



Cord Blood Stem Cells

O
R
I
E
N
T

H
O
S
P
I
T
A
L



Marwan Alhalabi MD. PhD

**Professor in Faculty of Medicine
Damascus - University**

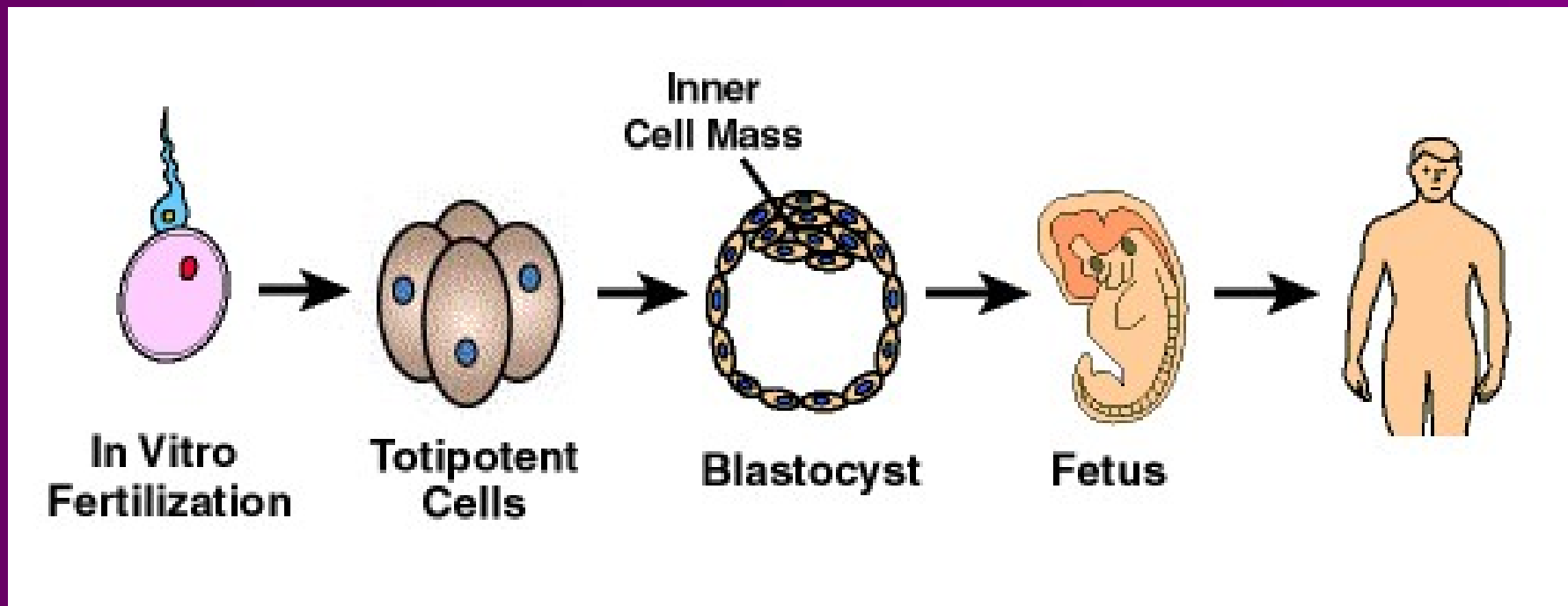
And

**Medical Director
Orient Hospital
assisted Reproduction center**



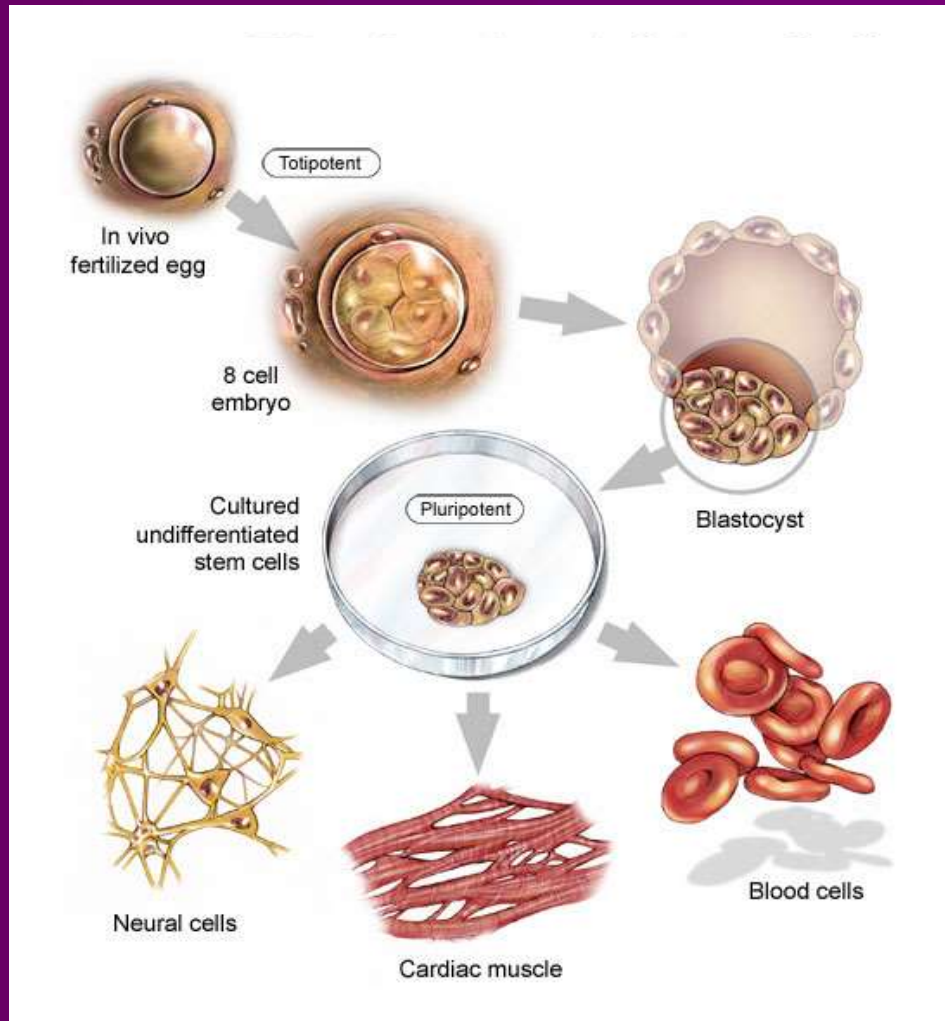
What are Stem Cells?

Cells that have the ability to divide and differentiate into other cell types





Types of Stem Cells



- **Embryonic stem cells**

Derived from the blastocyst, which is a very young embryo shaped like a hollow sphere that contains 200-250 cells (pre-implantation embryos)¹

- **Adult stem cells**

Misnomer, can be found in children and infants too
Derived from the umbilical cord and placenta, or from blood, bone marrow, skin, or other tissues



