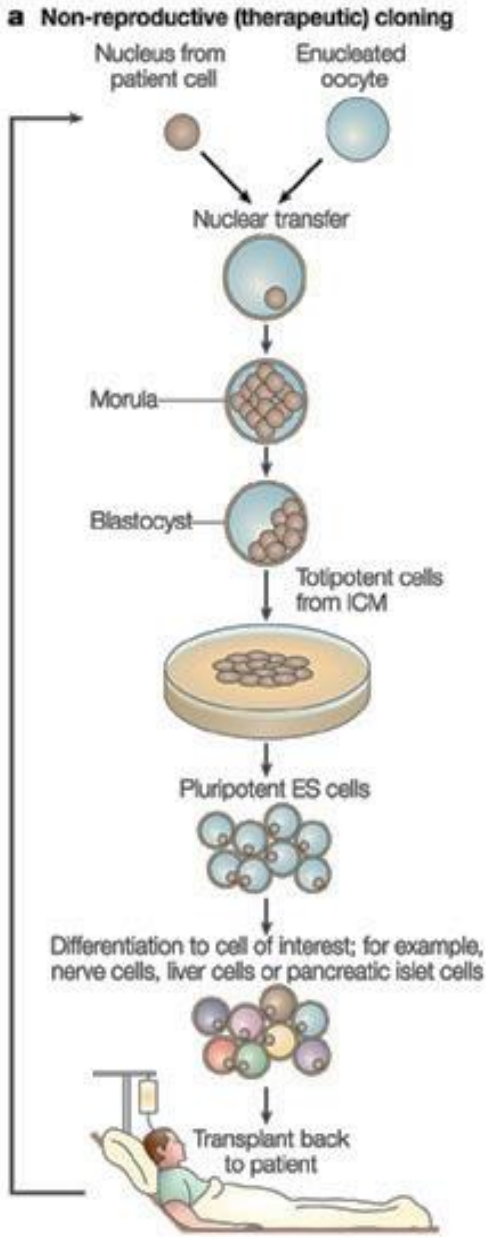
CLONACIÓN

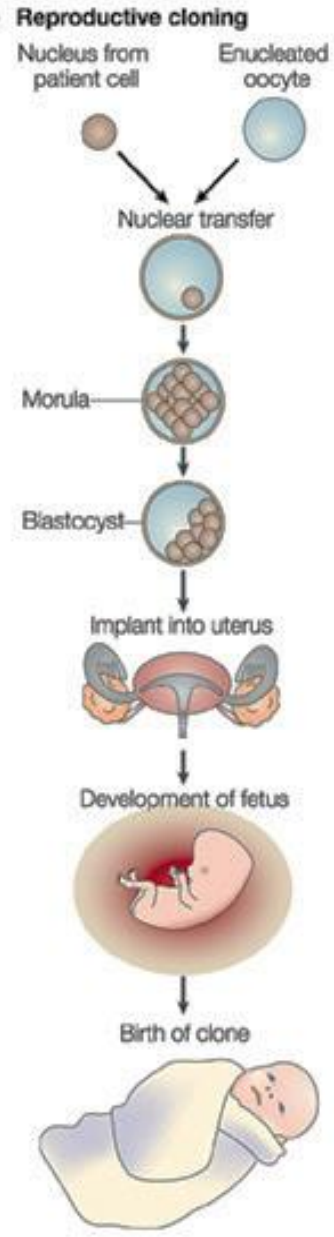
Clonación terapéutica

Clonación terapéutica

Blastocisto para obtener células madre

Terapias médicas





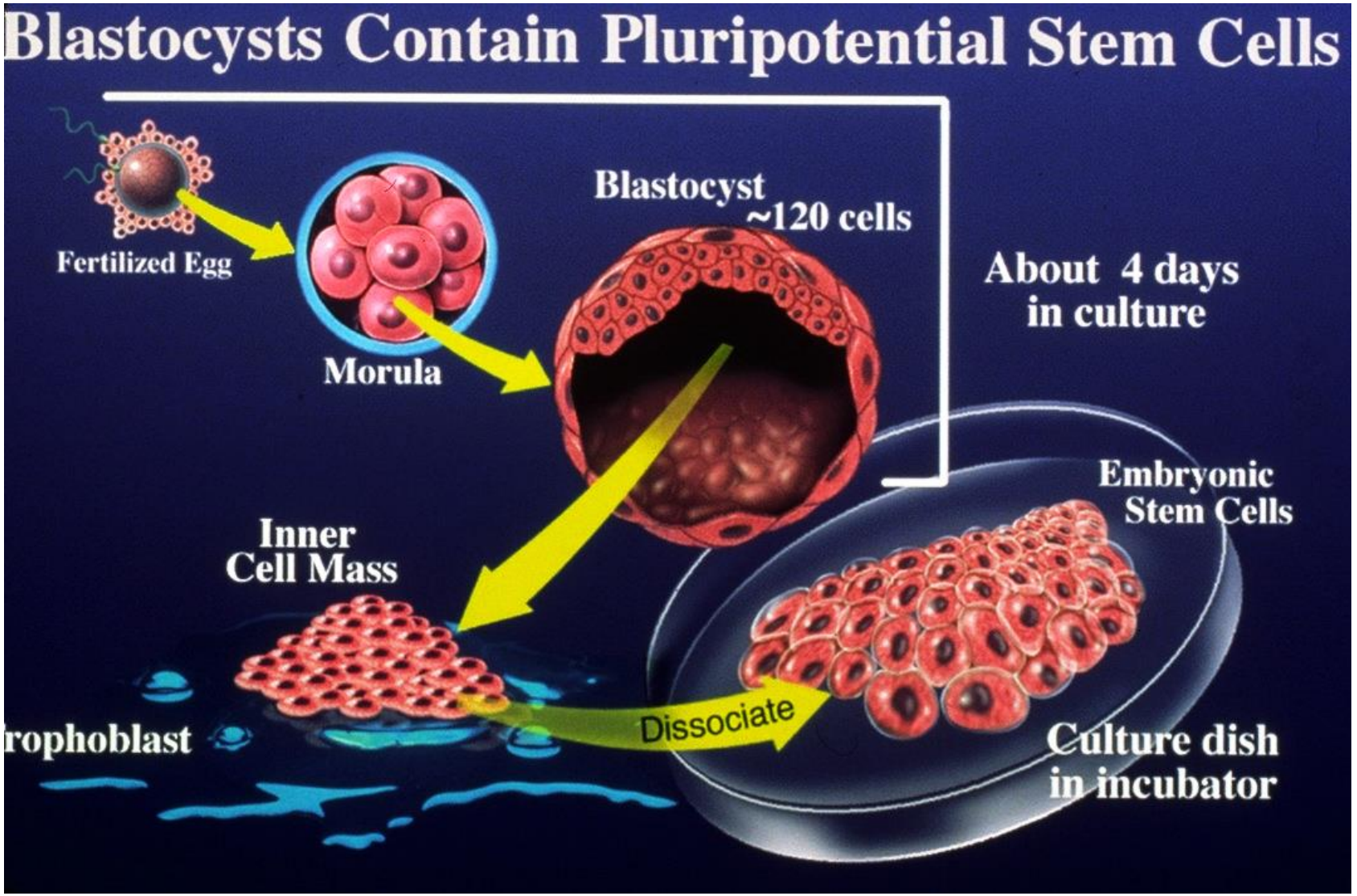
Nature Reviews | Genetics

Clonación reproductiva

Blastocisto para implantar en una madre sustituta

Un nuevo organismo clon de la célula somática

Clonación terapéutica



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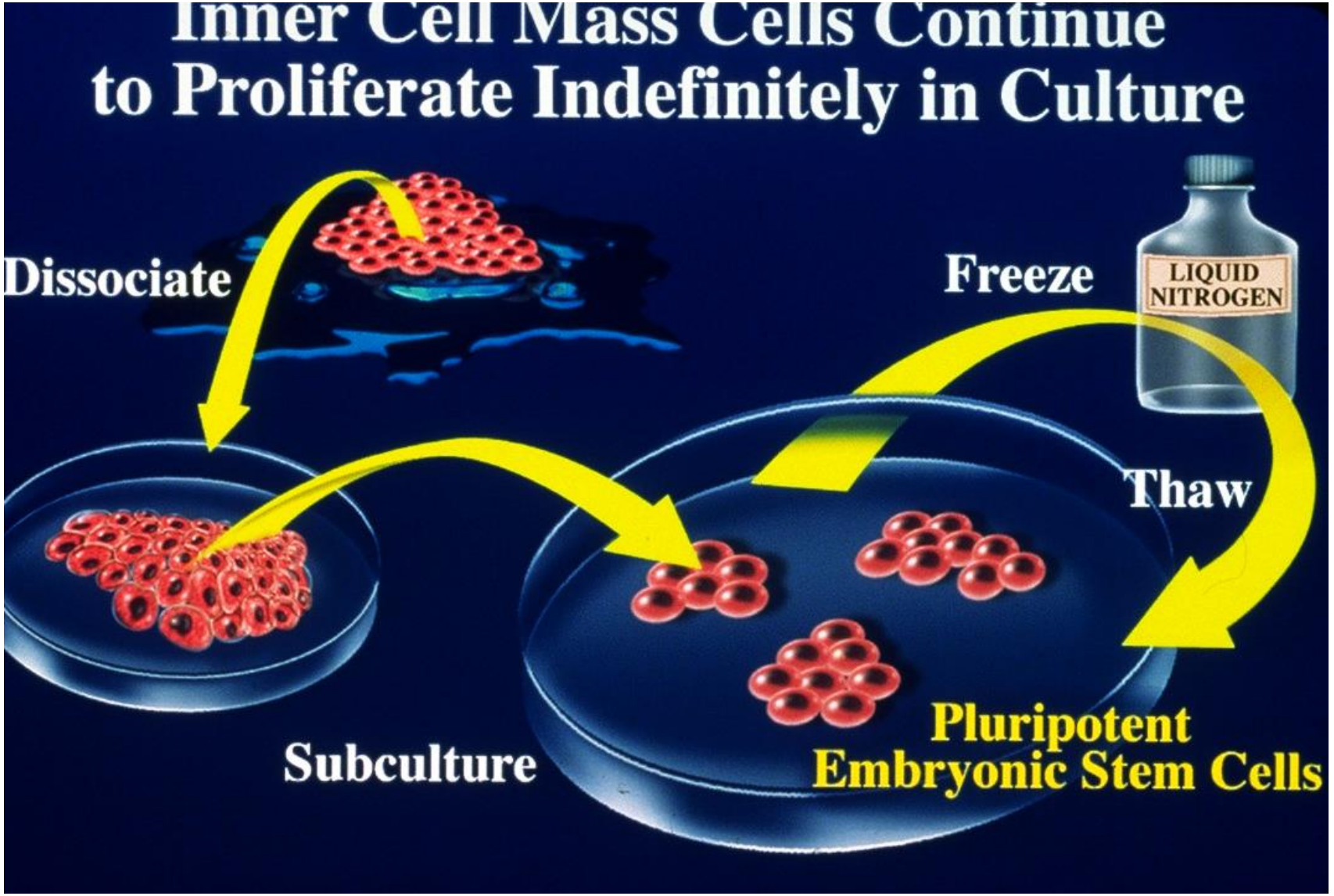

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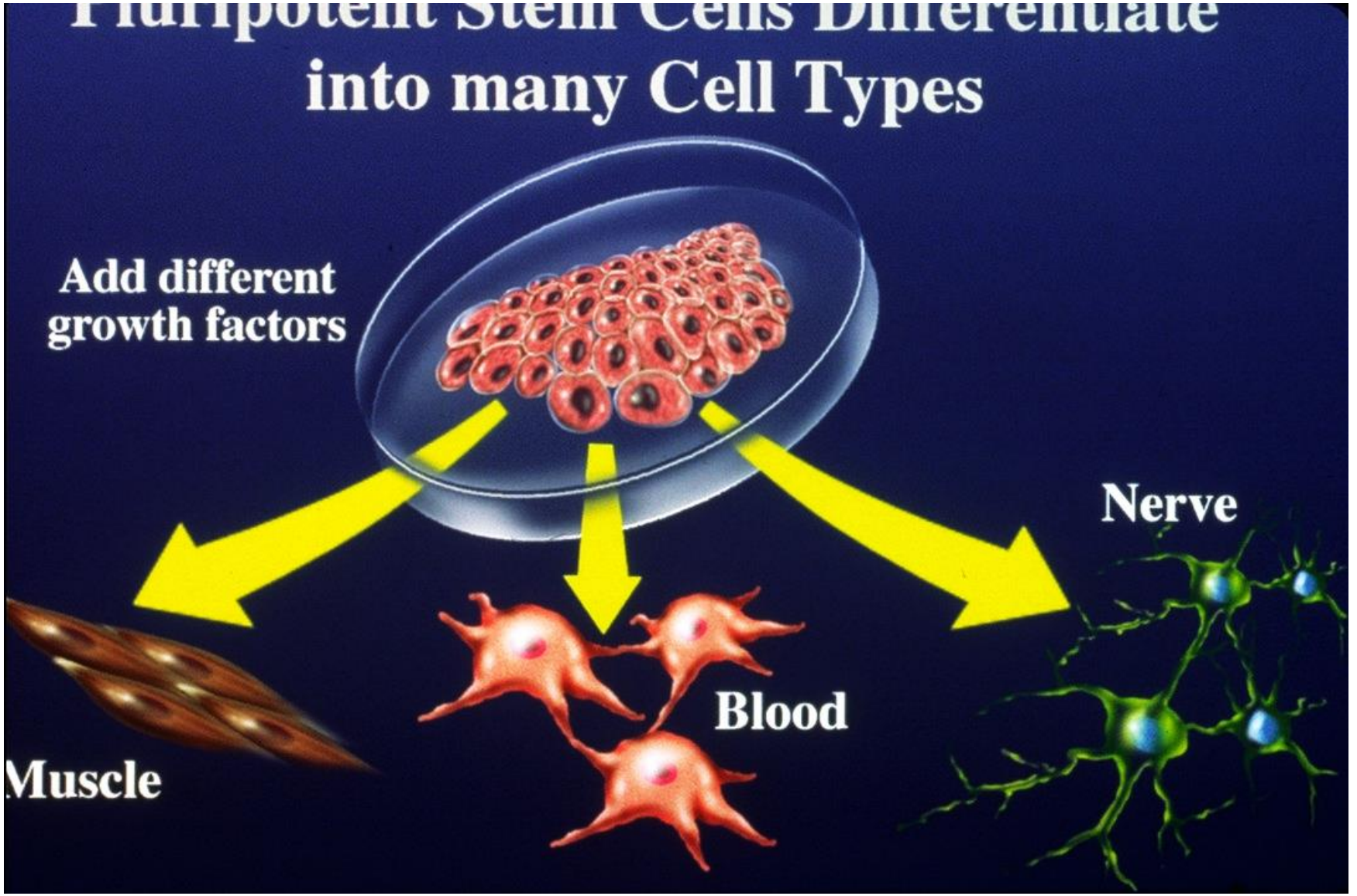

