

## **Nuclear reprogramming and cell replacement prospects.**

**J. B. Gurdon**

Wellcome Trust/Cancer Research UK and University of Cambridge, UK

The different cell types that compose our bodies are remarkably stable. Hardly ever do we find skin cells in the brain or liver cells in the heart. In those very special cases where some regeneration can take place in vertebrates, there is little if any evidence for a switch in cell-type. Nevertheless, nuclear transfer, cell fusion, and induced pluripotency can result in pluripotent embryo cells being derived from specialized adult cells. This talk will summarize the original nuclear transfer experiments and explain how they have led to induced pluripotency by transcription factor overexpression. The combination of nuclear transfer, embryonic stem cells, and induced pluripotency give encouraging prospects for the eventual use of cell replacement therapy. The prospects and limitations of this field will be discussed.