Stem Cell Potency

Differentiation potential

Totipotent

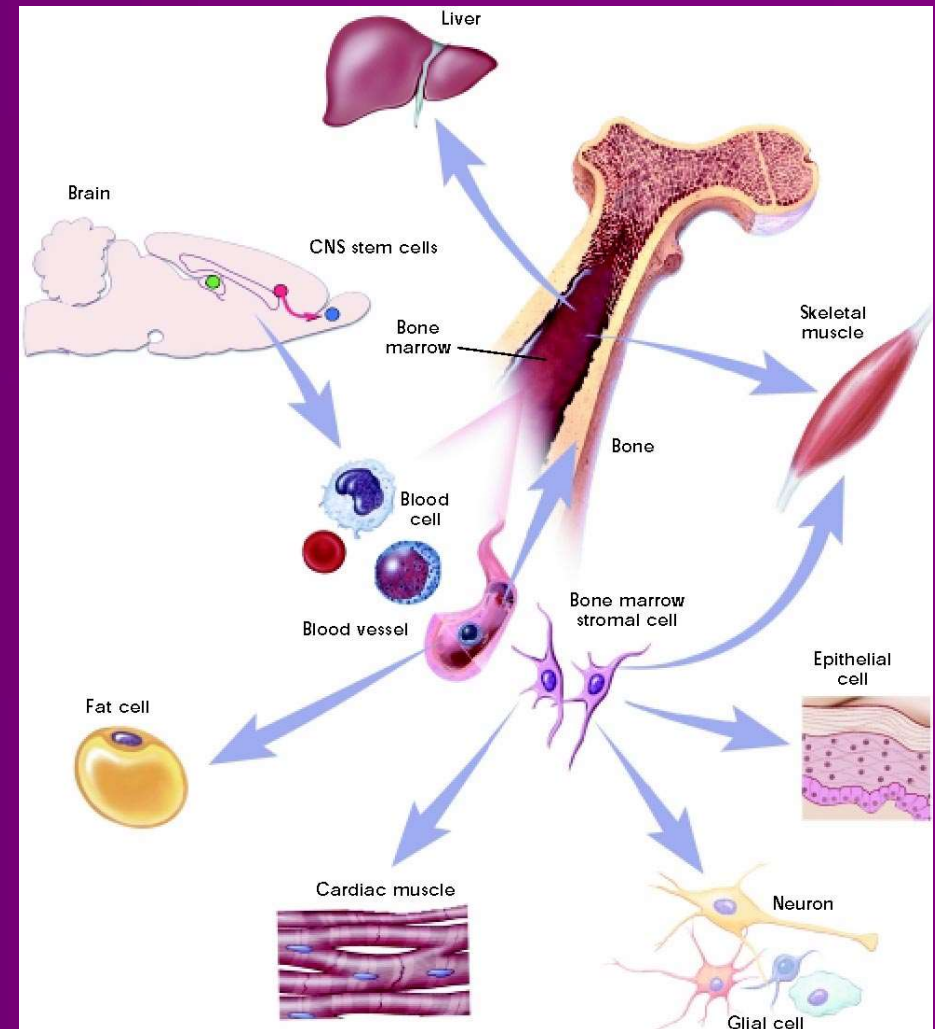
- Can be any type of cell in the body

Pluripotent

- Can become almost any kind of cell in the body (an example would be fetal cells)

Multipotent

- Can differentiate into only a limited range of cell types (examples include umbilical cord and adult stem cells)





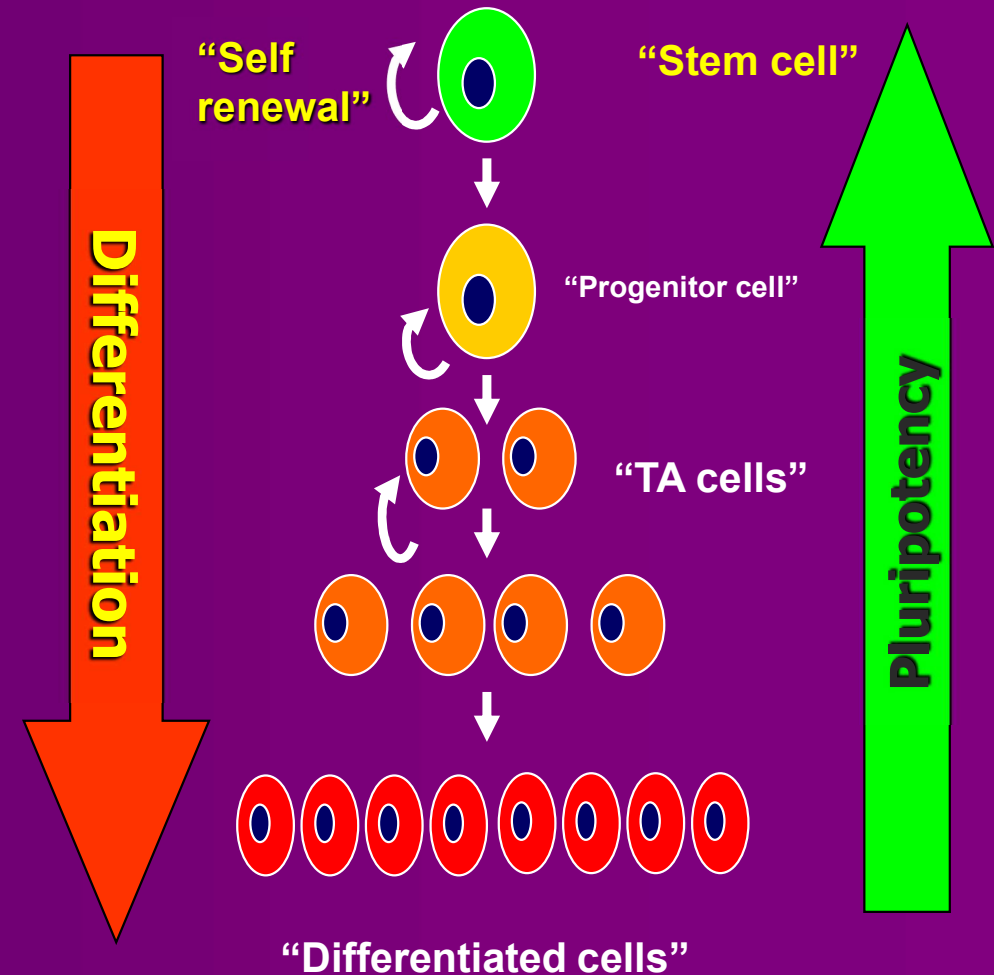
Kinds of Stem Cells

Stem cell type	Description	Examples
Totipotent	Each cell can develop into a new individual	Cells from early (1-3 days) embryos
Pluripotent	Cells can form any (over 200) cell types	Some cells of blastocyst (5 to 14 days)
Multipotent	Cells differentiated, but can form a number of other tissues	Fetal tissue, cord blood, and adult stem cells



What makes this cell special ?