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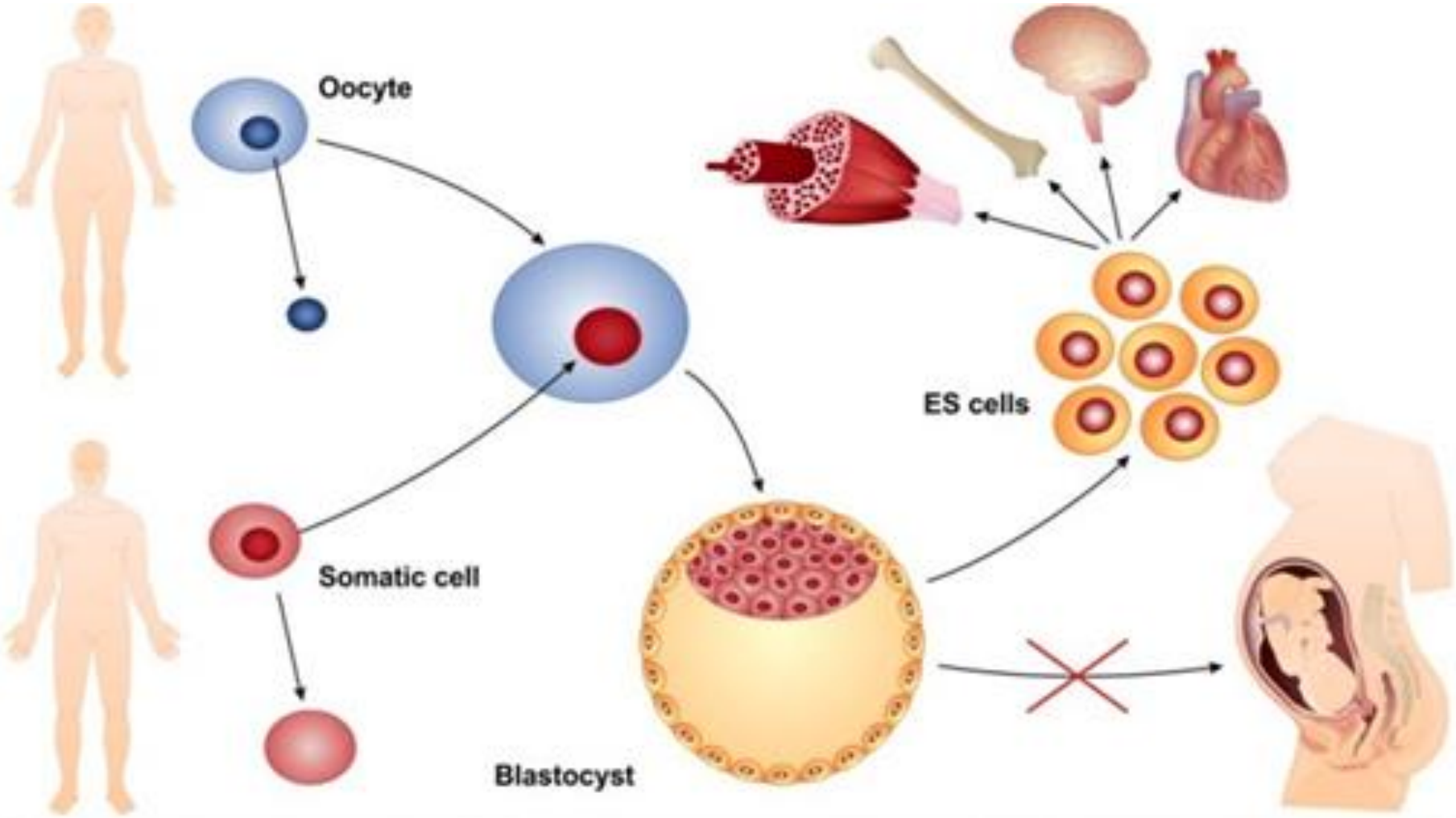

The overwhelming consensus of the world's scientific and medical communities is that human reproductive cloning should be banned.

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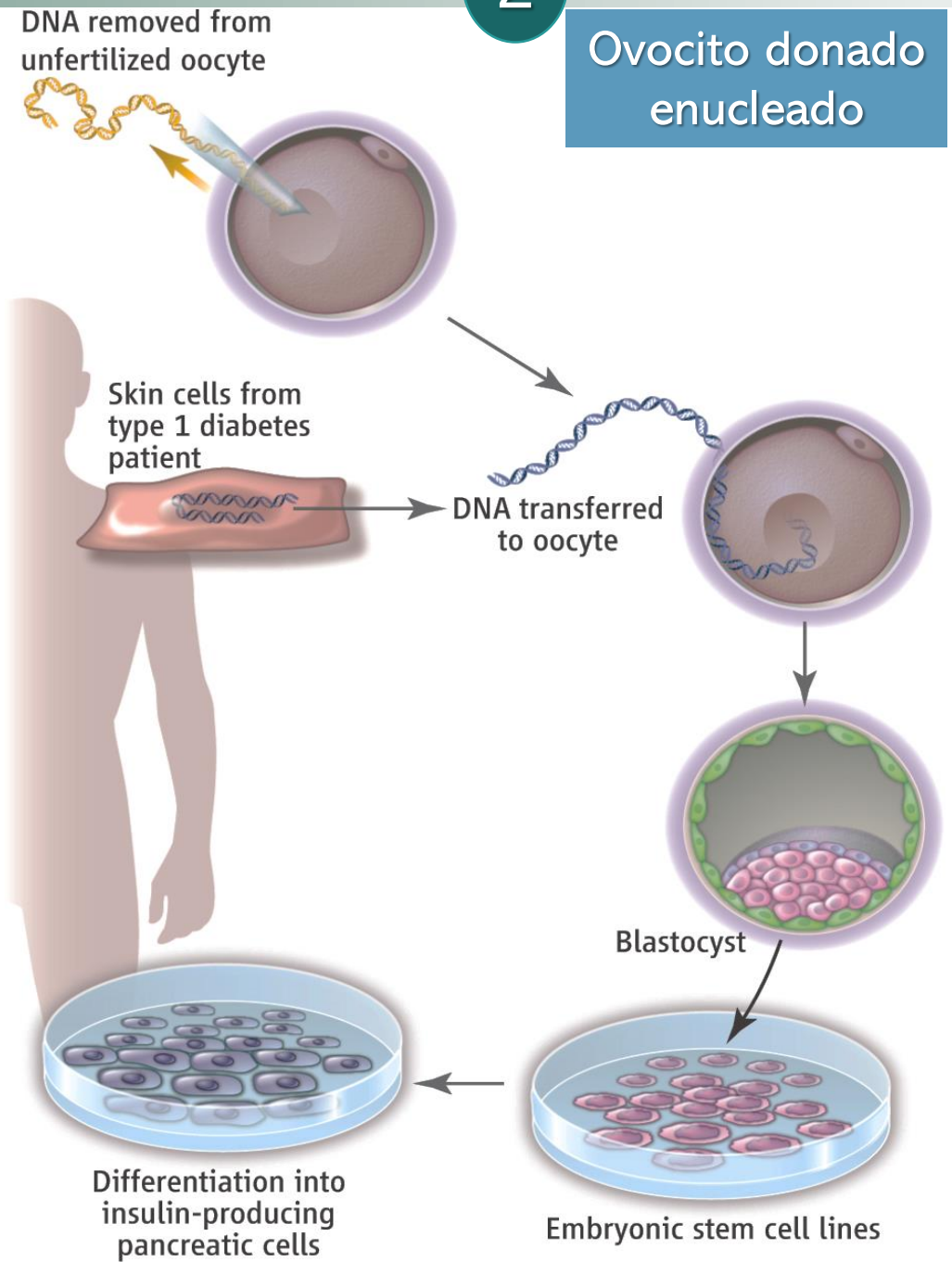

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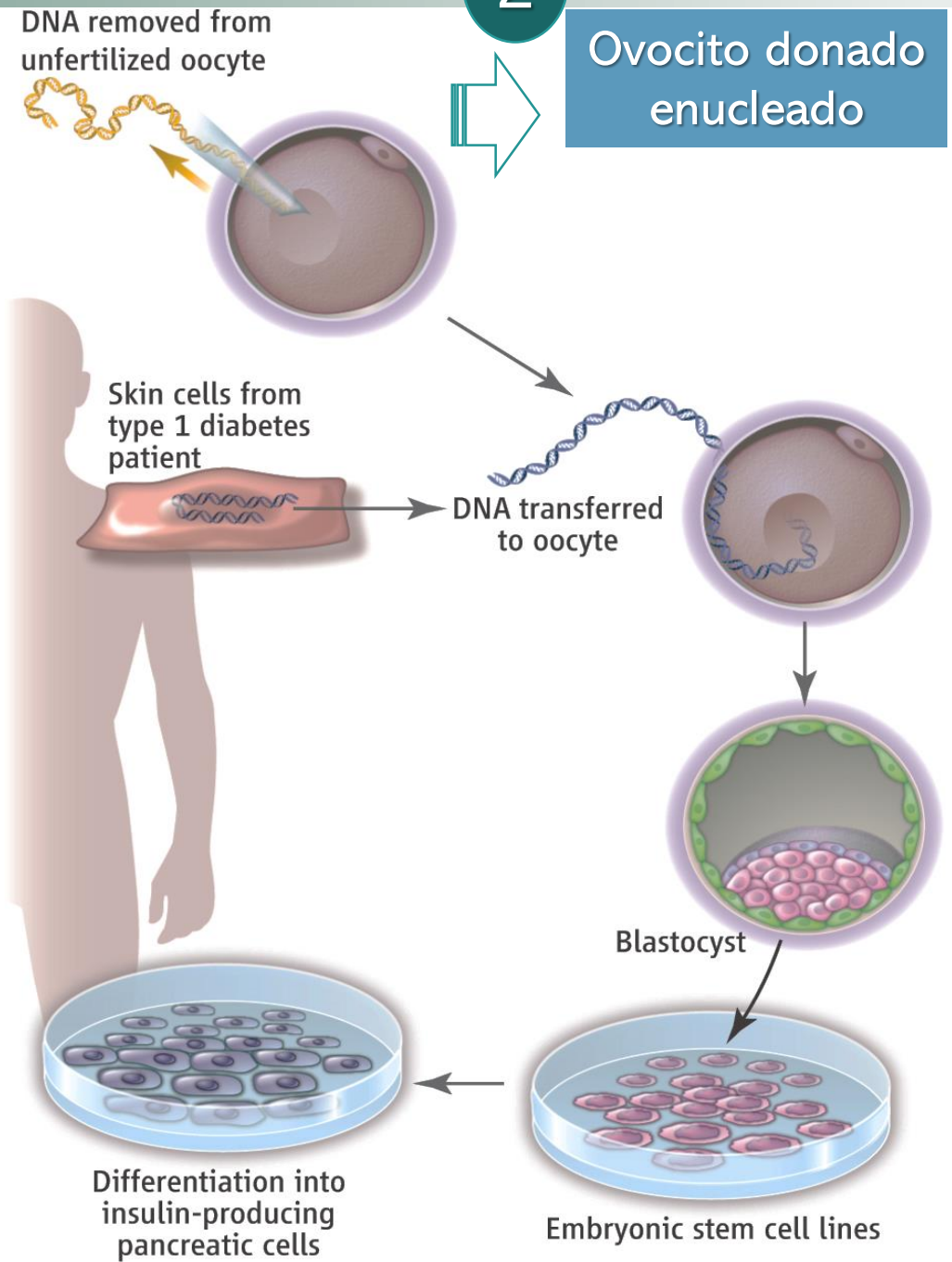

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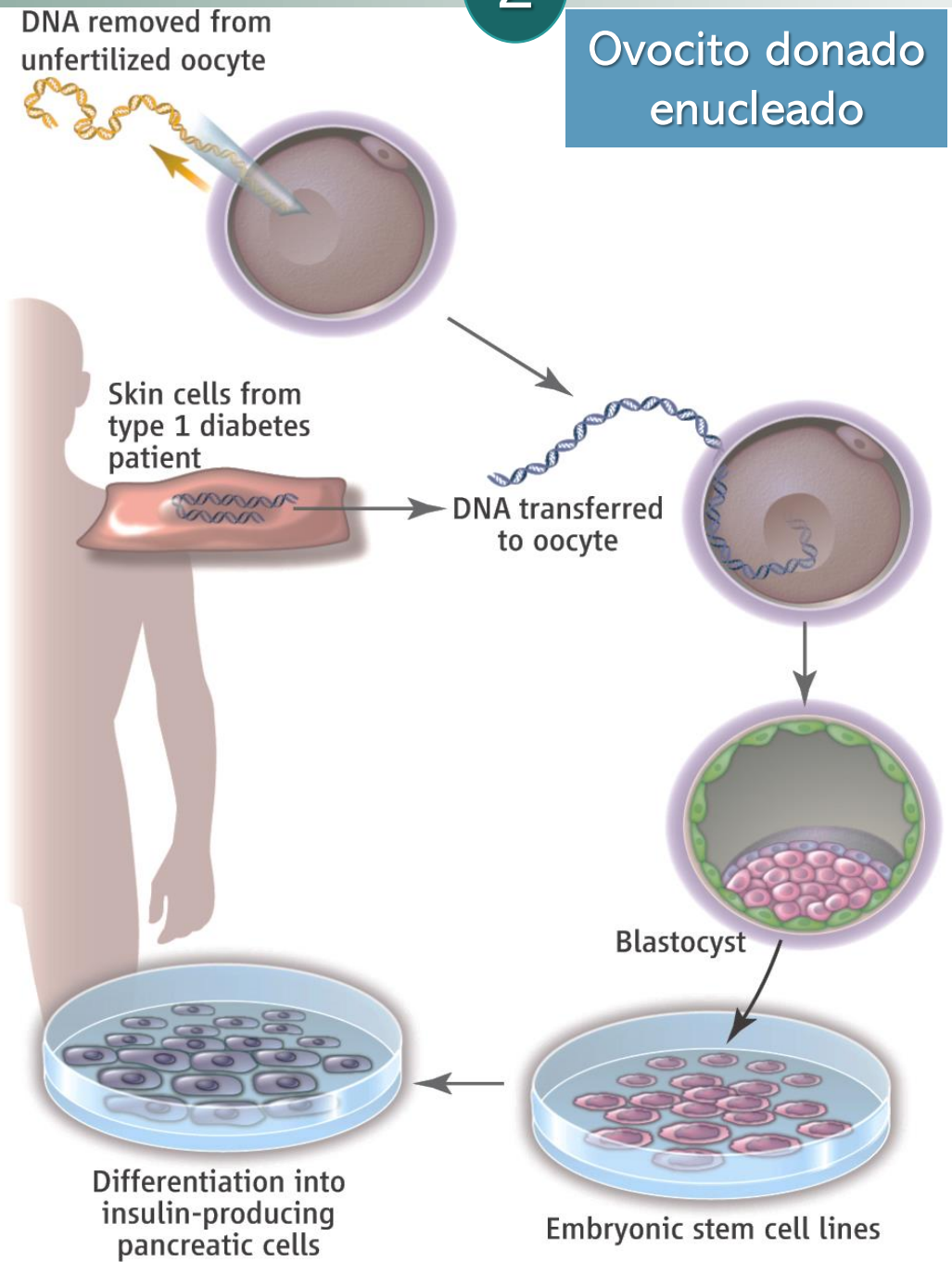

