3:419 - 429). (Lohman et al, Annu. Rev. Biochem (1996) 65:169 - 214), PcrA (Bird et al, Nucleic acids Res. (1998) 26:2686 - 2693) NS3 (Porter et al, J. Biol. Chem. (1998) 273:18906 - 18914) (Bird et al, Nucleic acids Res. (1998) 26:2686 - 2993) . Rep

Bacillus stearothermophilus가 PcrA (Petit et al, Mol. Microbiol. (1998) 29:261 - 274 & Soultanas et al, Nucleic Acids Res. (1999) 256:350 - 355) Bacillus subtilis (Petit et al, Mol. Microbiol. (1998) 29:261 - 274) Staphylococcus aureus (Lordanescu et al, Mol. Gen. Genet. (1993) 241:185 - 192) . PcrA E.coli UvrD Rep

reflectance fluorescence, TIRF), (attenuated total reflection, ATR), (total internal reflection, FTR), (Brewster) (reflectometry), (frustrate) (scattered total internal reflection, STIR) (ellipsometry)가

(surface acoustic wave, SAW)

(quartz crystal microbalance, QCM)

(SPR)

(phase)

( )

SPR EP - A - 0648328

(NMR)

가

가

" " 가

( , NTP )

가

가 TIRF ,

, SPR

가

가

N -

가

SPR

EP - A - 0589867 Lofas et al, Biosens.

Bioelectron. (1995) 10:813 - 822

, DNA  
(sphere)

(Chu et al, Optical Society of America, Washington, DC, (1990), 8:202),  
(trap) (Ashkin et al, Opt. Lett. (1986) 11:288).

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가

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(Fluorescence energy transfer, FRET) (Ha et al, (1996) Proc. Natl. Acad. Sci. USA 96:89

3), (Fluorescence lifetime microscopy, FLIM), /

(Atomic force microscopy, AFM)

가

1 (RU) (T; sec)

CM5 ( BIAcore F 2000 (BIAcore AB, Uppsala, Sweden)  
, BIAcore AB) 4  
m - (IFC)가

PcrA

Bird et al, Nucleic Acids Res. (1998) 26:2686 - 2693

PcrA

, 280 nM PcrA 0.76 OD mg<sup>-1</sup> mL<sup>-1</sup> cm<sup>-1</sup> Dillingham et al, Biochemistry (2000) 39:205 - 212

Jonsson et al, Biotechniques (1991); 11:620 - 627

(10 mM Hepes, 150 mM NaCl, 0.05% P20 (BIAcore AB, Uppsala, Sweden), pH 7.4) N - (0.1M) N - N' (EDC) (0.1M) PcrA (160 μl) 10 mM (100 μl, pH 5) (CM5) (35 μl, 0.1M, pH 8.5) (5 μl/min) N -

WO - A - 99/05315 SEQ ID No.1 SEQ ID No.2

DNA 0.5 mM 1 - ( ) - (caged) ATP (5' ) (20 mM Tris - HCl, pH 7.5, 8mM MgCl<sub>2</sub>, 4% (v/v) , 5mM (DDT), 40mg ) NPE - ATP - 가 ATP

DNA NPE - 5μl/min PcrA , PcrA/DNA/NPE - ATP

/ , 0.5 mM ADP

DNA

DNA WO - A - 99/05315 , 1 (focusing assembly) (5)

, 0.5 mM 25 30 μl/min 가 (blocking) , 10Hz ATP (5) 260nm

, SPR , SPR p - 가 ATP ADP 가 ATP

, 0.5 mM NPE - ATP (6) 25 30 μl/min , 0.5 mM ADP ATP -

ATP (uncage) , dsDNA (identity)

(57)

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(i) , / ;

(ii)

2.

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3.

1 2 , (ii)

4.

1 2 , (ii)

5.

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6.

/ 가

