Tissue Engineering in China

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Previous Review on Tissue Engineering in China

1. Zhou Xiang and Myron Spector
   A Glimpse of Tissue Engineering in China,
   Tissue Engineering, V8 No.2 2002.
   ---- A Review based on First International Conference on Biomaterials (China), Beijing, 2001

2. WEI LIU, LEI CUI, and YILIN CAO
   A Closer View of Tissue Engineering in China: The Experience of Tissue Construction in Immunocompetent Animals
   Tissue Engineering V9, Suppl. 1, 2003
   ---- A Review based on 973 Program: Basic Scientific Problems in Tissue Engineering
Conference & Symposium on Tissue Engineering
Held in China

- **1997**: The First Symposium on Tissue Engineering, Beijing
- **1999**: The First National Conference on Tissue Engineering, Shanghai
- **2000**: The Second National Conference on Tissue Engineering, Guangzhou
- **2004**: China Forum on Tissue Engineering,
the National High Technology Research and Development Program of China (863 Program)
Tissue Engineering (2002-2005)
Including 11 projects and 1.5~2 million RMB (about 200,000~250,000 $) each.

National Key Basic Research and Development Program (973 Program)
Basic Scientific Problems in Tissue Engineering, about 40 million RMB (about 500,000$) totally (1999-2004)
Cao YL, Shanghai Tissue Engineering Centre

National Natural Science Foundation of China (NSFC)
- Totally 95 Projects on Tissue Engineering up to now: 0.1~0.3 million RMB each,
- E.g.
  - 39870805/C03030306 Application Research on Peripheral Nerve Repair Based on Tissue Engineering Strategy, Gang Cheng Zhongshan Medical Univ. 120,000 RMB
  - 30270393/C010515 Control Release of Growth Factor in Tissue Engineering, Daping Quan, Zhongshan Univ. 200,000 RMB
  - 39970731/C03030304 Study of Prosthetic Heart Valve Autograft, Shengshou Hu, Chinese Medical Academy, 120,000 RMB
  - 30170934/C03030304 Fabrication of Small-caliber Prosthetic Vascular Graft Based on Tissue Engineering Strategy, Yuqing Wu, Chinese Medical Academy, 200,000 RMB
  - 30170256/C010509 Biodegradable Polymer Scaffold for Tissue Engineering Urinary Bladder, Changyong Wang, Military Medical Academy of PLA, 180,000 RMB
The State Hi-tech Industrialized Demonstrative Project
50~100 million RMB each

- Biodegradable Poly-lactic acids as Biomedical Materials & Series device
- New Orthopaedics Repair Materials-Bone Youdao (main component is rhBMP-2)
- Neuron Growth Factor
- Epidermal Growth Factor
- Bioactive Hard Human Tissue (Bone, Articulation, Teeth) Repair Materials

Major Tissue Engineering Research Center

<table>
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<tr>
<th>Location</th>
<th>Institute</th>
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| Beijing  | Tsinghua University  
           | Institute of Mechanics, Chinese Academy of Science  
           | Institute of Chemistry, Chinese Academy of Science  
           | General Hospital of People’s Liberation Army  
           | Academy of Military Medical Academy |
| Chengdu  | West China Medical Center, Sichuan University |
| Chongqing | Third Military Medical University |
| Guangzhou | First Military Medical University  
           | Medical Center, Jinan University  
           | Medical Center, Zhongshan University |
| Hangzhou | Zhejiang University |
| Shanghai | Shanghai Second Medical University  
           | Shanghai Tissue Engineering Research and Development Center  
           | Eastern China University of Science and Technology  
           | Fudan University  
           | Institute of Silicates, Chinese Academy of Science  
           | Second Military Medical University |
| Tianjin  | Tianjin University |
| Xian     | Fourth Military Medical University |
Recent Books on Tissue Engineering

Photos of three book jackets removed for copyright reasons.

Chinese Worker’s Research Field

- **Bone engineering**
  - Liao SS, Cui FZ et al. In vitro and in vivo degradation of the mineralized collagen based composite scaffold:nHAC/PLA. Tissue Engineering, Accepted.

Photo removed for copyright reasons.

Osteoblast cultured on nHAC/PLA for 12d

**Cartilage engineering**

**Tendon engineering**

**Skin engineering**

**Cornea engineering**

**Vessel engineering**

**Peripheral nerve engineering**

**Brain Tissue Engineering**
- Cui FZ, Tian WM, Fan YW et al. Cerebrum repair with PHPMA hydrogel immobilized with neurite-promoting... *J. Bioactive & Compatible Polymers* 18(2003)413