

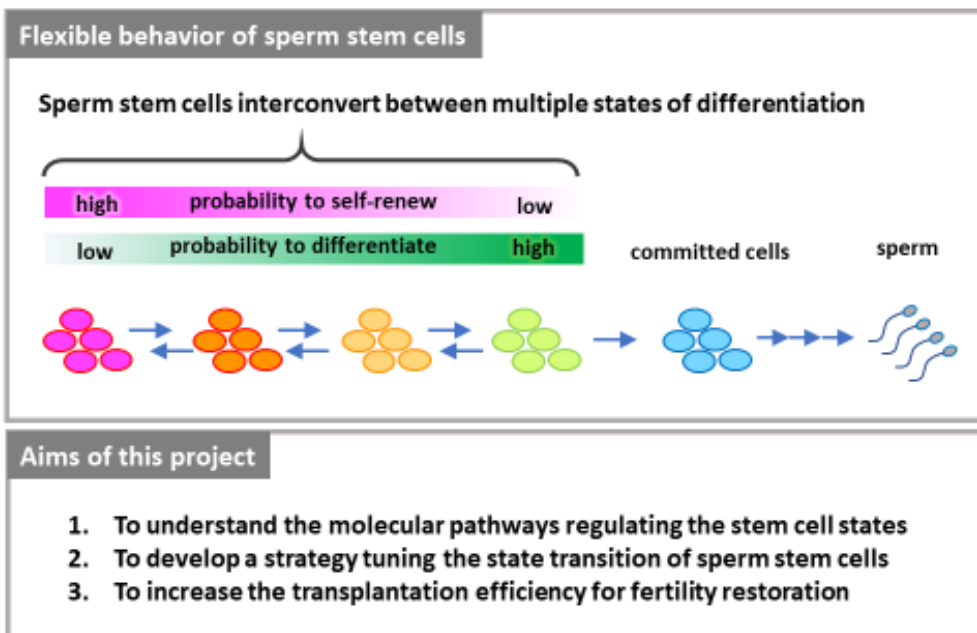


Harnessing spermatogonial stem cell flexibility to increase transplantation efficiency

YOSHIDA Shosei

Professor, Division of Germ Cell Biology, National Institute for Basic Biology

In the testis, numerous sperm are produced based on the function of sperm stem cells, ensuring the success of reproduction. Transplantation of sperm stem cells reconstitutes spermatogenesis in the host testis whose germ cells have been depleted. However, current transplantation efficiency is not necessarily high enough for practical use. Through careful examinations of the behavior of sperm stem cells in the host testes, we have revealed that the self-renewing and differentiating states cannot be distinguished clearly. Rather, stem cells maintain persistent spermatogenesis through continual inclining toward differentiation and returning to undifferentiated states. This international research project involves researchers in Japan and in the United Kingdom and aims to conduct detailed analysis of such state changes of sperm stem cells, and to reveal the molecular mechanisms that control such state conversions. Based on these achievements, we will further tune the balance between self-renewal and differentiation of donor stem cells and augment the efficiency of spermatogenesis restoration. The results would develop a strategy to improve the infertility treatment and/or fertility restoration following disease treatment.



【URL】 <http://www.nibb.ac.jp/germcell/>