

# 조혈계 줄기세포 치료의 추세와 전망

## Current Trends and Prospect of Cell Therapy using Hematopoietic Stem Cells

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### Abstract

Stem cell therapy is providing a new paradigm of medical approach in many intractable diseases by regenerating injured or degenerated tissues and is opening the era of regenerative medicine. While the validity of newly discovered multipotentiality of various stem cells are still under investigation, scientists are making a significant progress in the medical application of stem cell therapy in the area of adult stem cell therapy, particularly using the hematopoietic and mesenchymal stem cells. These hematopoietic stem cells could be useful in cell therapies for liver diseases, heart diseases and neuronal diseases. Furthermore, due to their ability to induce donor - specific immune tolerance, these cells can be used in organ transplantation and autoimmune diseases. With further development of a high - performance cell therapeutic strategy, more intractable disease will be managed by stem cell therapy.

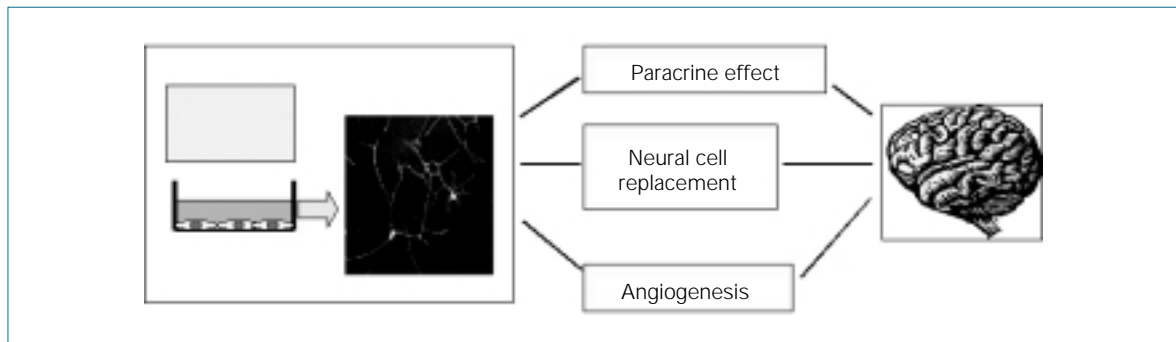
**Keywords :** Cell therapy; Hematopoietic stem cell; Mesenchymal stem cell; Immunology application

,  
 ,  
 (site - specific differentiation) 2001 Krause  
 (2).  
 (trans - differentiation) PKH  
 (plasticity of stem cells) 가 . ,  
 가 가 ,  
 .  
 (hematopoietic stem cell) .  
 (mesenchymal stem cell)  
 가 ,  
 .  
 가  
 가 (non - hematopoietic  
 lineage)  
 1. 가 가 , 가 ,  
 2. (From Bone Marrow to Liver)  
 2000 Lagasse  
 (3)  
 가 2000 Clarke (1), 가  
 가 (neurosphere) FAH(fumaryl aceto-  
 acetate hydrolase) 1  
 , NTBC  
 tyrosinemia hepatotoxicity  
 가 ,  
 (notochord), (mesone- (Sca - 1 + CD34 + CD45 + ) NTBC  
 phron) 50% 가

(8).  
 , EGFP(enhanced green fluorescent protein)  
 30~50% (c - kit + Lin - )  
 Sca - 1+ Lin - ) (CD45+)  
 68% 가 EGFP  
 (c - kit - , Lin+)  
 G - CSF(granulocyte - colony stimulating factor)  
 가 hepatocyte  
 (spontaneous cell fusion)  
 (4, 5), (9).  
 Jiang  
 48  
 (6). remodeling 가  
 2000 Alison (7)  
 Y 가 (neovascularization)  
 가 (endothelial progenitor cell, EPC)가  
 , Kocher  
 Y 가 extra- (10) CD34  
 hepatic tissue 가  
 ( 5%) 가

### 3. (From Bone Marrow to Cardiovascular System)

가  
2001 Orlic



1.

4.

(From Bone Marrow to Nervous System)

가

, Hofstetter

. Mezey (13)

1

Brazelton (11, 12)