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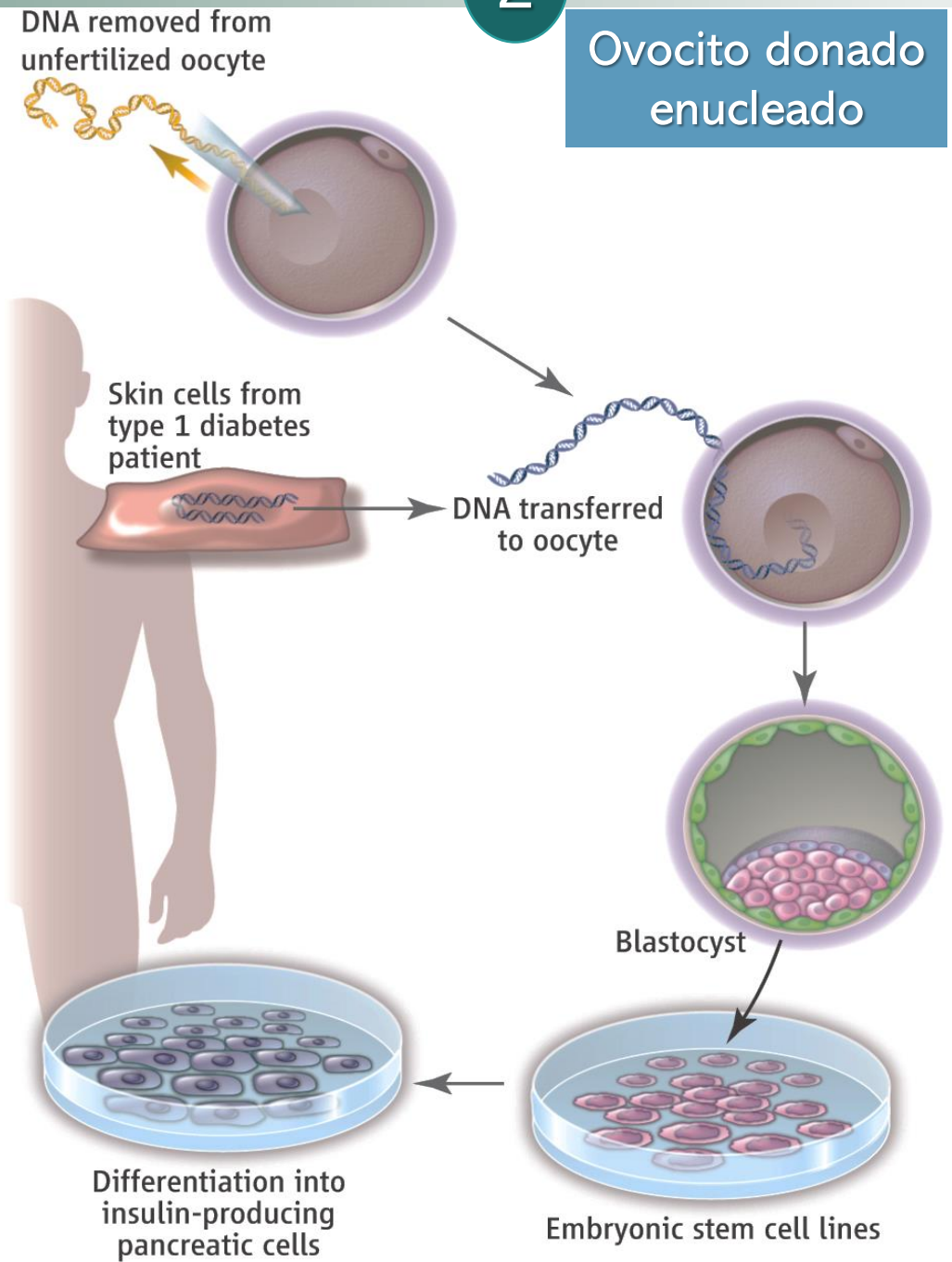

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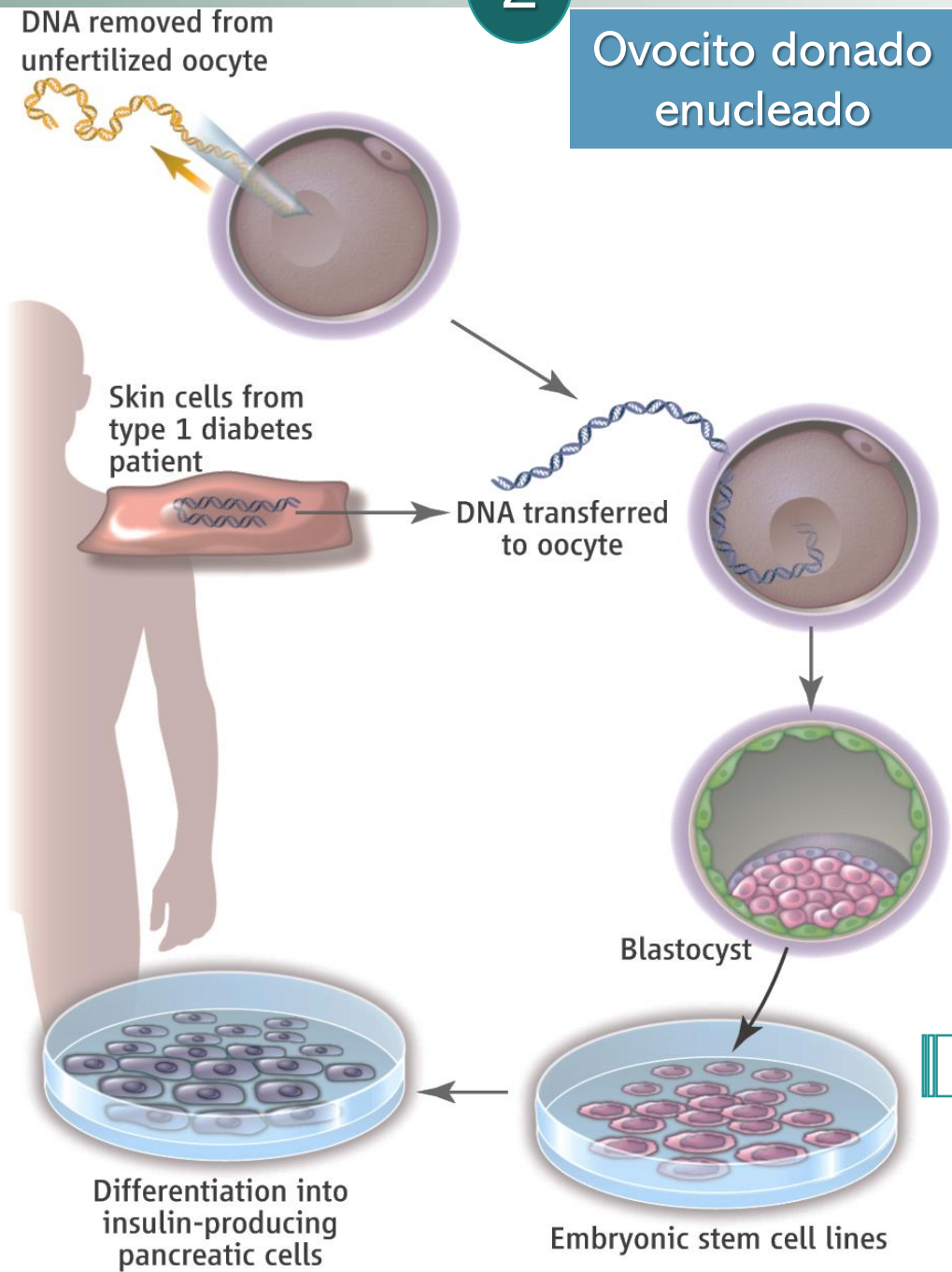

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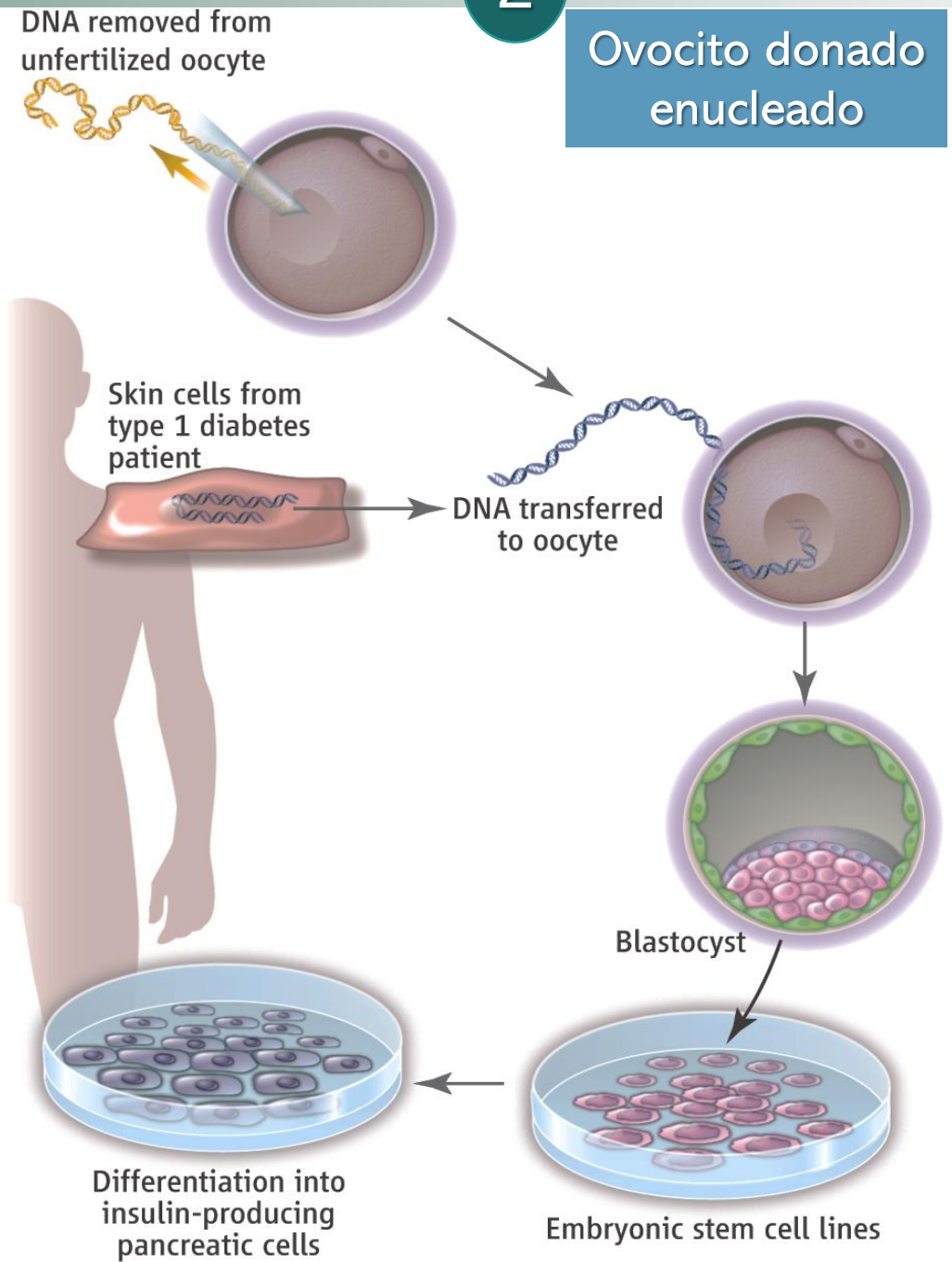
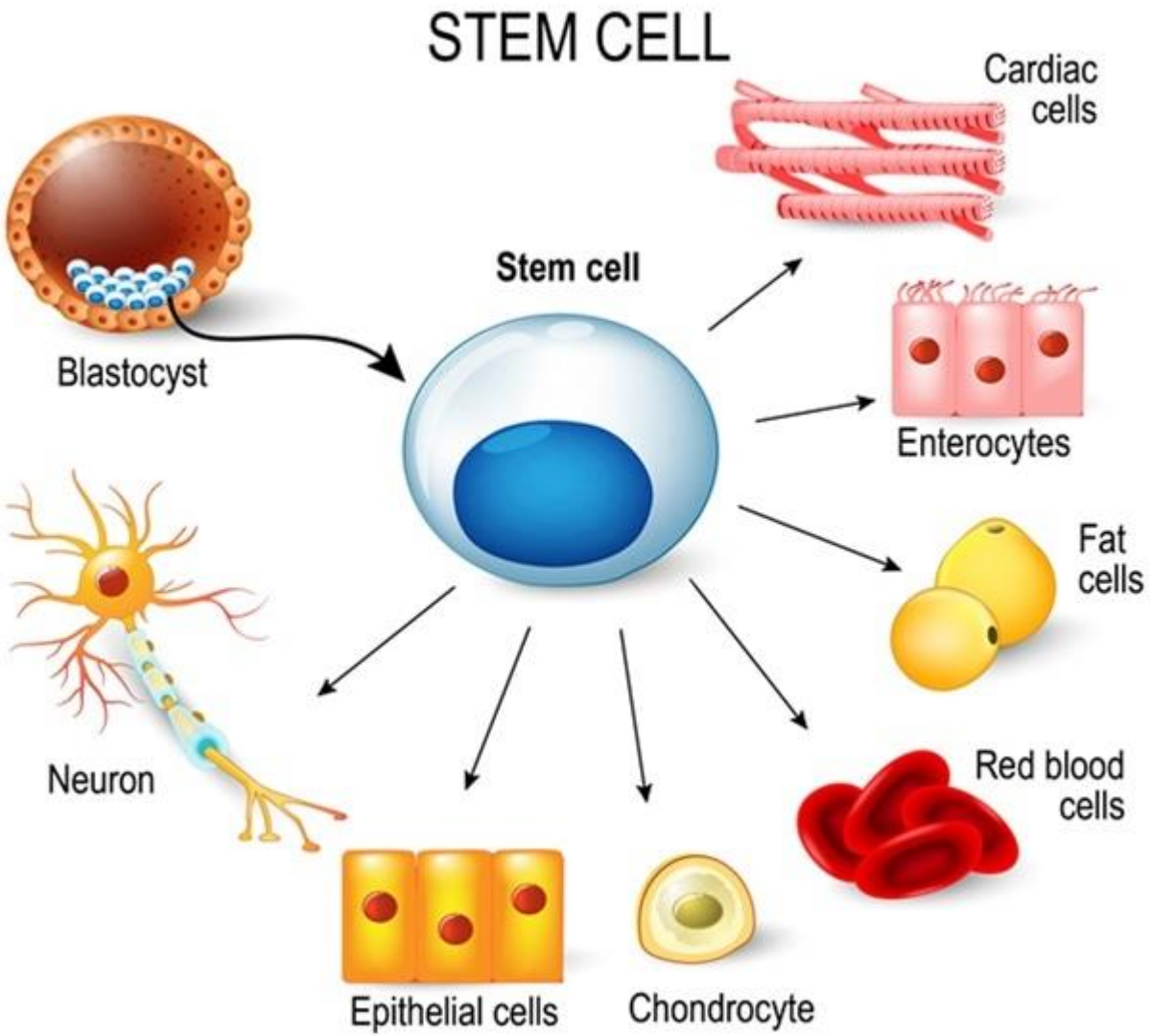
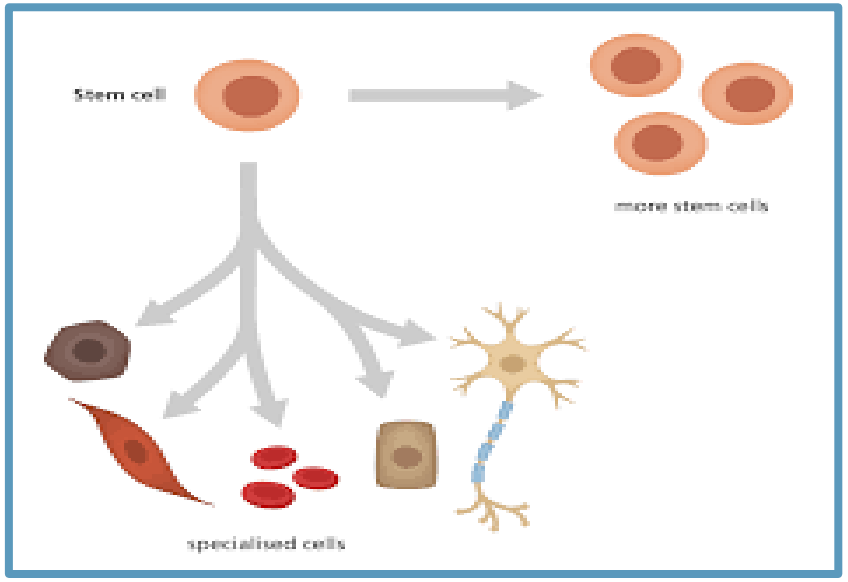


