

Technology to generate pluripotent stem cells from differentiated somatic cells

[Science](#), [Biology](#)



Pluripotent stem cells have been obtained from adult somatic cells using a process of reprogramming by employing the use of various well-defined factors.

Context

The Mbd3/NuRD complex needed for the above conversion is needed for the development of pluripotent cells. Kaji K, Caballero IM, MacLeod R, Nichols J, Wilson VA and Hendrich B carried out further research and showed that ES cells lacking Mbd3, though viable, were unable to silence the gene expression prior to embryo implantation. Yamanaka and Takahashi converted adult somatic cells in mice to iPS cells through the forced expression of four factors, Oct4, Sox2, Klf4 and c-Myc.

Research Proposal

I hope to further investigate the role that epigenetic silencing plays in pluripotent cells. This field of research still remains open for the purpose of further study and I would like to work on a cell line of mouse ES cells that have retained their pluripotent nature to understand the underlying process of gene silencing and defined genetic program repression in them. The role that the Leukemia Inhibitory Factor (LIF) plays in developmental lineages would also be a part of the research study.