



1. , ,
(),
가 가 .
3
4
가
19
36%가, 45 - 65 53%가
가 1
가 2
가
가
17 84%가
가
30,000
가



2002
()
2002



1990 ()
1992 ()
1999 University of Michigan
()
1999
2000
2001

Teeth Regeneration Using Biomaterials

(Eui Ri Jo and Byung Soo Kim, Division of Chemical Engineering, College of Engineering, Hanyang University, 17 Haengdang - dong, Seongdong - ku, Seoul 133 - 791, Korea)

가 (470 MPa),

5

2.

가

가

가 , (enamel), (dentin),
(pulp)

가

96% , 3%

(composite)

1% enamelin

70% , 20%

6

, 10%

(polymeric dental restorative material, PDRM)

가

(odontoblast)가

가 PDRM

가

가

가

PDRM

가

2.1

PDRM

가

, X -

7

가

가

가

¹²

가

¹³

2.3

3가

PGA, (alginate)

가

가

(primer)

가

가

GPDM, NPG - GMA, Phenyl P, PMDM,
4 - META, BPDM

가

30%

15~30

가

(hyperemic)가

가

¹³

17%가

(pulpotomy),

(pulpectomy)

가

가

zinc oxide euginol

etching, priming, bonding

가

가

Mooney 14

PGA
12

. PGA

가
(97%)

가

, PGA

(guided tissue regeneration ; GTR)
(1)

가

가

가

가

가

가

16

가

3.

가 10 - 15 mm

3.1

(alveolar bone)
dental ligament)

(perio -

가

가

가

가

가

15

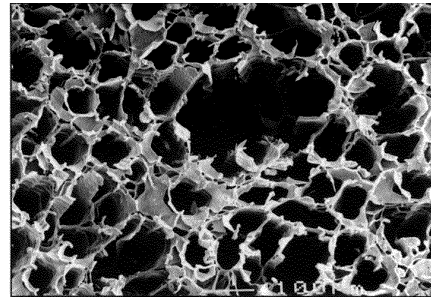
가

()

genitor cells

pro -

가



1. PLA

ePTFE(expanded polytetrafluoroethylene)가

가

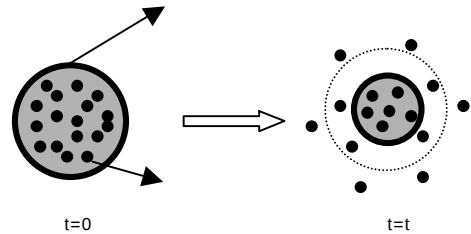
가 4~6

(gingival recession,)

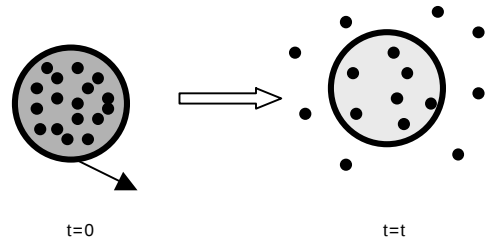
ePTFE

polyglycolic acid(PGA), polylactic acid(PLA), poly(lactic - co - glycolic acid)(PLGA)가

가



(a)



(b)

2.

, (b)

. (a)

가,

가

가 PLGA lactide glycolide

17

가

18

PLA가

19

ePTFE

20

3, PLGA

21-23 PLA

PLGA

24,25

PLA (alginate)

PLA

(TGF - b)

100

6

GTR

26

3.2

(controlled drug delivery)

(drug delivery vehicle)

cle)

(24)

27

가

28

29

가

(2).

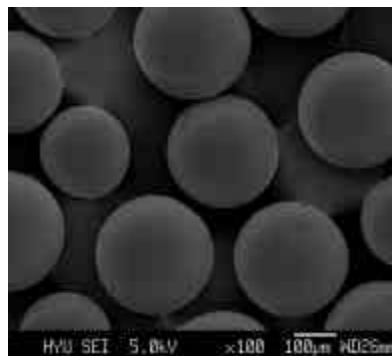
가

(bulk degradation)
(surface degradation)

27

가

가



3. PLGA

가

poly(ethylene - co - vinyl acetate)
tetracycline hydrochloride
(root planing,

poly(ethylene - co -
vinyl acetate)^{30,31} (Ciancio *et al.*, 1992; Goodson
et al., 1991), acrylic strip,³² ethylcellulose³³

가

)³¹ Chlorhexidine,
metronidazole, tetracycline acrylic strip⁴¹

, ethylcellulose strip chlorhexadine 4

2

PLGA가

, tetracycline 7 - 10

34,35

42

가

Baker³⁴

PLGA
tide glycolide

lac -

tetracycline PLGA (3)
polyoxypropylene - polyoxyethylene

17

glyceride³⁶ alginate³⁷

sanguinarine, doxycycline Dunn⁴³
PLA
N - methyl - 2 - pyrrolidone

28

, 7 - 10

3.2.1

tetracycline, doxycycline, metronidazole

가

가

가

38 - 40

100

minocycline PLGA

tetracycline⁴⁴
 가 osteoblast chemo -
 tactic effect, anti - collagenolytic activity가
 , PLLA(poly(L - lactide)acid) 가
 PGA(poly(glycolide)acid)

4

3.2.2

가
 (fibroblast growth factor(FGF))
 (platelet derived growth factor
 (PDGF))
⁴⁶ Transforming growth factor(TGF)

(insulin - like growth
 factor(IGF - 1))가

가

가

⁴⁸
 bone morphogenetic proteins
 (BMP) ⁴⁹ BMP (mesenchymal

precursor cells)가

⁵⁰

BMP

^{51,52}

Sigurdsson(1995b)

BMP

⁵³ ePTFE

. BMP

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