



### Keywords

オルガノイド  
iPS 細胞  
微小環境  
自己組織化

## オルガノイド研究の動向と可能性

*New trends and perspectives in 3D-organoid research*

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### Summary

Through developments in stem cell research, techniques have been established using human iPS cells and ES cells to artificially produce three-dimensional structures (organoids) which possess structures similar to biological tissues. Most organoid formation follows self-condensation and self-organization as it occurs during early development. Since organoids have structures and functions similar to those of biological tissues, various applications are anticipated.

In this article, the formation mechanism of organoids will be presented and changes in organoid research based on developmental biology will be described. In addition, recent trends and possible applications in medicine for organoids of the brain, intestine and liver, where advancement has been remarkable, will be introduced. It is anticipated that this article may help to outline the scope for future organoid research.

### はじめに

幹細胞研究の発展により、ヒトのiPS細胞(induced pluripotent stem cells)やES細胞(embryonic stem cells)を用いてオルガノイド(Organoid)と呼ばれる生体組織と類似した三次元組織を人為的に形成する技術が確立されてきた。オルガノ

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