- Plasticity or ability to differentiate
- Ability to divide continuously
- Immunological immaturity





O
R
I
E
N
T

H
O
S
P
I
T
A
L





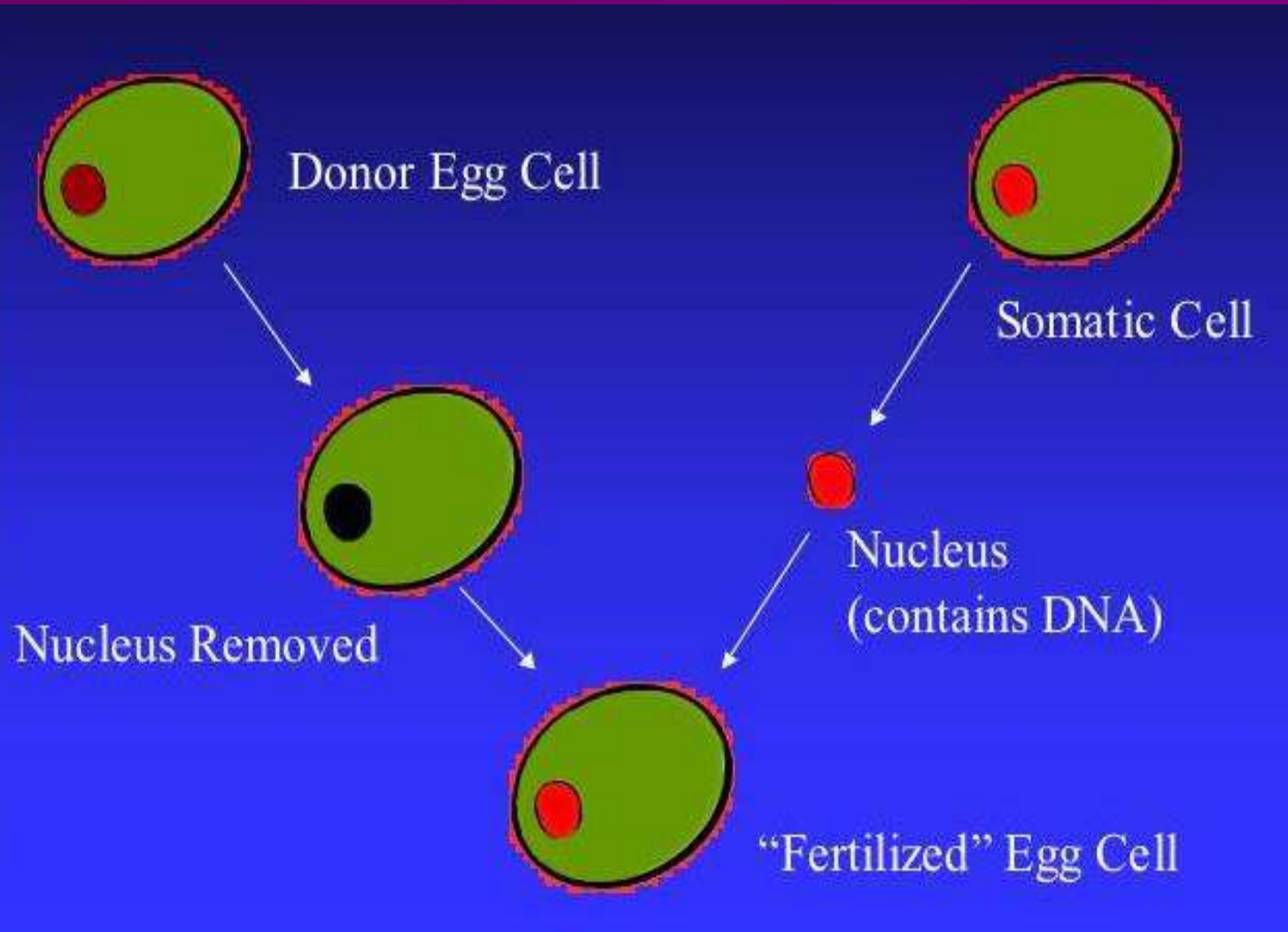
O
R
I
E
N
T

H
O
S
P
I
T
A
L





Cloning



Dolly

1st experimentally cloned animal



O
R
I
E
N
T

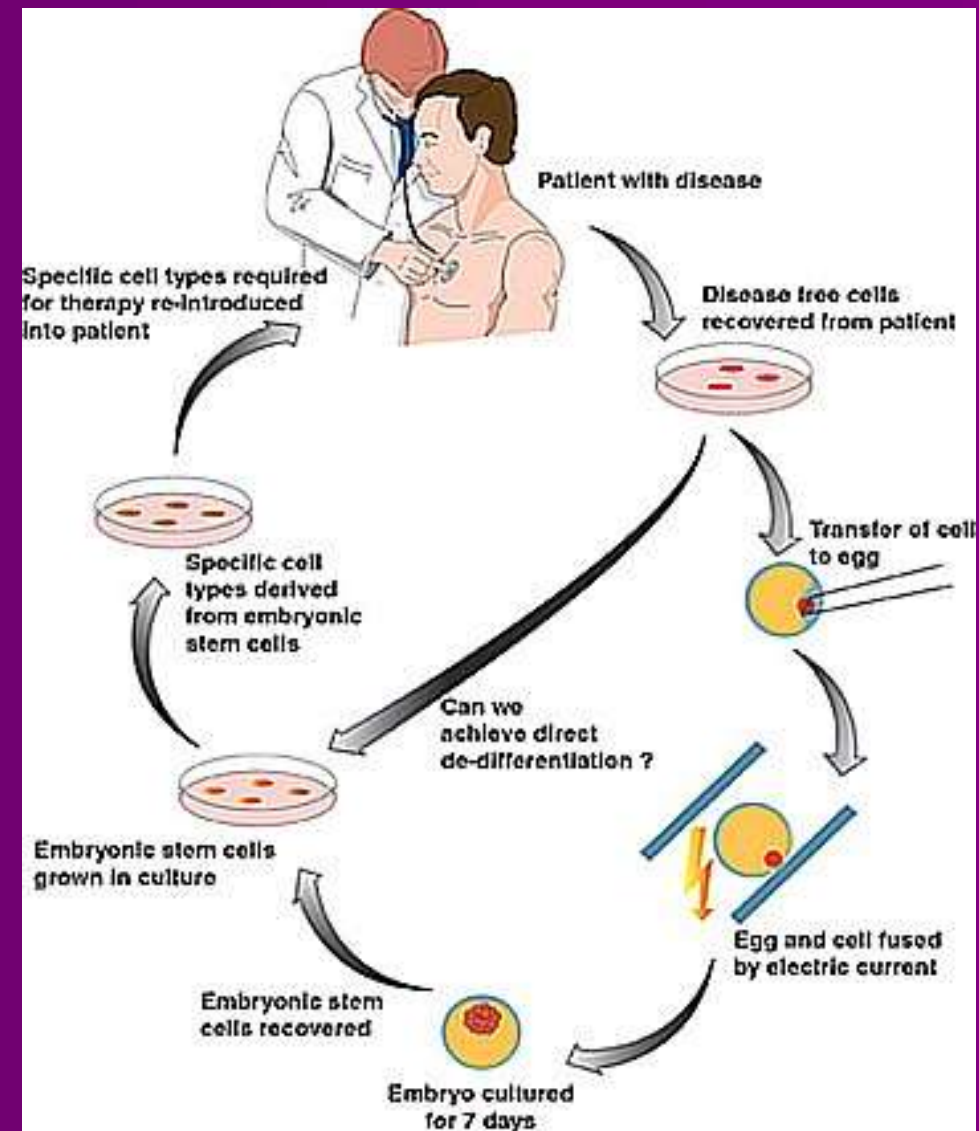
H
O
S
P
I
T
A
L



Therapeutic Cloning

2. Induce cells to develop into specific cell type that patient needs

1. Make embryonic stem cell line from patient





Cord Blood Banking

- **Duration** – Under 5 minutes
- **Volume** – 50 – 150 ml
- **Method** – Gravity or syringe
- **Timing** – After clamping of cord, before or after delivery of the placenta
- **Delivery** – Vaginal or Caesarian



Acknowledgement

S. AL SAMAWI

MD. Gyn. Obs.

A. TAHA

MD. Gyn. Obs.

M. ABDUL WAHED

MD. Gyn. Obs.

J. SHARIF

Senior Biologist

N. ABO HASSAN

Andrologist

D. GHRAWI

Executive Secretary

N. OLABI

Presentation Design

F. HAMAD

Administration Manager

A. ALKHATEB

M.D Micro Biologist

R. ALKHATEB

MD. Gyn. Obs. Ph. D.

Join us in cradle civilizational

MEFS

DAMASCUS 2010



Thank You

The 17th Annual Meeting of
The Middle East Fertility Society



Thank You