

(19)  
(12)

(KR)  
(B1)

(51) 。 Int. Cl. 7  
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(45)  
(11)  
(24)

2003 02 05  
10 - 0371264  
2003 01 23

(21) 10 - 2000 - 0003480  
(22) 2000 01 25

(65) 2001 - 0076071  
(43) 2001 08 11

(73)

1가 751	202 601
245	112
1가 141	204 1003

(72)

245	112
1가 751	202 601
1가 141	204 1003

(74)

:

(54)

-

1

GM - CSF, ,

1 GM - CSF .

2 mGM - CSF .

3 mGM - CSF .

4 .

5 A. niger mGM - CSF .

6 A. niger .

7 mGM - CSF .

(murine) -  
GM - CSF )  
s niger) .

(granulocyte - macrophage colony stimulating factor,  
(Aspergillus

,  
가  
(Aspergillus niger)

1 2  
가 가 가

,  
(GM - CSF) 가 .  
, mGM - CSF 25 GM - CSF ,  
N -

23kDa 124 . GM - CSF  
 GM - CSF (ne  
 utropenia) , (nonneutropenic) - 가 , -  
 가 GM - CSF 가  
 GM - CSF 1993 .  
 , , . A. niger GM - CSF GM - CSF 가 가  
 가 GM - CSF GM - CSF 가  
 , GM - CSF GM - CSF (ELISA) ,  
 M - CSF , G  
 , 3 - (GPD)  
 GM - CSF 1 pANGM - CSF 가 .  
 (Aspergillus niger), (Fusarium oxysporum),  
 (Cryphonectrica parasitica), (Aspergillus nidulans),  
 (Aspergillus awamori) , 가  
 KCTC 0661BP가 .  
 GM - CSF, GPD .  
 (Aspergillus niger) 가 , GM  
 - CSF 가 , GM - C  
 2% (malt extract), 2% , 0.1% CM 가 ,  
 SF (yeast extract), 2% (peptone), 2% (glucose), 100mM NH<sub>4</sub>Cl, 0.6% , 1%  
 가 (urea)  
 pH 가 pH 5.0 - 6.0 , 30 - 37

Louis, MO), Difco Laboratories(Detroit,MI)      Sigma Chemical CO.(St. Louis, MO)  
 Boehringer Mannheim(Mannheim, Germany)

1

15 nM D(+)  
 niger 2 x 10<sup>8</sup> /ml

ATCC2119  
 8 uM

70 mM

500 ml

30, 150 rpm 24 96

가 A.  
 (Fernbach)

GM - CSF  
 M - CSF, A. niger  
 itica)

3 -

3 -

1 pGPD,  
 tGPD

1 mG  
 (C. paras  
 Hyg<sup>R</sup>  
 GM -

CSF cDNA PCR  
 pd) mGM - CSF

pUC19

pGM - CSF  
 600 bp

pGM/tGPD  
 pGM/tGPD

Sall SacI  
 gpd

pGM - CSF KpnI  
 pGPD/hph SpeI

B - 3 - (g)

B (hph)

(Chruchill)

10<sup>9</sup>  
 (0.2 ml/g )

30, 65 rpm 16

(40 mg/g )

1M, 100 mM

4000MW 1

1% DMSO

100 mM

ml 10<sup>8</sup>

STC 4, 50 %  
 - 70

NGM - CSF DNA가  
 가(PDA)

(Churchill)

12 - 18  
 30

800 ug/ml  
 2 - 3

0.5 M  
 (sucrose)

10 ug pA  
 가  
 200 ug/ml

B

(Southern)

(Northern)

DNA RNA . 5 ug DNA 30 ug RNA  
 Hybond - N (Amersham,UK) DNA RNA , UV 가  
 mGM - CSF cDNA

mGM - CSF

, 4 2 2 PBS , 0.2 um  
 , 15.5 ug/ml 100 ul  
 , GM - CSF FDC - P1 D.Metcalf  
 FDC - P1  
 GM - CSF (ELISA)  
 E.coli GM - CSF Endogene Inc.(Woburn,MA)

2

pd - 3 - (gpd) 9  
 0 pANGM - CSF 1 GM - CSF가  
 pANGM - CSF 가 (mock) 10 - 3

RNA

mGM - CSF 7 . 7  
 RNA 3 2  
 mGM - CSF 2 (A) 1 mGM - CSF 0.5kb cDNA ,  
 RNA , 가 , G4 - 1, G6 - 1, G10 - 1, G7 - 1, G8 - 1, G9 - 1 G11 - 1  
 mGM - CSF (B) 2 mGM - CSF  
 pANGM - CSF 가 가  
 mGM - CSF 1, 3 5 G10 - 1  
 RNA (A) 3 mGM - CSF  
 RNA , 4, 5 6 (A) 1, 2 3 가 1, 3 5  
 가 , 3 , GM - CSF RNA 1 (B) , 3  
 가 , , 가 가