Células madre

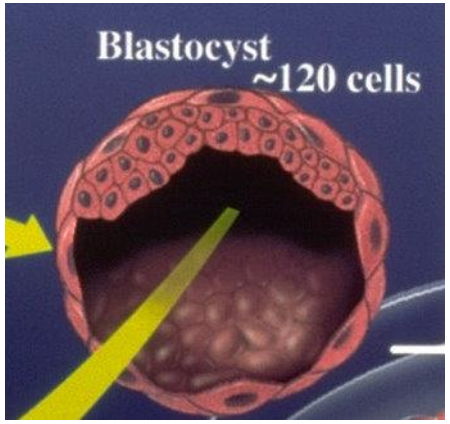




Autorrenovación

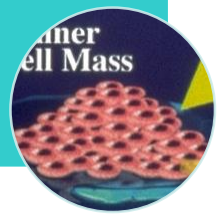
Diferenciación

Células madre



- Por si solas no pueden dar origen al feto completo (falta el trofoblasto)

Pluripotentes

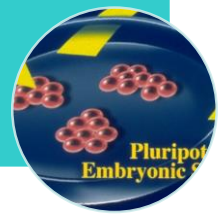


- No son células madre permanentemente

In vivo

- Pueden ser inmortalizadas
- Autorrenovación
- Pluripotencia

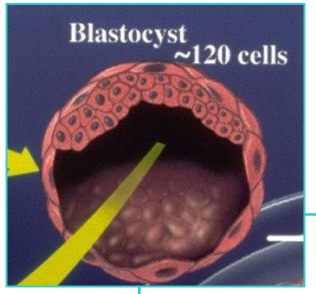
In vitro

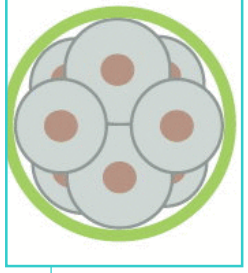


Células madre

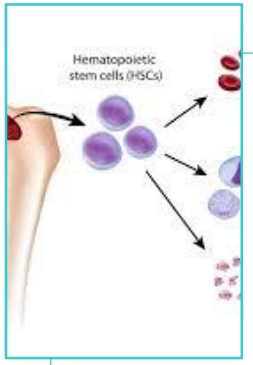
- Ser efectivamente pluripotente
- Ser inmortalizable (autorrenovación permanente)
- Tener un fenotipo estable y caracterizado a nivel molecular
- Carecer de potencial tumorogénico
- Susceptible de manipulación genética, edición genómica precisa

Células madre

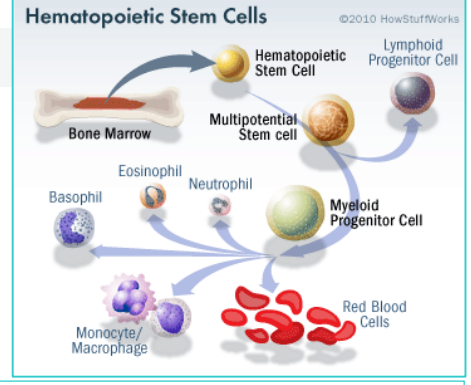


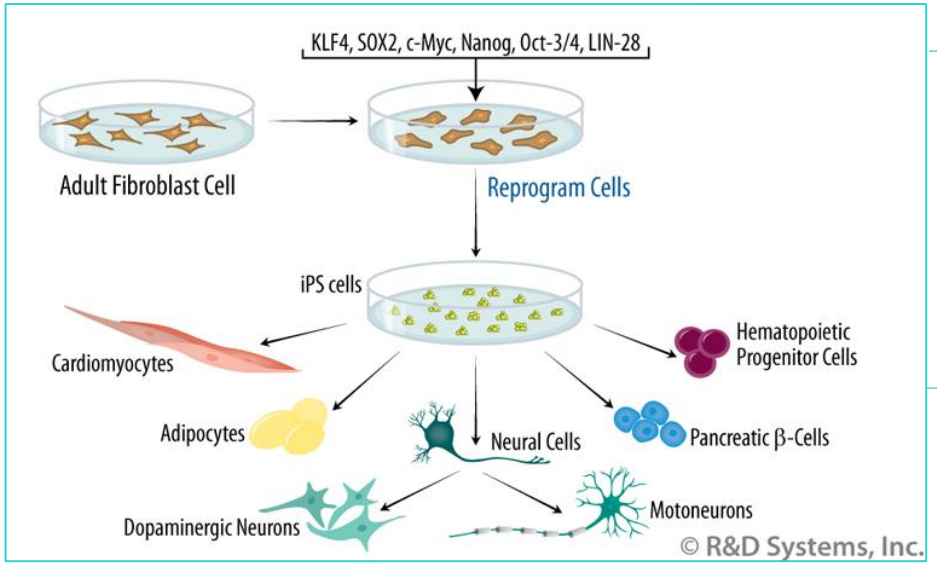


Células madre embrionarias (ES)



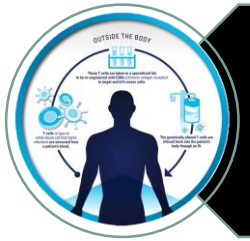
Células madre de adultos (AS)





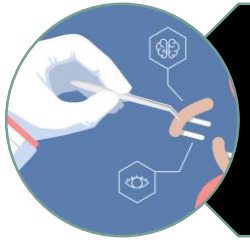
Células madre pluripotentes inducidas (IPS)

Clonación terapéutica



Terapias celulares de reconstrucción

Clonación reproductiva

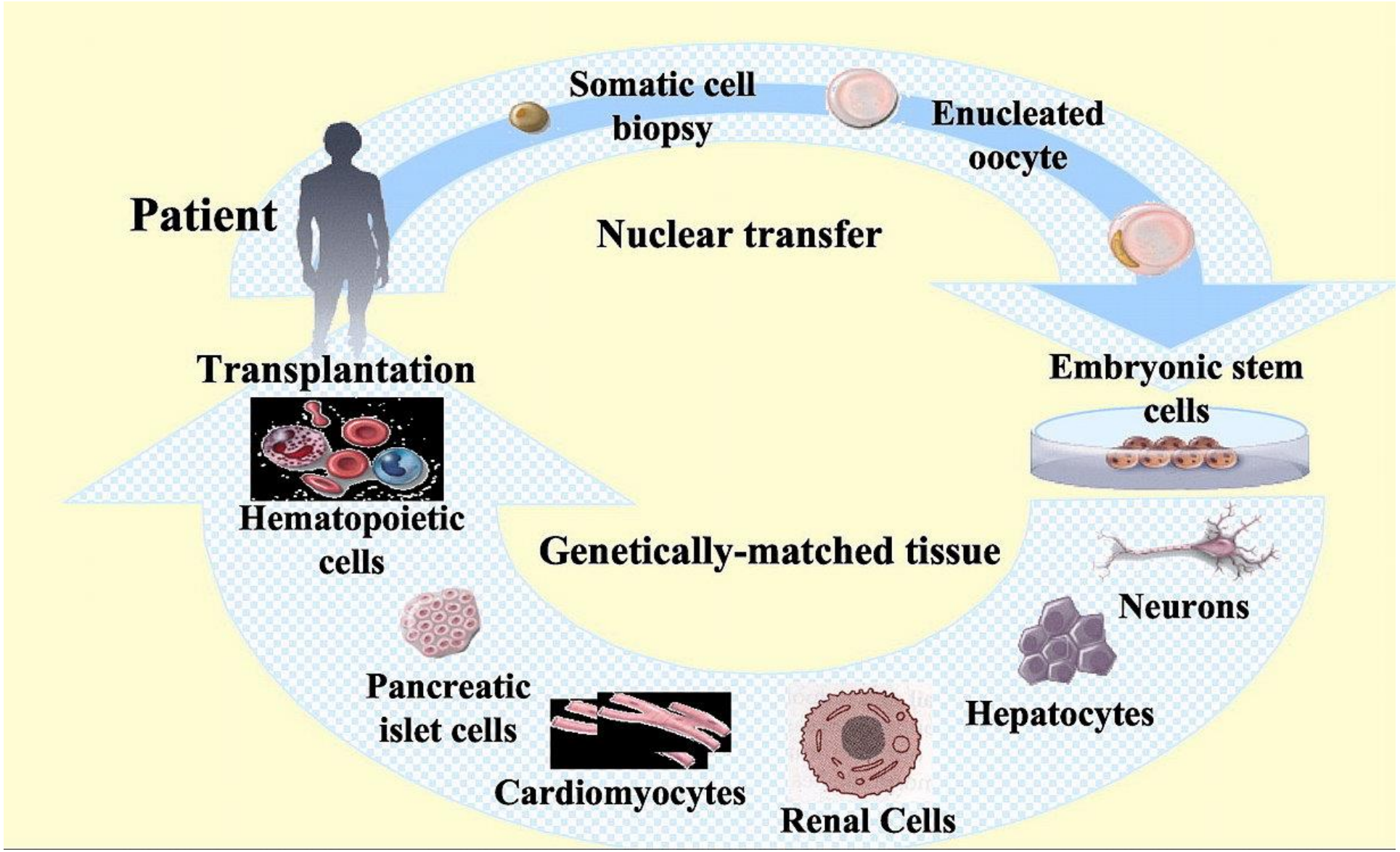


Manipulación genética

Combinación de manipulación genética y clonación reproductiva

Individuos clónicos transgénicos

Clonación terapéutica



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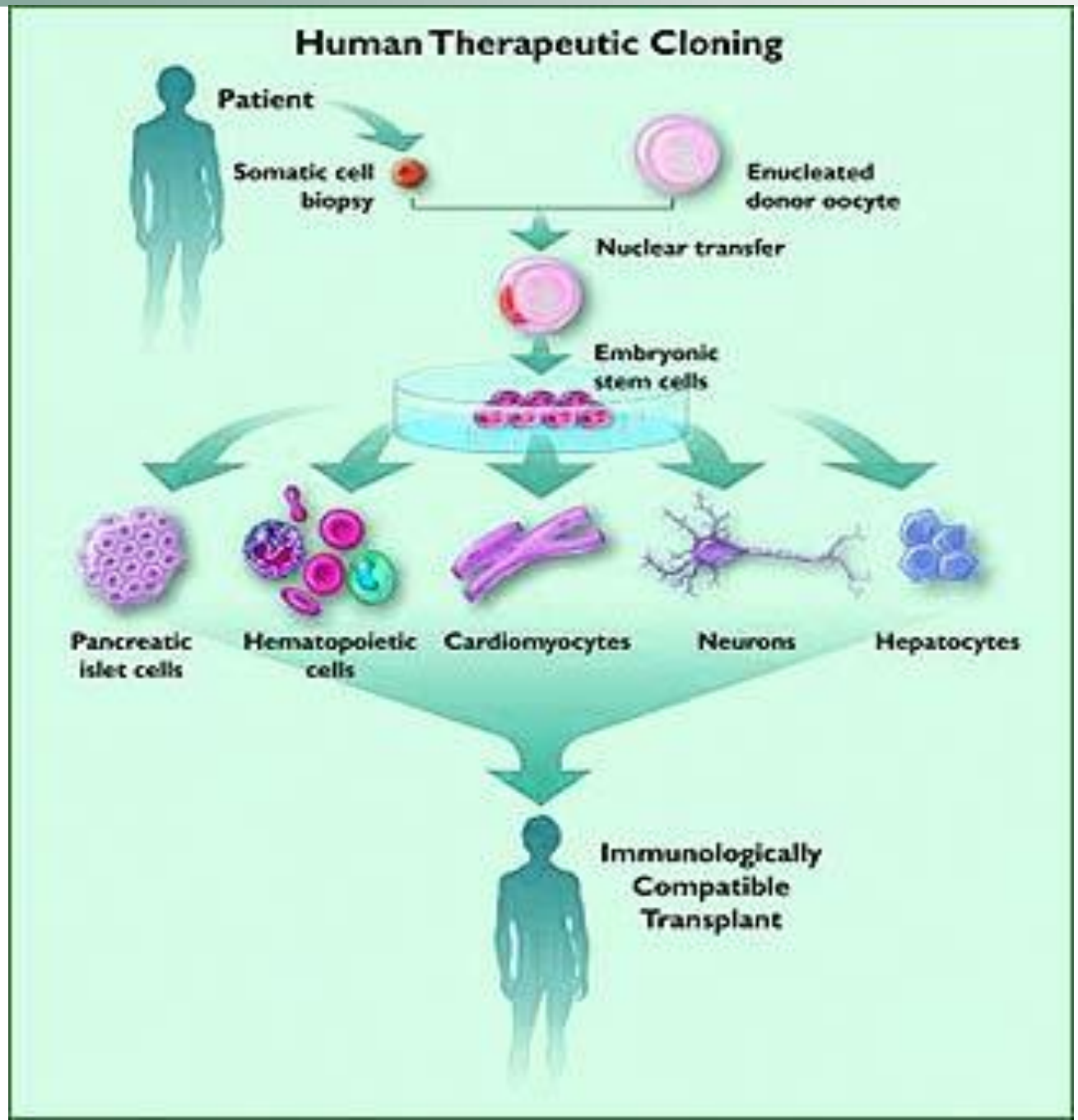

