MEDICAL BREAKTHROUGH

IPSCS: THE BEGINNING OF A NEW ERA IN MEDICINE

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1

A medical breakthrough is quietly happening in Japan.

For the

first time in history,

therapies made from induced pluripotent stem cells (iPSCs) are moving toward

regulatory approval.

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2

This could change

how we treat disease.

And it may redefine

what medicine can repair.

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3

Why This Matters

For decades, medicine has mostly **manage disease.**

👉 regenerative medicine aims to do something different: **replace damaged cells. repair tissues.**

restore function.

iPSCs may finally make this possible.

4

The Discovery That Changed Biology

In 2006, scientists discovered that

A normal adult cell like a skin cell can be reprogrammed back into a stem cell state.

👉 These cells are called **Pluripotent Stem Cells (iPSCs).**

They can **become almost any cell in the body.**

6

What Makes iPSCs So Powerful

Once a cell becomes an iPSC, scientists can guide it to become:

Neurons

Retinal cells

Heart muscle cells

Pancreatic cells

and many more

Non-exhaustive list

👉 This means we can recreate the cells that **diseases destroy.**

This is the foundation of regenerative medicine.

8

From Lab Discovery to Real Therapy

For almost 20 years, iPSCs were mainly used in research:
disease modeling
drug discovery
understanding development

But now iPSCs are **moving from the lab to the clinic.**

A Historic Step in Japan

Japan has recommended approval for the **first therapies derived from iPSCs.**

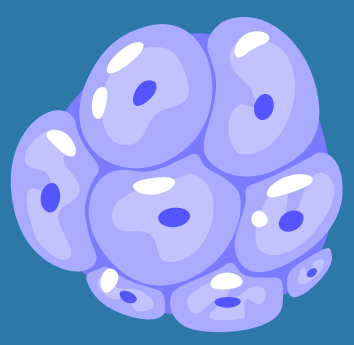
Two treatments are leading the way:

- Heart muscle cell sheets to repair damaged hearts
- Dopamine-producing neurons to treat Parkinson’s disease

10

The Idea Is Simple (But Revolutionary)

Take adult cells



Reprogram them into iPSCs

Turn them into the needed cell type

Transplant them into the patient

Instead of treating symptoms,
we replace the cells that disease destroyed.

If approved, these would be
the first iPSC therapies used in patients.

12

Why Scientists Are So Excited

Because the possibilities are enormous. iPSC therapies could eventually help treat:

Heart failure

Parkinson’s disease

Spinal cord injury

Blindness

Diabetes

👉 Diseases that currently have no real cure.

But This Is Just the Beginning

Cell therapies are complex.

Challenges remain:

long-term safety

immune compatibility

large-scale manufacturing

cost and accessibility

But the first step toward clinical reality has now been taken.

Thanks to iPSC therapies,
medicine won’t just treat disease
but rebuild the human body.

The LIRM is a non-profit
organisation dedicated to
improving patients quality of life
in the areas of **neurodegeneration**
and aging.

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