G6 - 1 G10 - 1) (G4 - 1,  
 . A, B, C mGM - CSF 4  
 DNA BamH XbaI BamH DNA, Hind 가  
 DNA , 1 2  
 3, 4 5 G4 - 1, G6 - 1 G10 - 1

kb , , 가  
 , mGM - CSF 가 가 cDNA DNA XbaI BamH  
 (G4 - 1, G6 - 1 G10 - 1)  
 4A 가 4B C Hind BamH  
 450bp  
 G6 - 1 , G4 - 1 G6 - 1 G10 - 1 G4 - 1  
 mGM - CSF  
 mGM - CSF GM - CSF FDC - P1  
 가 5 G10 - 1 24 . G  
 4 - 1, G6 - 1 G10 - 1 24  
 가 24 mGM -  
 CSF . CPM PBS [ - <sup>3</sup>H] FDC  
 가 , FDC - P1 가 , FDC  
 - P1 가 5 , , PBS  
 FDC - P1 , PBS mGM - CSF(Pharmingen) FDC - P1  
 SF가 가 mGM - C  
 G10 - 1 가 mGM - CSF  
 가 6 CP  
 M PBS [ - <sup>3</sup>H] , A B 가  
 , 3 5 mGM - CSF G10 - 1 3 6 m  
 GM - CSF 가  
 epstatin) . 0.7ug/ml 10 ng/ml (aspergillopepsin) (p  
 가 , mGM - CSF가 , 30  
 12 . mGM - CSF FDC - P1 ,  
 , GM - CSF 가

mGM - CSF

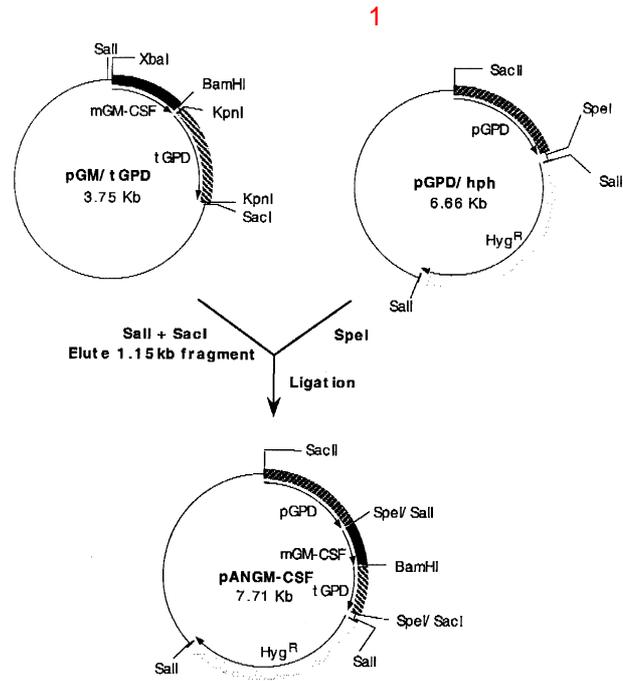
coli 가 mGM - CSF mGM - CSF mGM - CSF 1 G10 - 1 640 ng/L E.  
 가 mGM - CSF . 3 3 1 mGM - CSF ,  
 가 가 . 7 mGM - CSF ,  
 H] mGM - CSF 640ng/L . 7 mGM - CSF ELISA . G10 - 1  
 2.5 가 GM - CSF ng [ - 3

, mGM - CSF 가 , GM - CSF  
 가 .

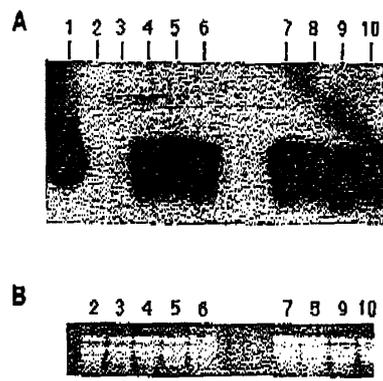
(57)

1.  
( )
2.  
( )
3.  
( )
- 4.