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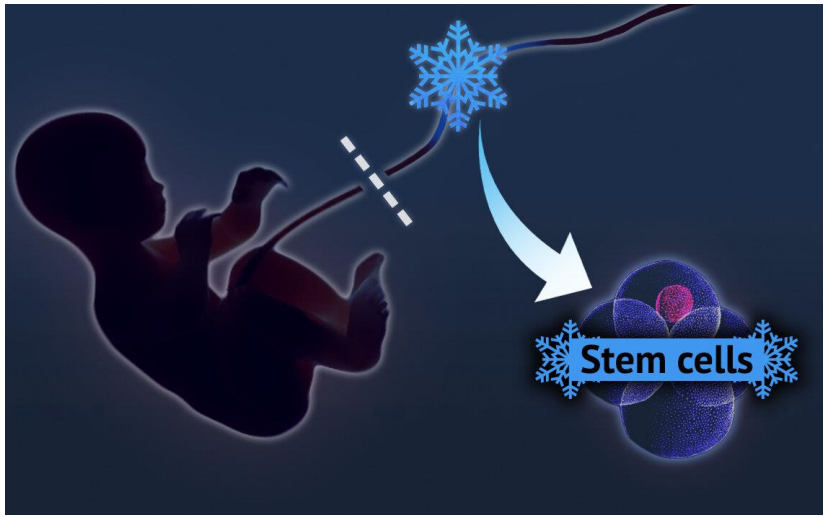

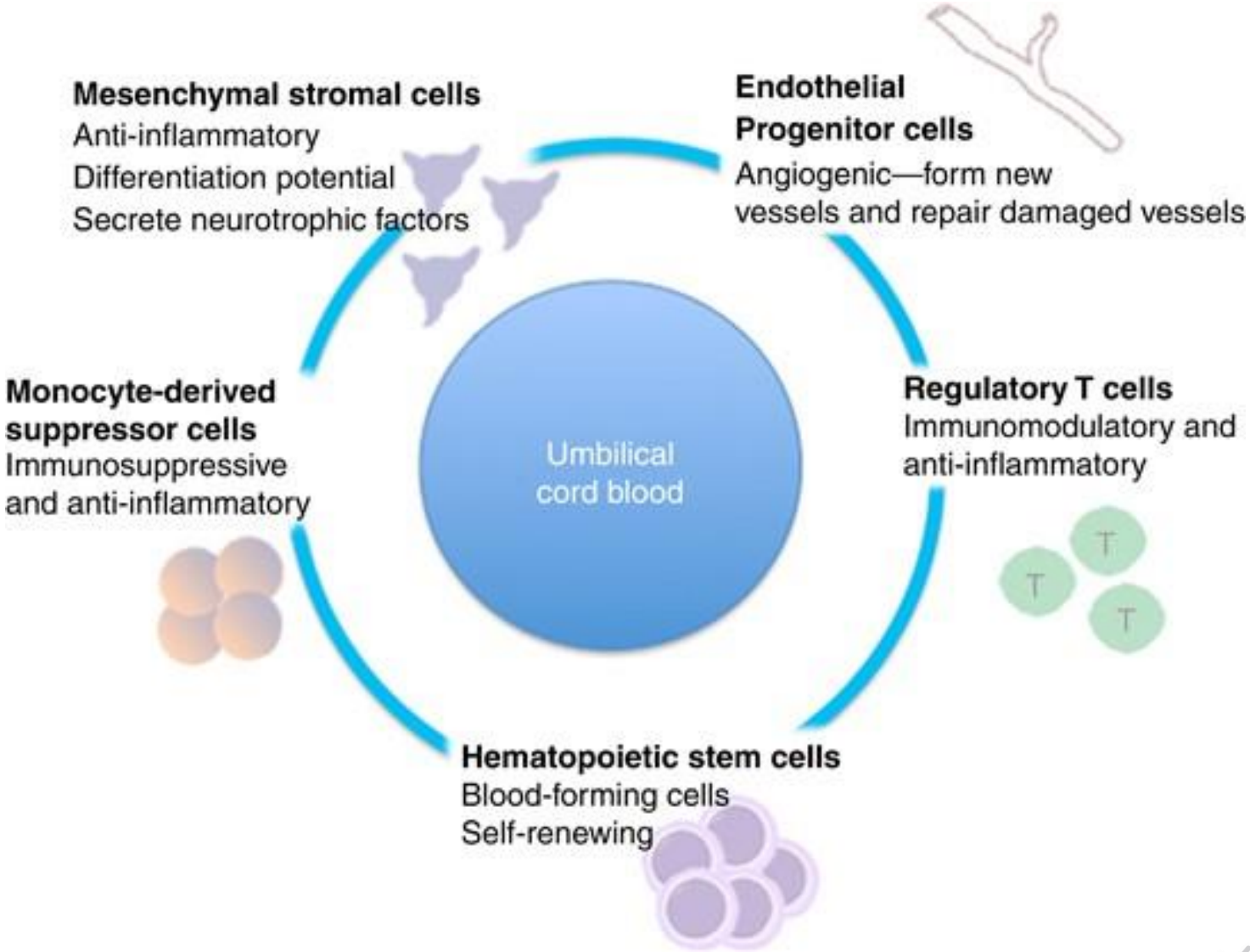

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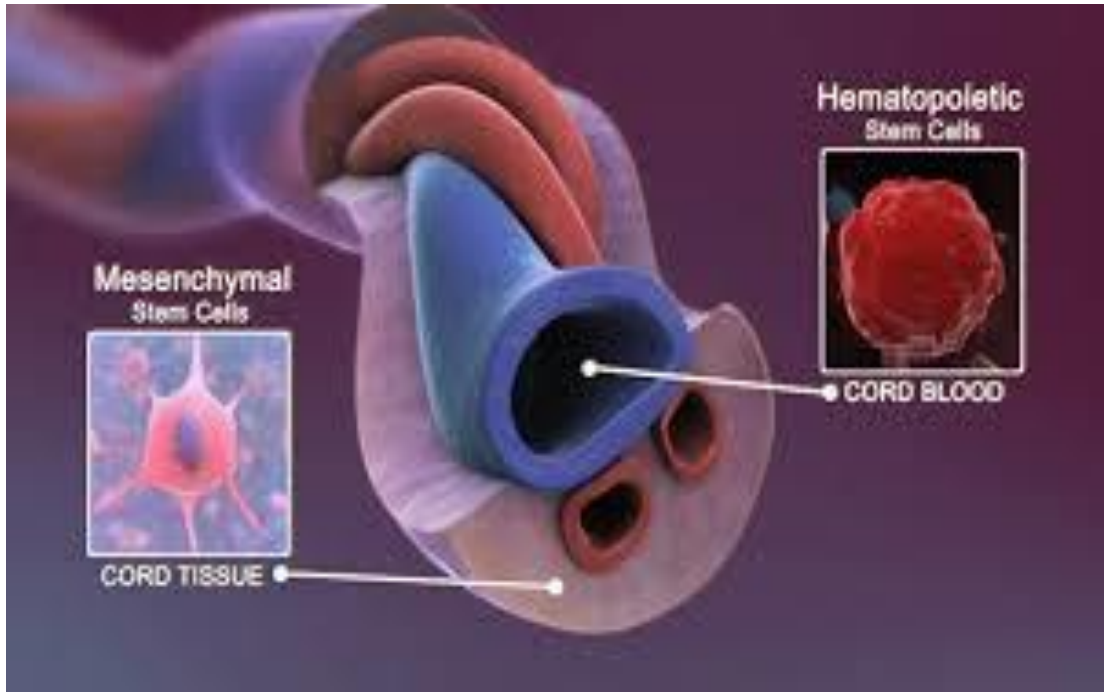
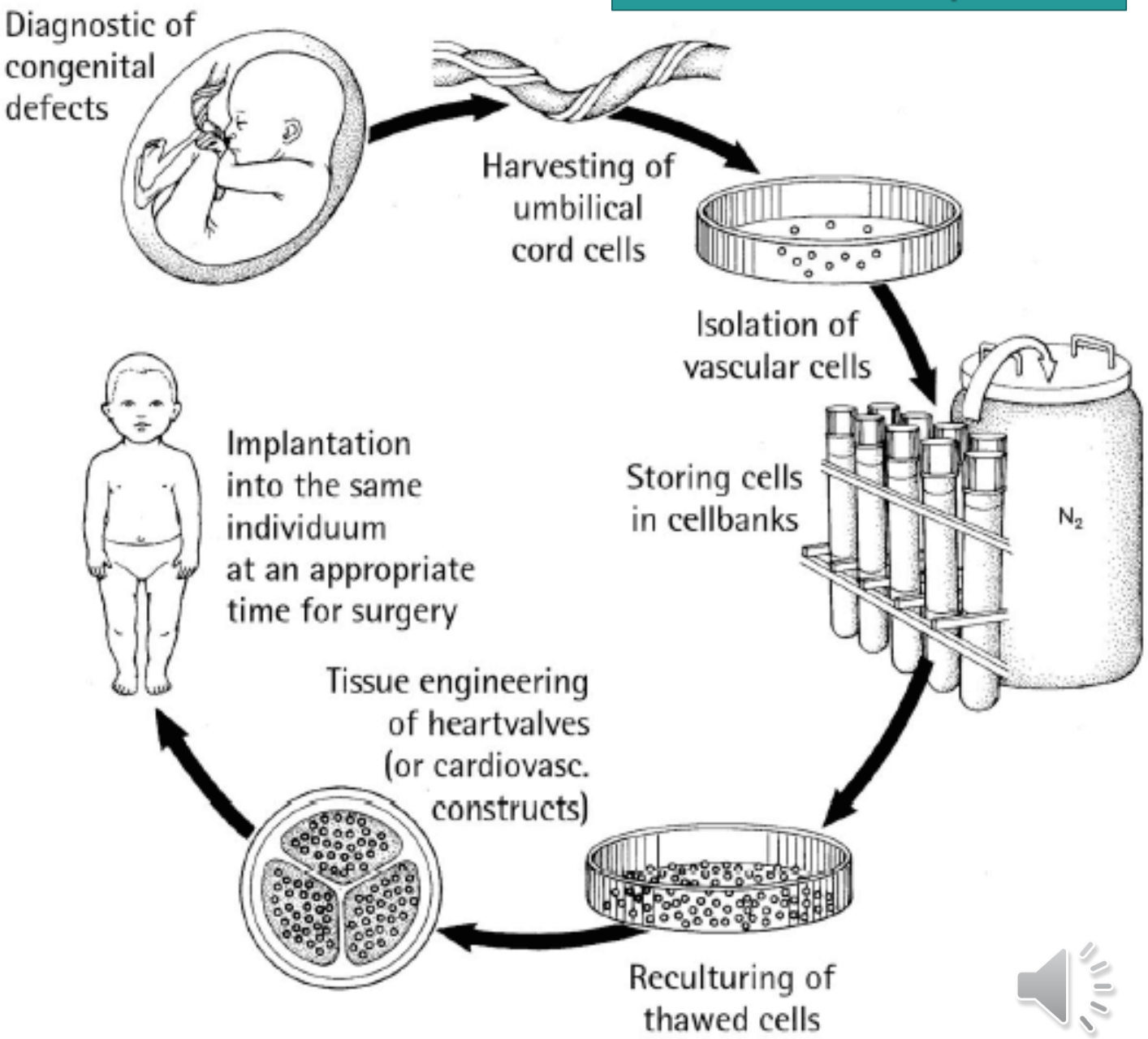




Clonación terapéutica

After birth the umbilical cord is clamped and cut

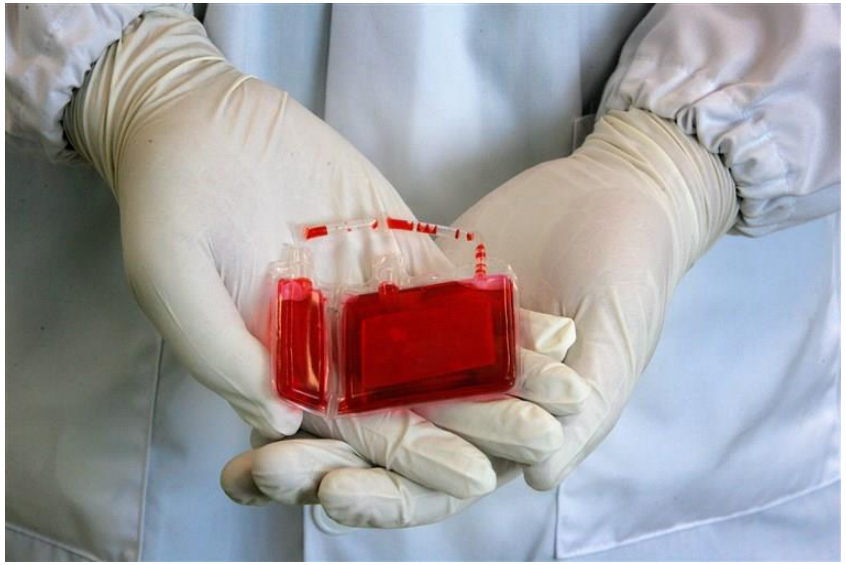
Cord blood is collected from umbillcal cord vein by experts

Collected cord blood is safely packed in proprletary transfer kits and within 24 hours reach our labs

The sample quallty is evaluated and all the required tests are conducted for maximum safety

Cord blood is processed by patented technologies to yield maximum number of stem cells

The end product is stored at -196 deg.C for 21 years



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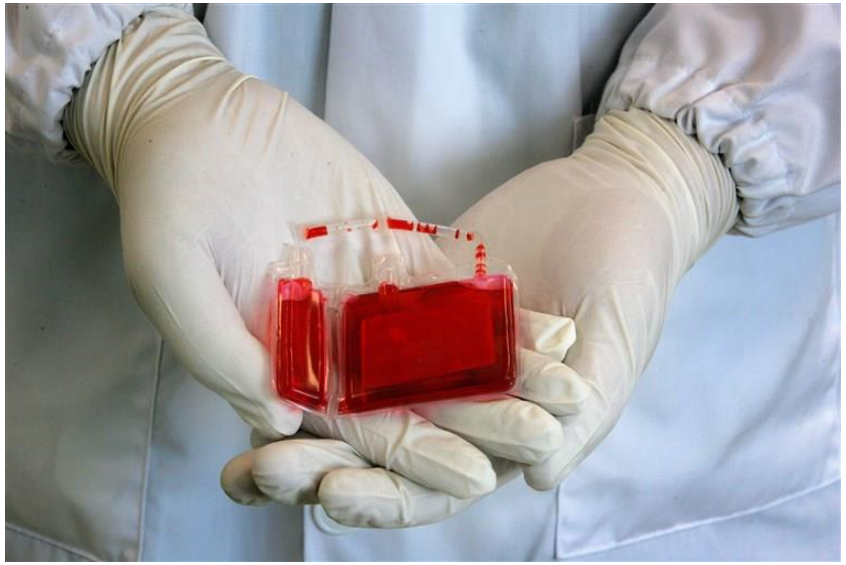

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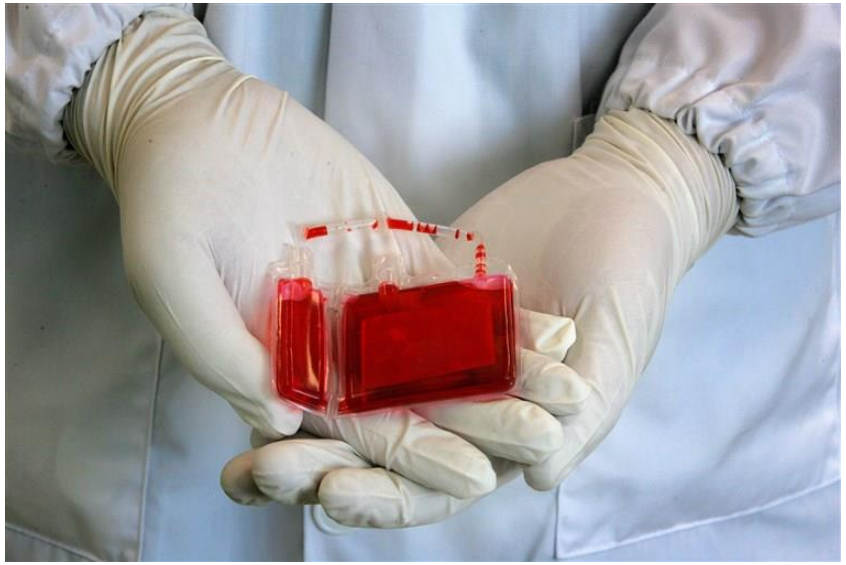

