



Keywords

Multidisciplinary field
Medical-engineering
collaboration
Tissue Engineering
Cell sheet engineering
Thermoresponsive
cell culture dish

再生医療の現状と未来展望

Current status of regenerative medicine and future perspective

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Summary

Achievement of regenerative medicine requires multidisciplinary approaches including medicine, biology, pharmacy, basic science, and engineering. However, the current system for research and education in most of Japanese universities belongs to traditional faculties and departments. For training of researchers in regenerative medicine, the formation of research and educational centers to bridge multidisciplinary fields is essential. Our unique approach, cell sheet-based tissue engineering, has been developed through long years of medical and engineering collaborations, and currently applied to several treatments. In this review, we describe the significance of fundamental technology to realize cutting-edge regenerate medicine on the basis of our experience, and discuss about future perspectives of regenerative medicine.

はじめに

近年の医薬・医療技術の進歩は目覚ましい。20世紀から続く、従来の低分子医薬品開発には有機合成、大量生産に化学工学が大きな貢献を果たしてきた。インスリンやインターフェロン、抗体医薬など、遺伝子組み換えタンパク質によるバイオ医薬品は、分子生物学や細胞生物学に加えて、遺伝子工学、細胞工学などのバイオテクノロジーの発展によって可能となった。21世紀に入ると、細胞そのものを医薬品として用いるようになり、さらに組織工学、ドラッグデリバリーシス

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