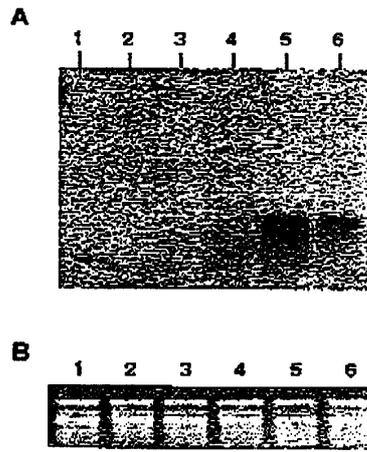
- (Granulocyte - macrophage colony stimulating factor)  
 (KCTC0661BP).



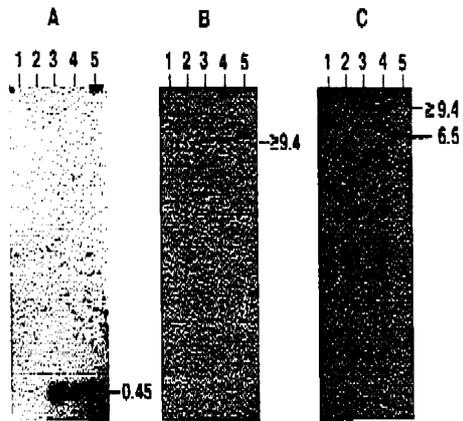
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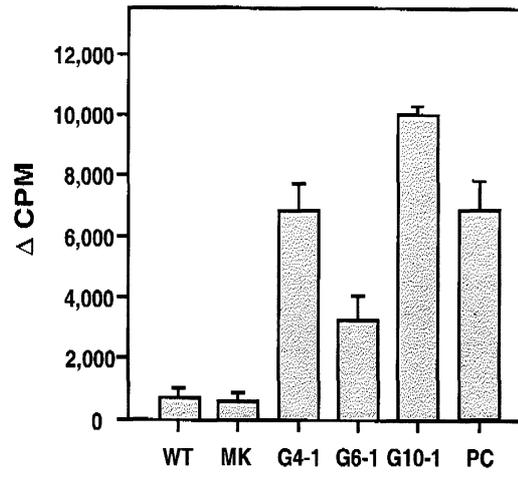
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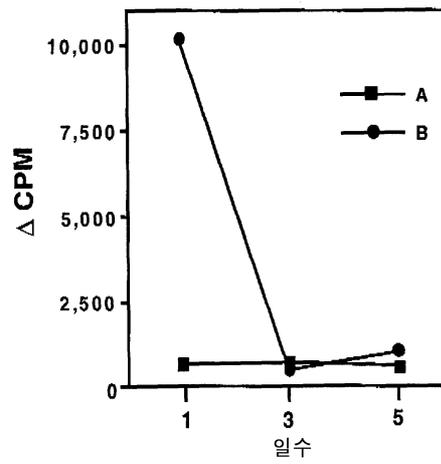
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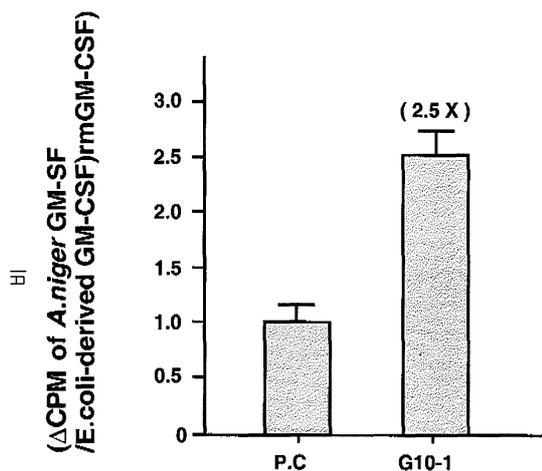
5



6



7



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the vector <1
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<212>      DNA <213>      mouse <220> <221>      gene <222>      (1)..(781) &lt
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ctcaagggcg      300
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agtaccacc tatgcg
att tcatagacag ccttaaaacc tttctgactg      420 atatcccctt tgaatgcaaa aaaccagtcc
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tctgaa      480 tcagcttct cagactgctg cttttgtgcc tgcgtaatga gccaggaact cggaaatttct
540 gccttaaagg gacca
agaga tgtggcacag ccacagttgg agggcagtat agccctctga      600 aaacgctgac tcagcttgga
cagcgggaaga caaacgagag
atattttcta ctgatagga      660 ccattatatt tatttatata tttatatttt taatatatta tttatttatt
tatttaattt      720 tgcaact
cta tttattgaga atgtcttacc agaataataa attattaataa cttttgtttg      780 t

781 <210>      2 <211>      1260 <212>      DNA <213>      Aspergillus niger <220&
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604