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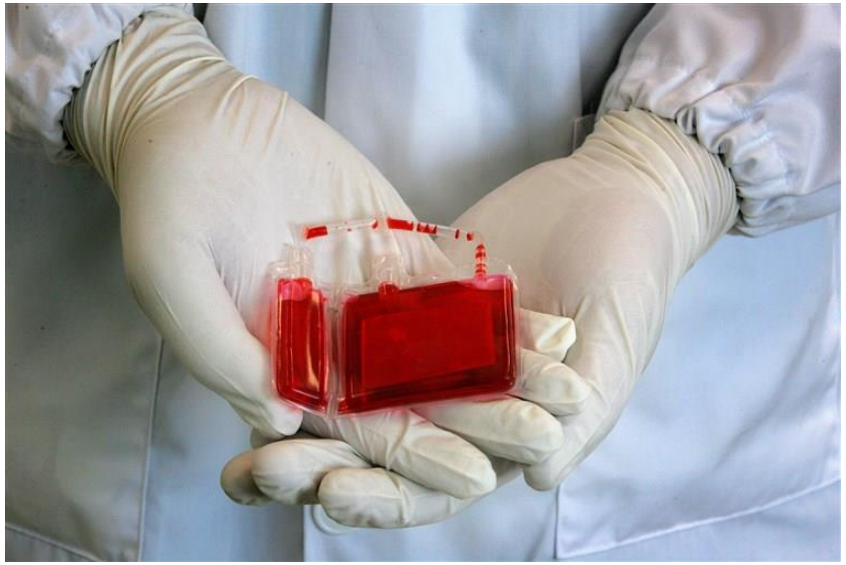

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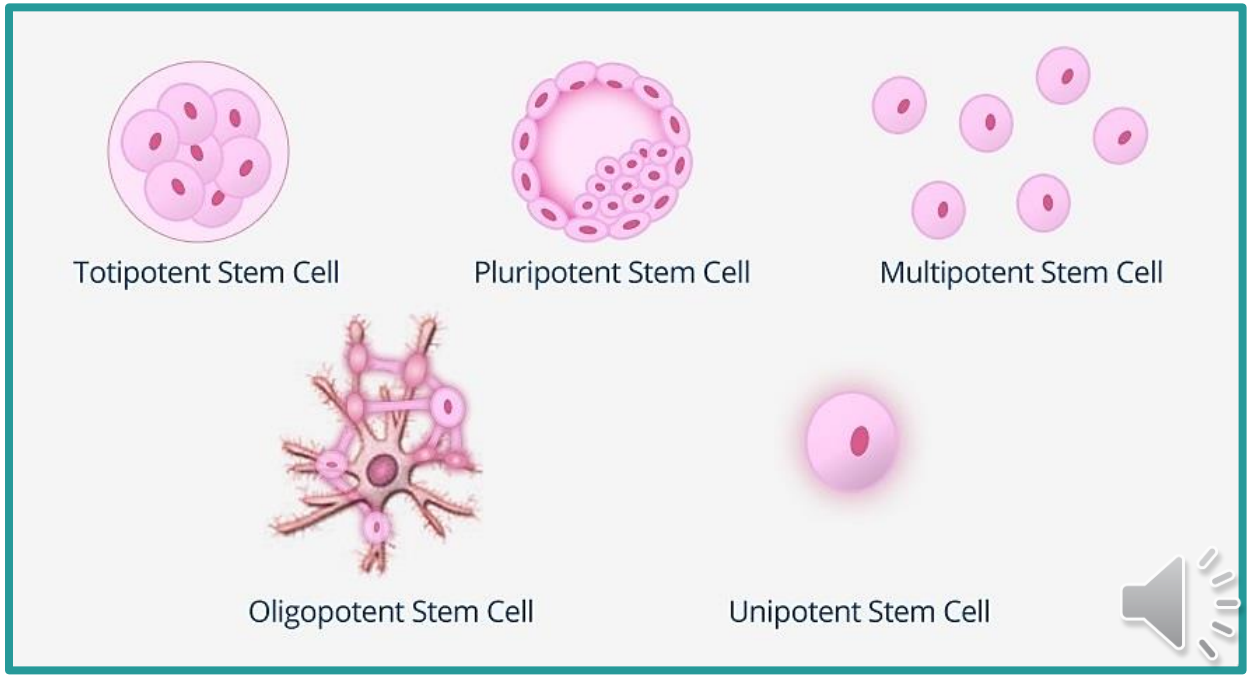
Células madre

Célula madre totipotencial	Célula madre pluripotente	Célula madre multipotente	Células madre oligopotentes	Unipotentes
cigoto	Células de la masa interna del blastocisto	Células madre del cordón umbilical		



Células madre

Célula madre totipotencial

Cigoto y hasta mórula

Célula madre pluripotente

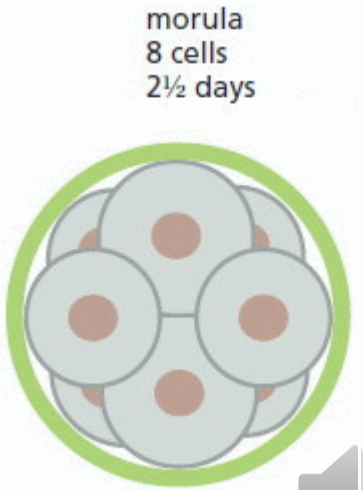
Células de la masa interna del blastocisto

Célula madre multipotente

Células madre del cordón umbilical

Células madre oligopotentes

Unipotentes



Células madre

Célula madre totipotencial

cigoto

Célula madre pluripotente

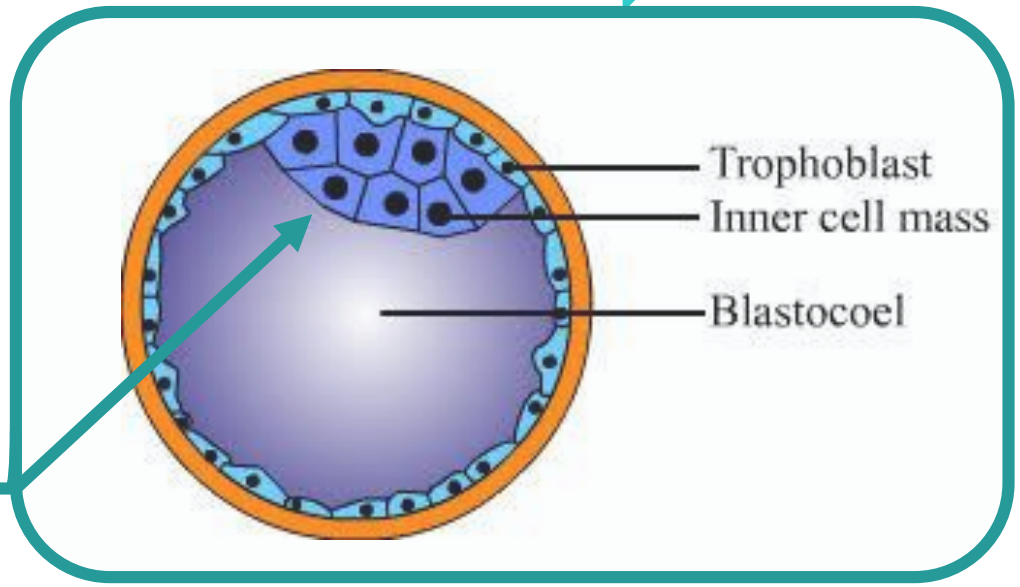
Células de la masa interna del blastocisto

Célula madre multipotente

Células madre del cordón umbilical

Células madre oligopotentes

Unipotentes



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cigoto

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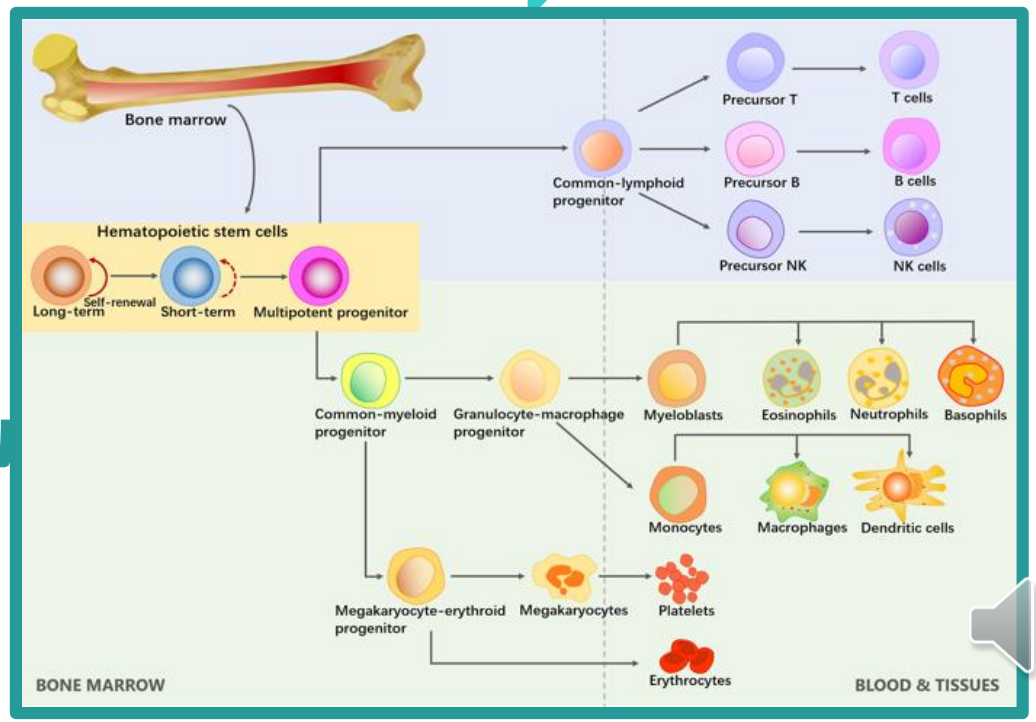

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  - cigoto
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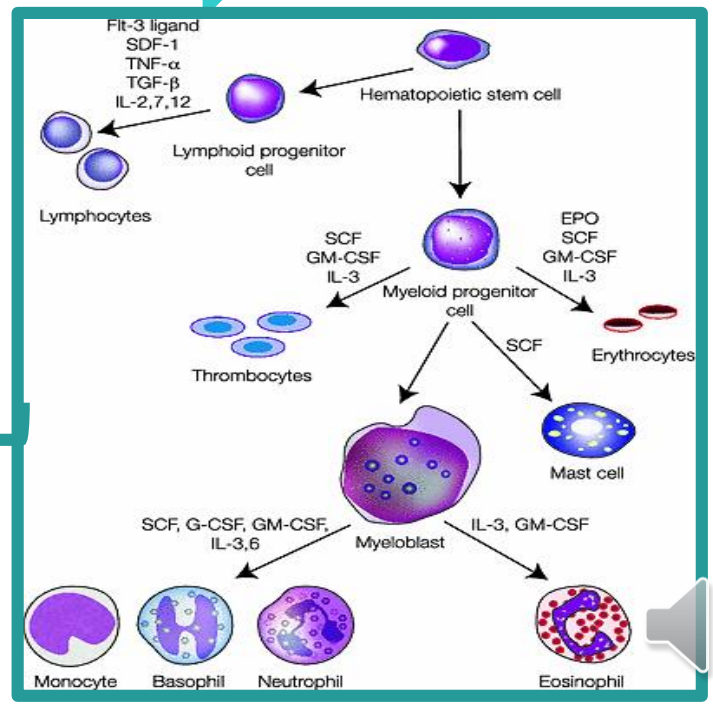

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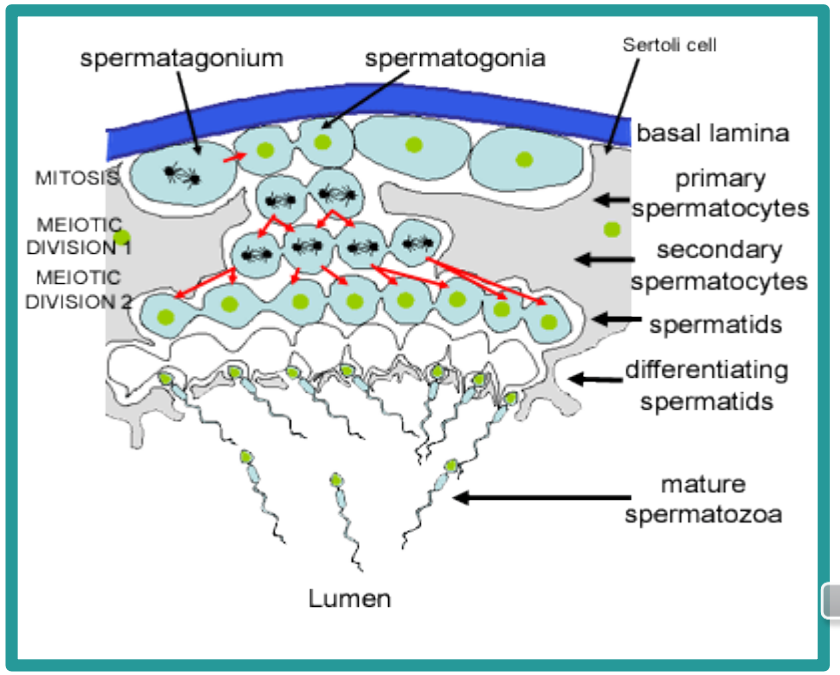
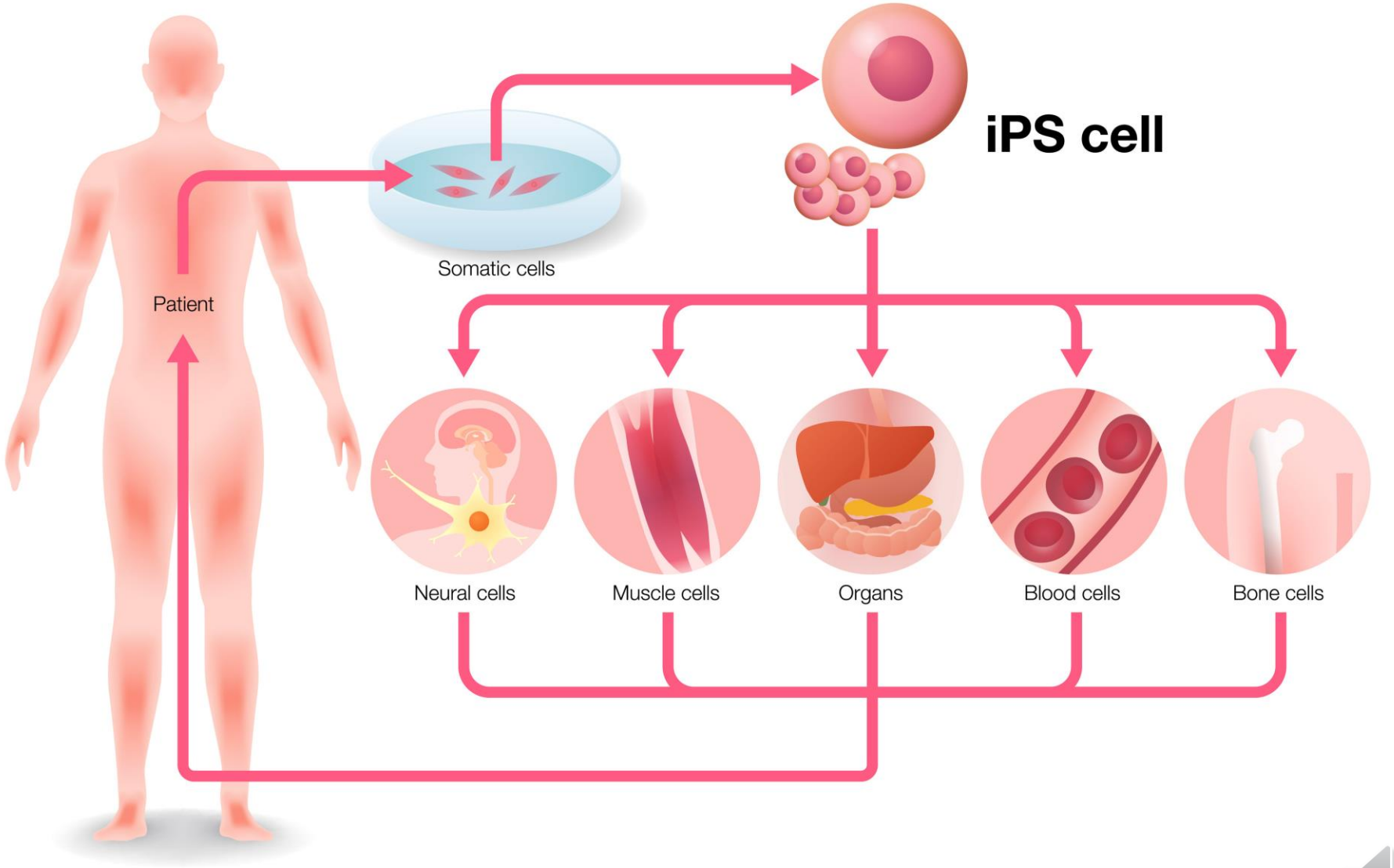


