

()

1.

가

1).

가

가
가

10

10

1

4,000

270

200

(2 5,000)

가

가

2000

1 가

2).

가

1)

가
1,300

1998

1998

134

15

3,000

1

17% 가

,

100

(1998

)

(NIH),

(NSF),

가

가

가

2)

“

”()

15 20 가 5 ,

가 .

2.

2.1

가 . 가

DNA production, DNA , monoclonal antibody

Genomics

Bioinformatics

3 14

3).

2.2

. 1989 1998 10

(,)

13 7,000 , 가

3 4,400 가 25%

1990

가 . 270 1

4,000 , Consultant

30% 가 , 4 2 가 460

1999 가

1>). 10 (<

(40%) ,

3) 가

가 가 4,000
 3 , 3
 (< 1>).
 < 1> (1999)

< 1>

	가 (1999 10 8)	가 (1999 10 8)	(1998/9)	(1998/9)	(1998/9)	(1998/9)
Celltech	701.3	463.5	208	21.5	24.5	- 3.1
Chiroscience			330	29.2	58.7	- 17.2
PowderJect Pharmaceuticals	564.3	761.5	87	7.3	9.0	- 4.7
SkyePharma	252.3	52.5	279	5.7	27.3	- 22.0
British Biotech	216.3	32.5	376	35.4	47.9	- 39.8
Biocompatibles	217.0	177.5	486	14.9	49.1	- 43.7
Oxford Asymmetry	146.6	355.0	187	0.9	29.7	1.4
Oxford Glycosciences	131.0	352.5	117	13.2	16.1	- 8.7
Vanguard Medica	73.6	222.5	60	21.0	24.3	- 16.0
Cantab Pharmaceuticals	62.3	141.5	127	12.1	13.8	- 7.2
Cambridge Antibody	50.3	199.0	123	9.1	11.3	- 7.0
PPL Therapeutics	40.9	82.5	209	13.5	15.8	- 14.2
Oxford Molecular	32.6	37.5	254	6.6	18.9	1.7
Peptide Therapeutics	30.5	39.0	88	8.1	9.4	- 7.5

: 1) 가 , , .
 2) Celltech Chiroscience 1999 8 Celltech Chiroscience .

2.3.1

가
 ,
 ,
 70% 90%가
 ,
 25% (가 5% 가 400)
 ,
 가,
 , 6 가 GDP 0.6% GDP 3%
 , 1998 59 (가 1/3)
 , 24
 , 3 , 15%
 , 25%
 7% (115), 가 10%
 , 1/3
 가 (< 2>).

< 2>

		(1998)		
Glaxo Wellcome	14,000	13.2		/R&D
AstraZeneca	15,000	12.7	/	/R&D
SmithKline Beecham	8,300	7.7	/	/R&D
Pfizer	3,400	11.8		/R&D
Bayer	3,000	4.8		R&D
Rhone-Poulenc Rorer	2,500	5.4 (1997)	/	/R&D
Roche	2,500	8.1		/R&D
Eli Lilly	1,750	8.6		/R&D
Abbott Laboratories	1,750	7.1		/R&D
American Home Products	1,500	8.1		/R&D
Novartis	1,400	10.0		/R&D
Merck, Sharp & Dohme	1,300	15.3		/R&D

: , 10 .

2.3.2 (Diagnostics)

가 가

(< 3>).

200

3

1.5%

가

250

< 3>

Radio immunoassay	1953	/
Enzyme labels(ELISA)	1972	
Monoclonal antibodies	1975	
Flow-through membranes	1976	
Time-resolved fluorescence	1979	
Enzyme amplification	1980	
Chemoluminescence	1980	
Enhanced luminescence	1982	
Biosensors	1970	/ / /
DNA fingerprinting	1984	
PCR amplification	1985	
Immunochromatography	1986	/
DNA chip	1991	/
Lab on a chip	1993	/

2.3.3

가

가

NHS(National Health Service)가

가

1999 4

(National Institute for Clinical Excellence;

NICE)가

2.3.4

가, 가
 , GDP 8.9%
 320 가
 , GDP 2.6%
 GDP 1990
 5% 20 90 25
 1,000 가
 가

< 4> (1997)

	(1,000)	가 (10)	GDP (%)
	527	7.6	1.1
	19	0.6	0.1
	450	18.8	2.6
	215	5.7	0.8
	894	19.2	2.7
	1103	11.4	1.6

2.3.5

가 , 330 , 40 가
 60 , 40 (Speciality chemicals)
 (Chemicals manufacturing)
 . OECD
 가

2.3.6

가 , , , , 가

가
가

(2000 20%) , 100
6,000

3.

, 1999

가

가 가

(R&D tax credit) ,

University Challenge, Science Enterprise Challenge, Faraday Networks, Reach Out Funds, DTI Enterprise Fund, Enterprise Management Incentives

가 (DTI)

- LINK, SMART, EUREKA, EC Framework Programme

(70)

- Biotechnology Mentoring & Incubator(BMI)
- Biotechnology Finance Advisory Service(FAS)

•

for Biotechnology Initiative

Manufacturing

•

BIO-WISE