microglial cell

debris

hematopoietic origin

filament protein astrocyte NeuN, neuro-GFAP GFAP neurofilament

Li (14) cerebral stroke

가

BrdU

가

20%

가

가

5% 가

action

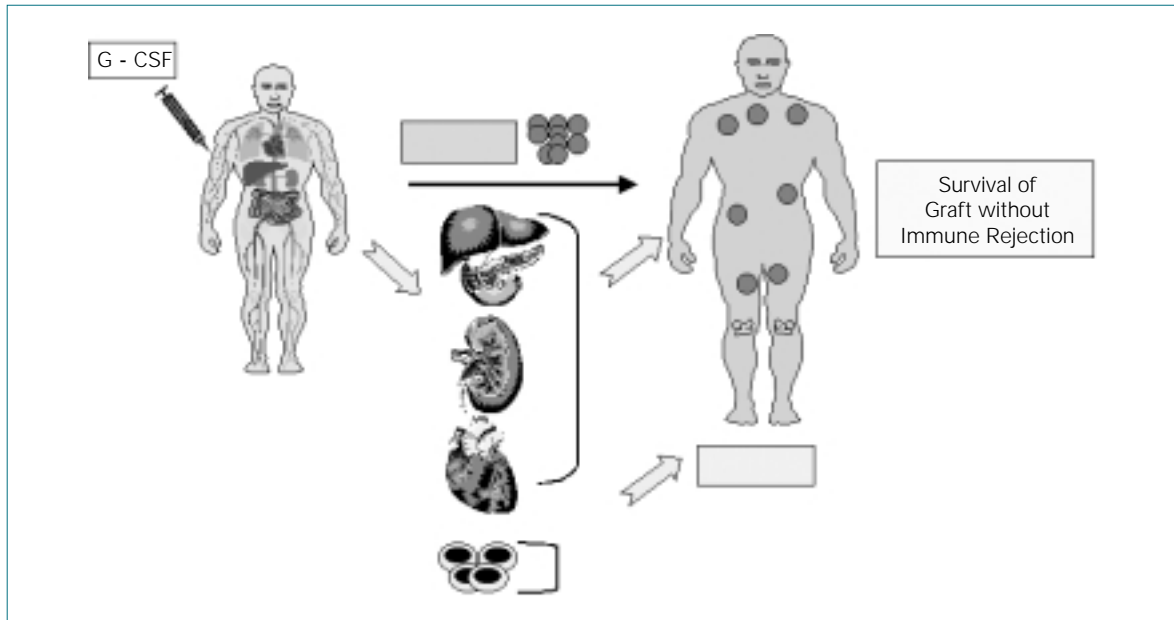
potential

가 . alloreactivity가 T , cerebral veto cell stroke CD34 paracrine effect, vasculogenic immune response effect가 ( 1).

5. , 가 , 가 (Mintransplantation, or Non - myeloablative Stem cell Transplantation, NST) 가 가 , 가 .

6. : 가 가 ( 2).

7. non - self self donor - specific tolerance가 Shizuru (15) 가 3 (allogenic lymphocyte) LAK(lymphokine activated killer cell)



2.

가

effector cell

(

3). CML(chronic myelogenous leukemia)

8. 가

가

non - self

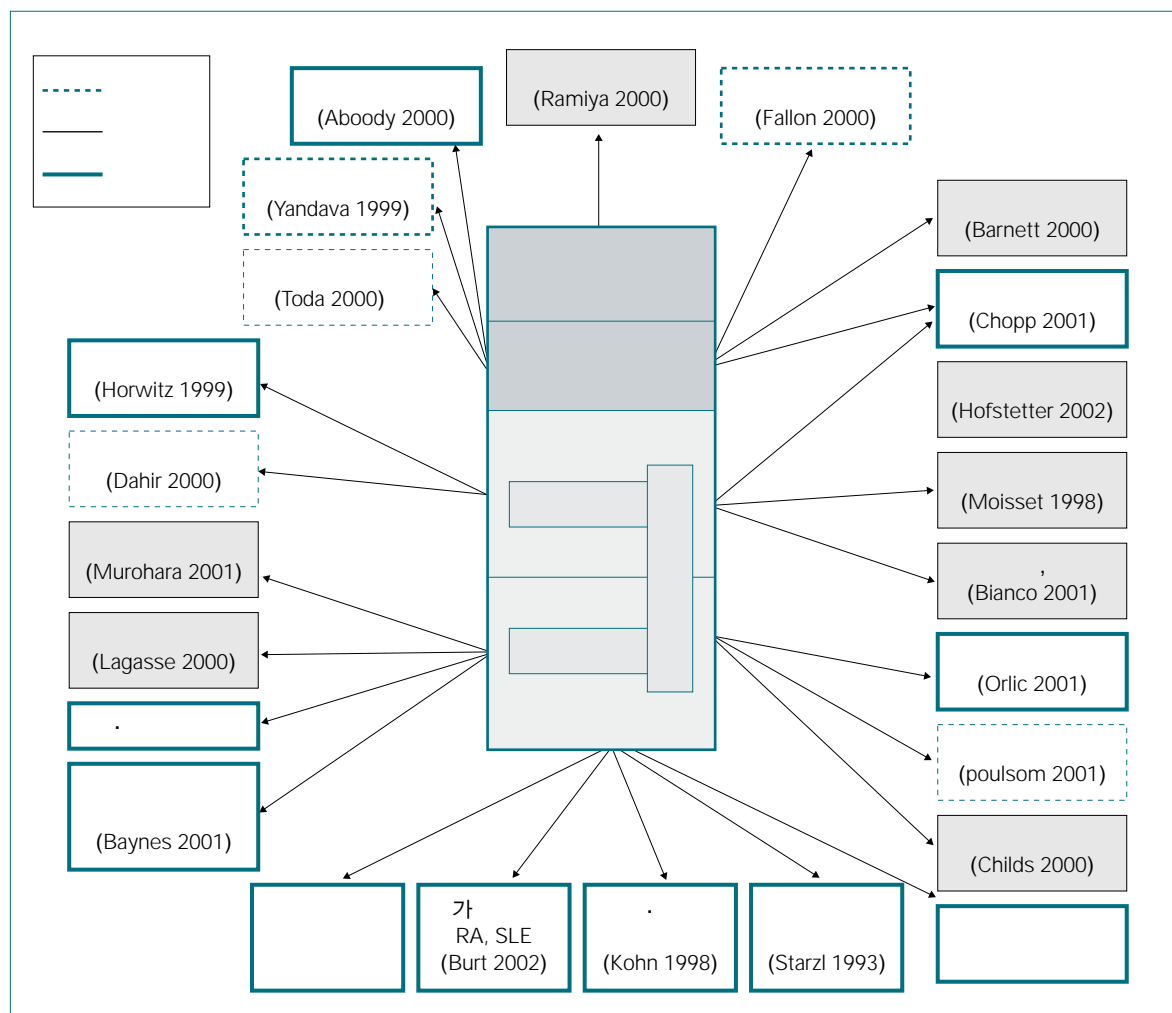
가

가

가

1. 가 가

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3.

allogenic stem

cell transplantation 가 ( 1).

가 가

(sys- 9.

temic lupus erythematosus) 3

가 (allotransplantation)

가

가

가 . 3

가 . 가  
가 ,

가

가

가                      가                      .                      가

가

30kg

가

가



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