Células madre

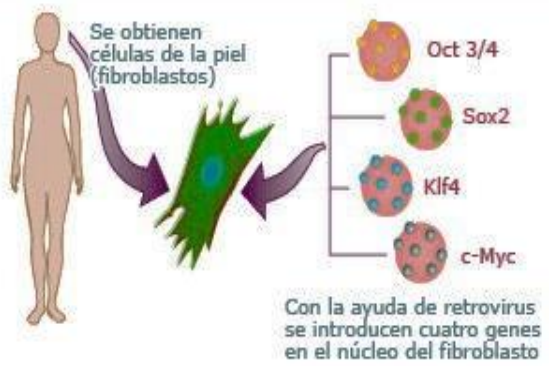
Células IPS

Células madre pluripotenciales derivadas de células adultas desdiferenciadas



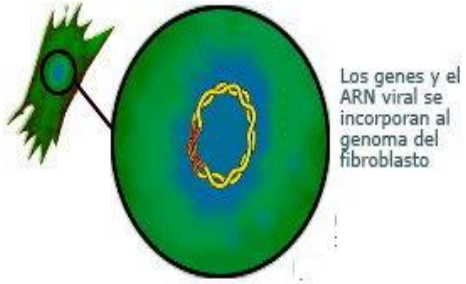
Células madre

01

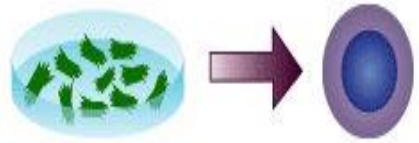


Genes de desdiferenciación o reprogramación

02

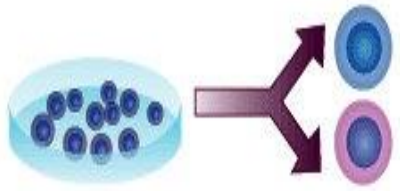


03

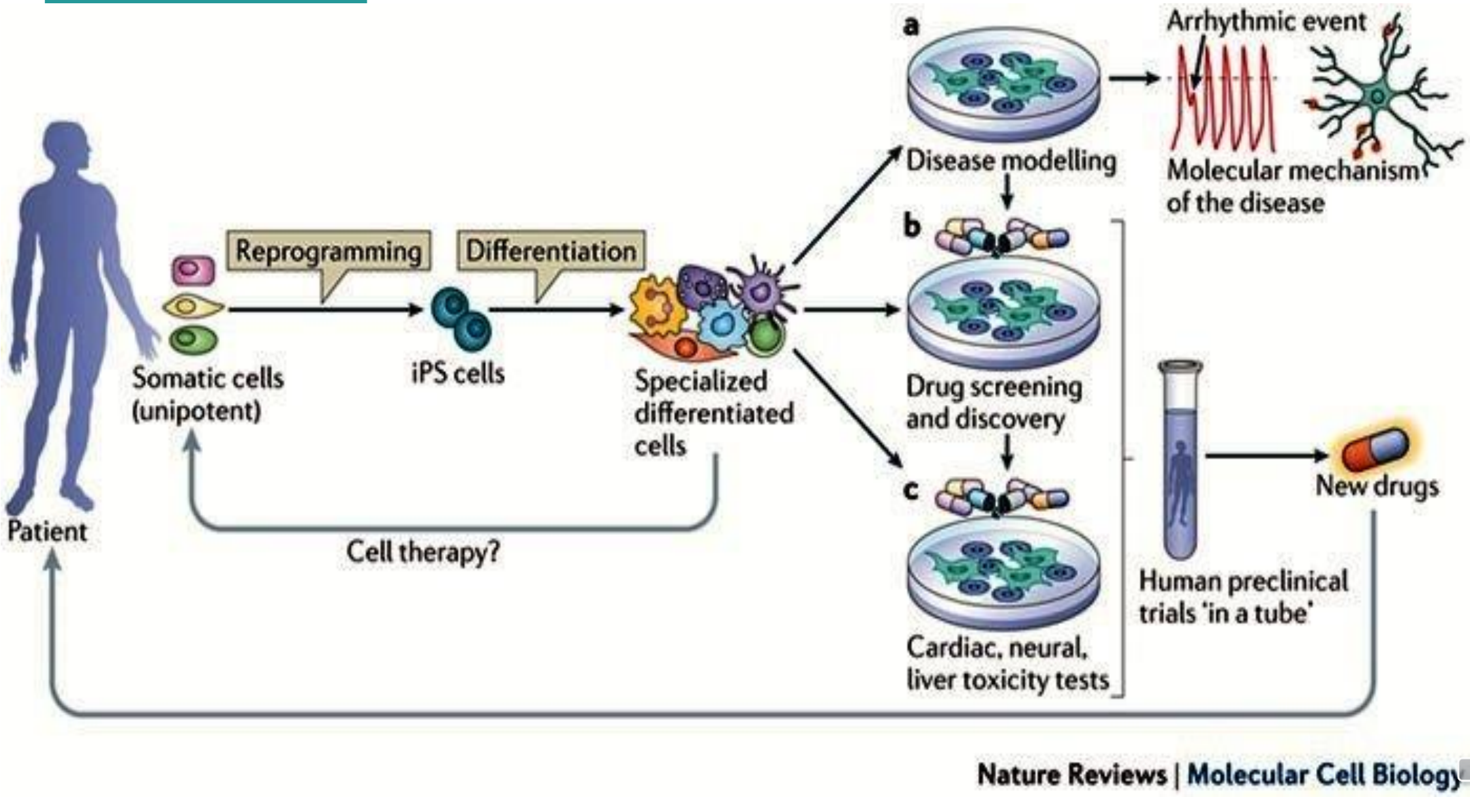


Mediante un cultivo de los fibroblastos se obtienen células pluripotenciales (células iPS) a los 25 días

04



Células madre



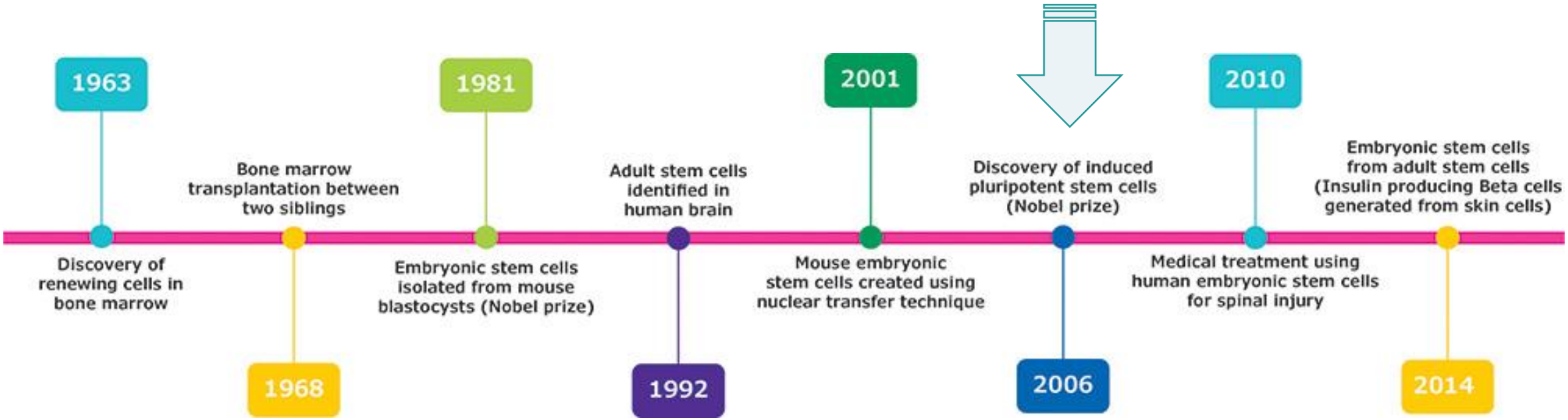
Muy baja eficiencia

Tumorogénicas

Mutagénesis insercional

Reprogramación incompleta

Clonación terapéutica



Proyección futura

Células madre

ES e IPS son tumorogénicas, forman teratomas

Introducción de mutaciones lesivas

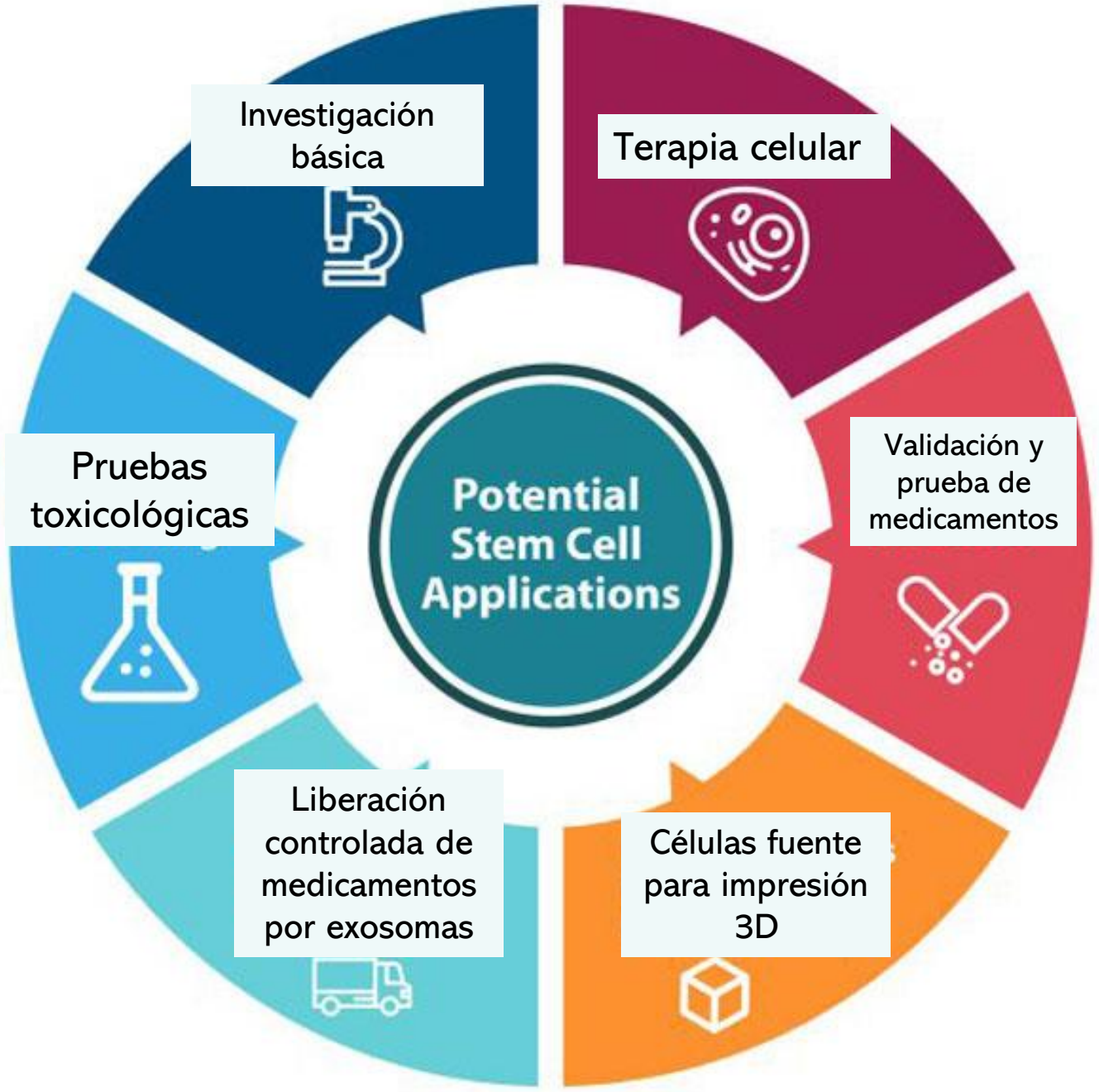
Edad biológica de las células madre

No conocemos los factores de diferenciación

Empresas y muchos grupos de investigación dedicados

Su potencial terapéutico es muy alto

Células madre



Clonación terapéutica

STEM CELL THERAPY MARKET

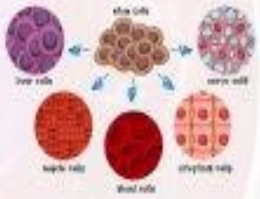
Market Size (2018)
US$ 7,313.6 Mn

CAGR(2019-2027)
21.1%

SEGMENTATIONS (SCOPE)

By Cell Source

- Adult Stem Cells
- Induced Pluripotent Stem-Cells
- Embryonic Stem Cells
- Others



By Application

- Musculoskeletal Disorders
- Wounds and Injuries
- Cancer
- Autoimmune disorders
- Others

