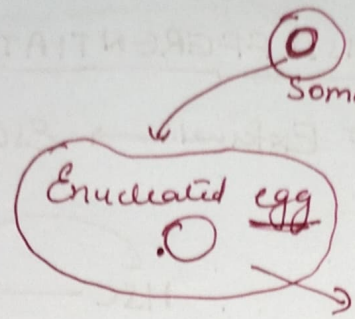
Somatic Cell Nuclear Transfer



Nuclear Reprogramming → Yes.

Embryonic stem cell

Transplantation

* Autologous
  - Self
  - No rejection
  - No immune r^n.
  - Accepted
* Allogenic
  - Same sp but different individual.
  - * Rejection
  - * Immune reactions
  - * Difficult to obtain
* Xenogenic
  - Pig → Human

Blastocyst (embryo)

Pluripotent stem cells
Inner cell mass

Ecto Meso Endo

ESCs ✗

SCNT
- Laboratory Conditions
- Inducing somatic nucleus → Zygotic nucleus

Induced pluripotent Stem Cell

Zygote → All the Blastocyst stages → Mature Individual

Nuclear Reprogramming → Possible

External factor → Egg

Inner cell mass Pluripotent Stem cells (ESCs)

External factor → Somatic nuclei → Dedifferentiation → Rediff.

iPS cell
INDUCED PLURIPOTENT STEM CELL

TRANSDIFFERENTIATION

Fibroblast → External → ESC.

Egg → Zygote

HSC → MSC

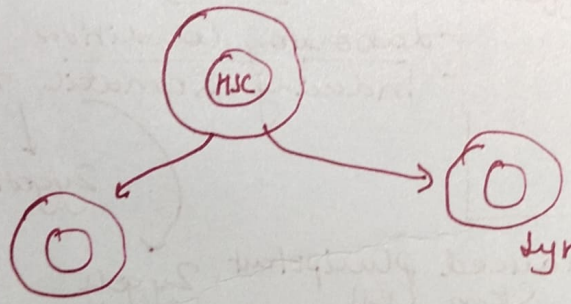
Transdifferentiation

Connective tissue → Mesoderm.

Multipotent

- Hematopoietic Stem Cell
  - Bone marrow
    - RBCs
    - WBCs
    - Platelets
  - Lineage
    - System defined
    - Cell types will be defined
    - Trace the progeny

- Mesenchymal Stem Cell
  - Bone
  - Cartilage
  - Adipocytes



Myeloid Progenitor

- RBC Erythrocyte →
- Neutrophil
- Monocyte
- Eosinophil
- Basophil
- Megakaryocyte
- DC ?

Lymphoid Progenitor.

- Tcell → T_H, T_C
- Bcell → Treg
- NKcell
- DC ?

HSC → Lineage Tree