PROMINENT REGIONS

NORTH AMERICA

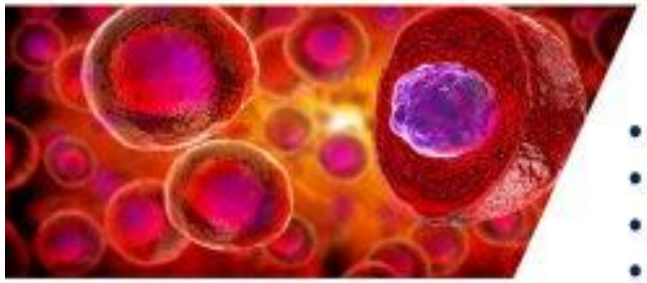
Market Size
US$ 3,120.7 Mn

MAJOR DRIVERS

- Increasing prevalence of cancer
- Rising number of product launch
- Increasing number of **clinical trials**

MAJOR DRIVERS

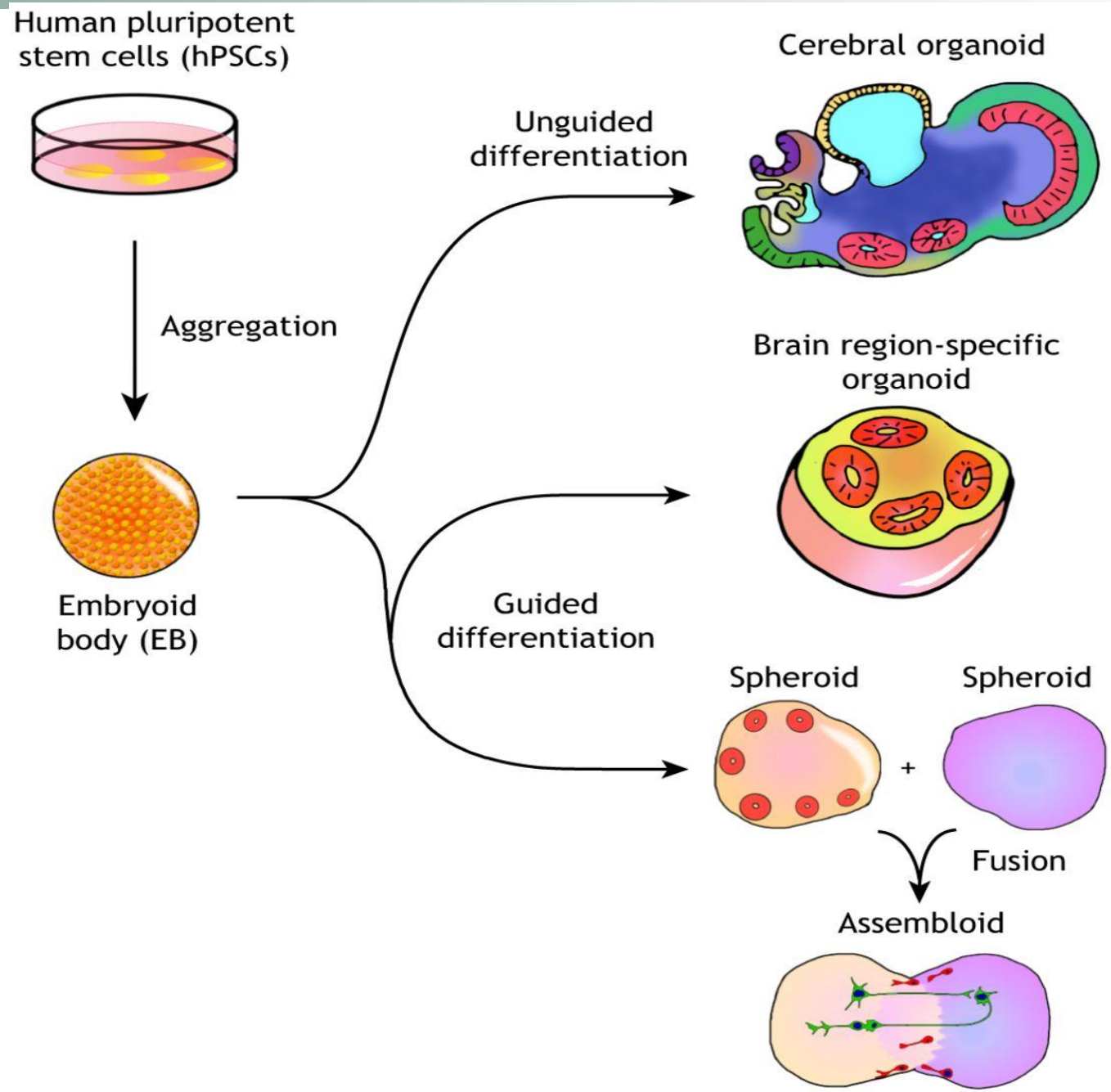
- Increasing incidence of cancer and osteoporosis
- Rising number of **research and development** activities



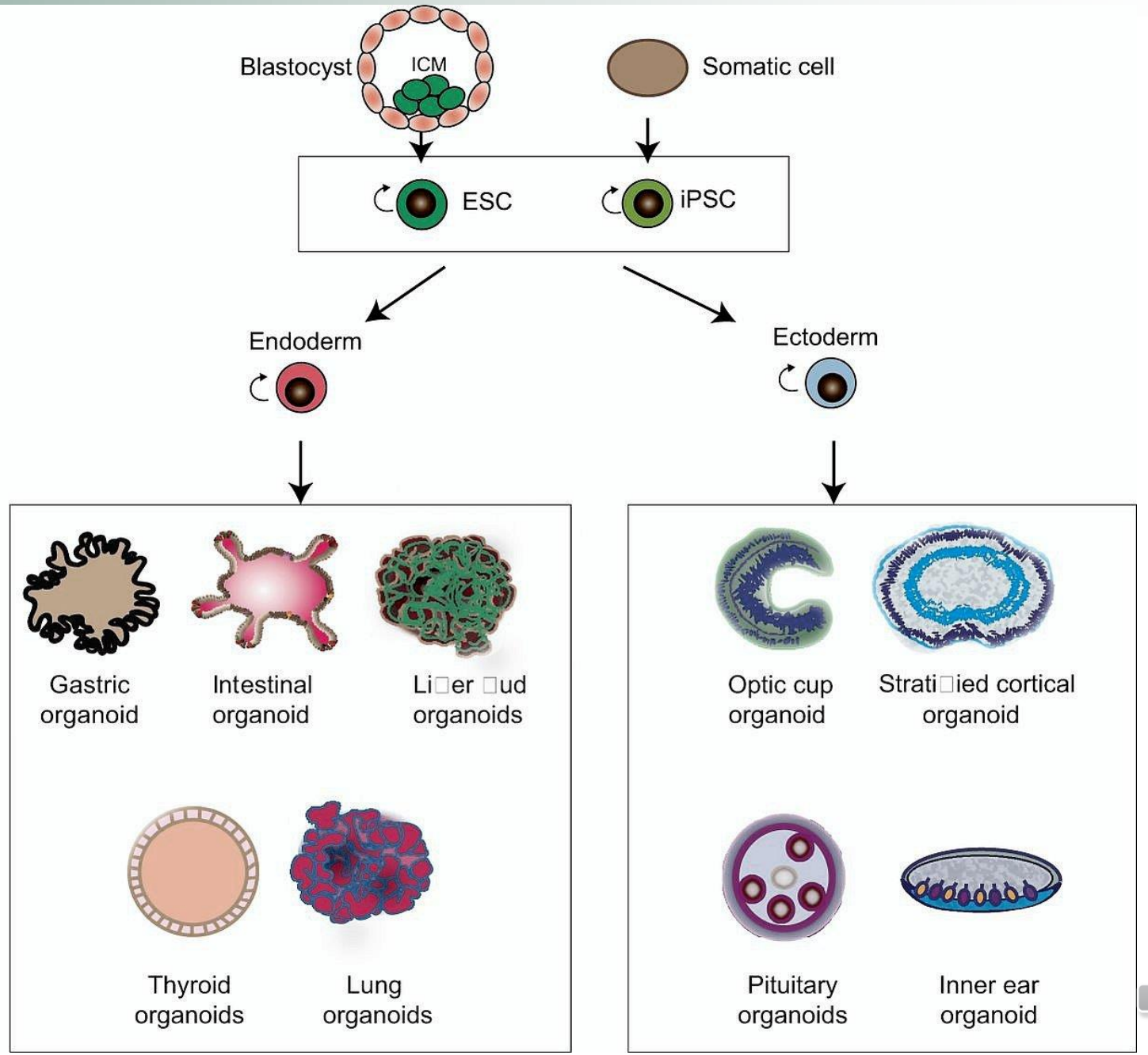
MAJOR PLAYERS

- Magellan
- Medipost Co., Ltd
- Osiris Therapeutics, Inc.
- Kolon TissueGene, Inc.
- JCR Pharmaceuticals Co., Ltd.
- Anterogen Co. Ltd.
- Pharmicell Co., Inc.
- Stemedica Cell Technologies, Inc.

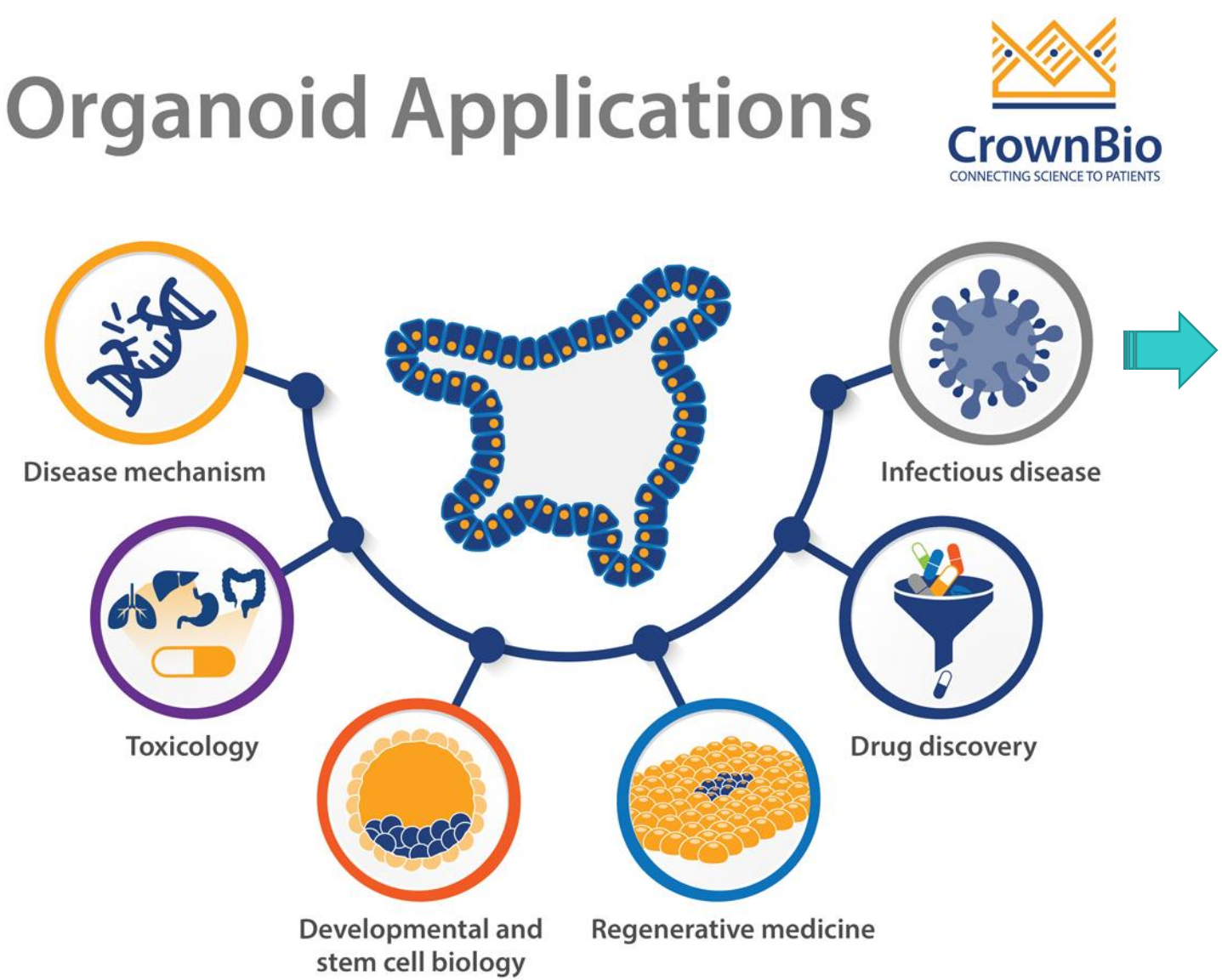
Organoides

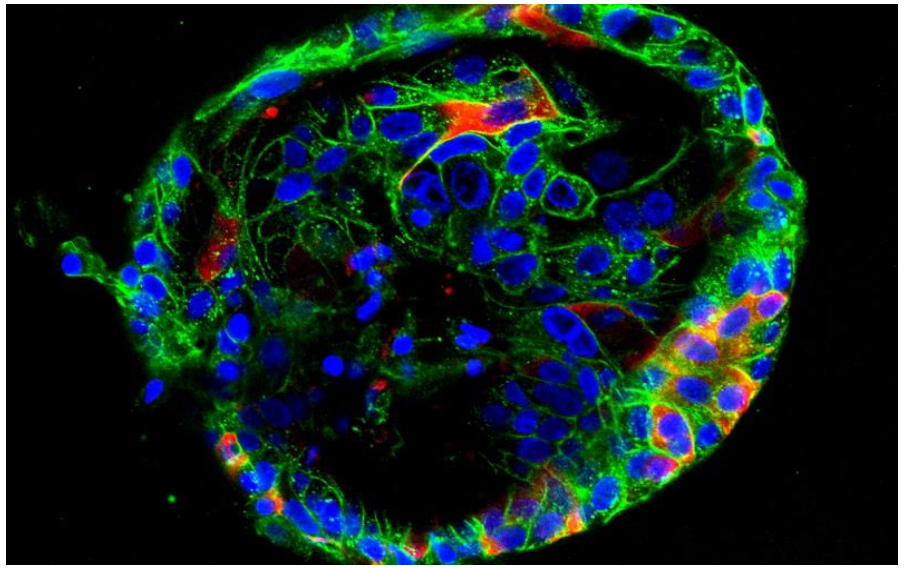

Human pluripotent stem cells (hPSCs)
Aggregation
Embryoid body (EB)
Unguided differentiation
Guided differentiation
Cerebral organoid
Brain region-specific organoid
Spheroid
Spheroid
+
Fusion
Assembloid

Organoides


Blastocyst
ICM
Somatic cell
ESC
iPSC
Endoderm
Ectoderm
Gastric organoid
Intestinal organoid
Li□er □ud organoids
Thyroid organoids
Lung organoids
Optic cup organoid
Strati□ied cortical organoid
Pituitary organoids
Inner ear organoid

Organoides





Organoide hepático infectado con covid19

NATURE
NEWS 22 JUNE 2020
Mini organs reveal how the coronavirus ravages the body
The virus can damage lung, liver and kidney tissue grown in the lab, which might explain some severe COVID-19 complications in people.