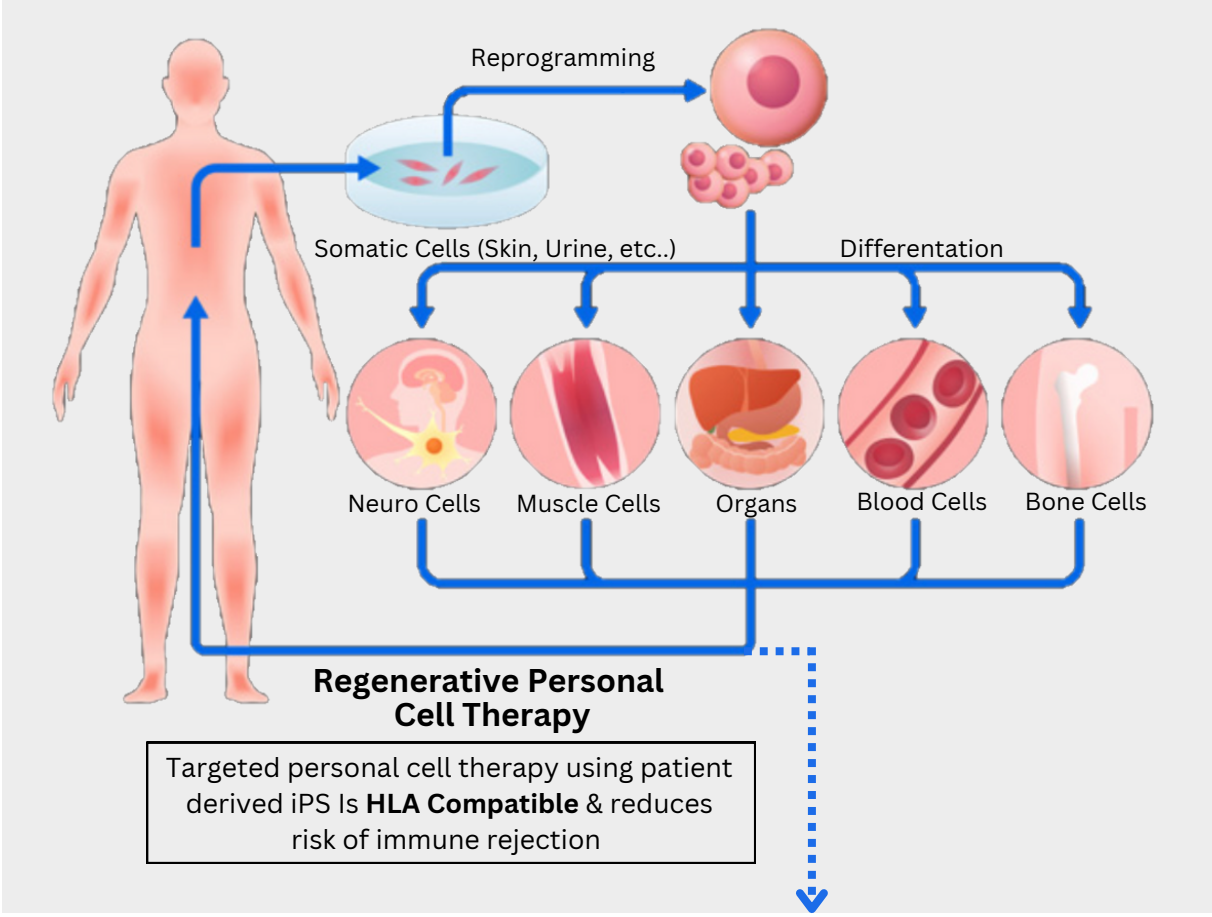
Induced Pluiripotent Stem Cells (iPS)

- iPS can differentiate into all specialized cell types and have high proliferation. They are genetically reprogrammed from somatic cells and are considered a valuable resource for regenerative medicine
- Patient derived iPS reduces risk of immune rejection (HLA compatibility for targeted regenerative cell therapy)

Regenerative Medicine : The Future Of Healthcare

iPS can differentiate into 200 cells which can be used to restore your own tissue & organ functions lost due to cell depletion, lost tissue, damage or defects

Regenerative Personal Cell Therapy & Drug Discovery Applications



Drug Discovery Applications

iPS have also enabled modeling of human diseases with patient-derived cells. Advances drug compound screening and evaluation of drug efficacy

- **Target Validation**
- **Cytotoxicity**
- **Compound Efficiency**

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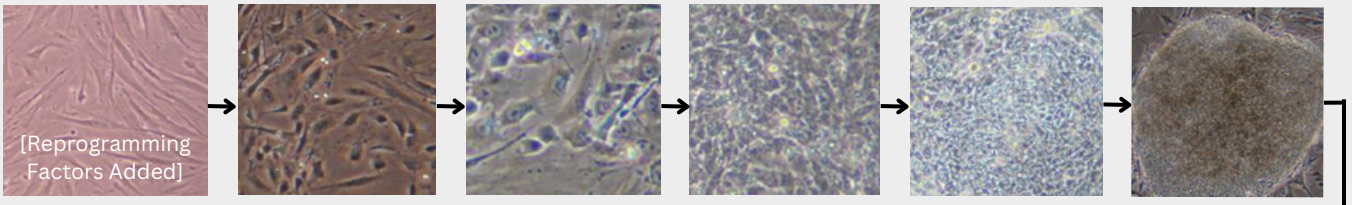
Induced pluiripotent Stem Cells (iPS) - Molecular View

Reprogramming Somatic Cells Back To Pluiripotent Stem Cells

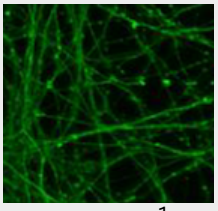


Day 0 → Day 5 → Day 10 → Day 13 → Day 17 → Day 20

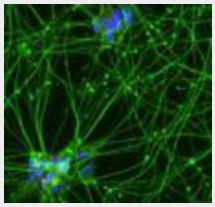
Somatic Cells eg. Skin Cells

IPS cells Established

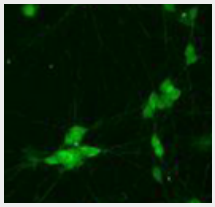
Differentiation Of iPS Cells Into Specialized Differentiated Cells



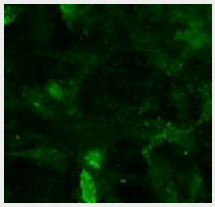
Central Neuron [1]



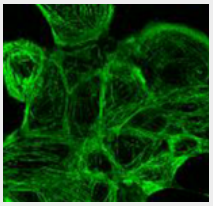
Motor Neuron



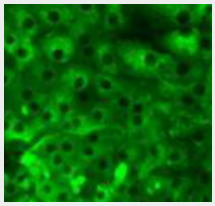
Sensory Neuron



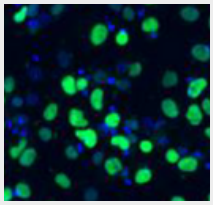
Neuroglial Cell



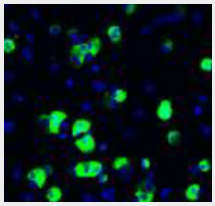
Heart Muscle



Liver Cells



Small Intestinal Cells [2]



Pancreatic Cells [2]

Still Image Of Contracting Heart Muscle (Cardiomyocyte Cells)

Extracted From REPROCELL Cardiomyocytes Video

1 Joint Research With Juntendo University 2 Joint Research With Tokyo Institute Of Technology

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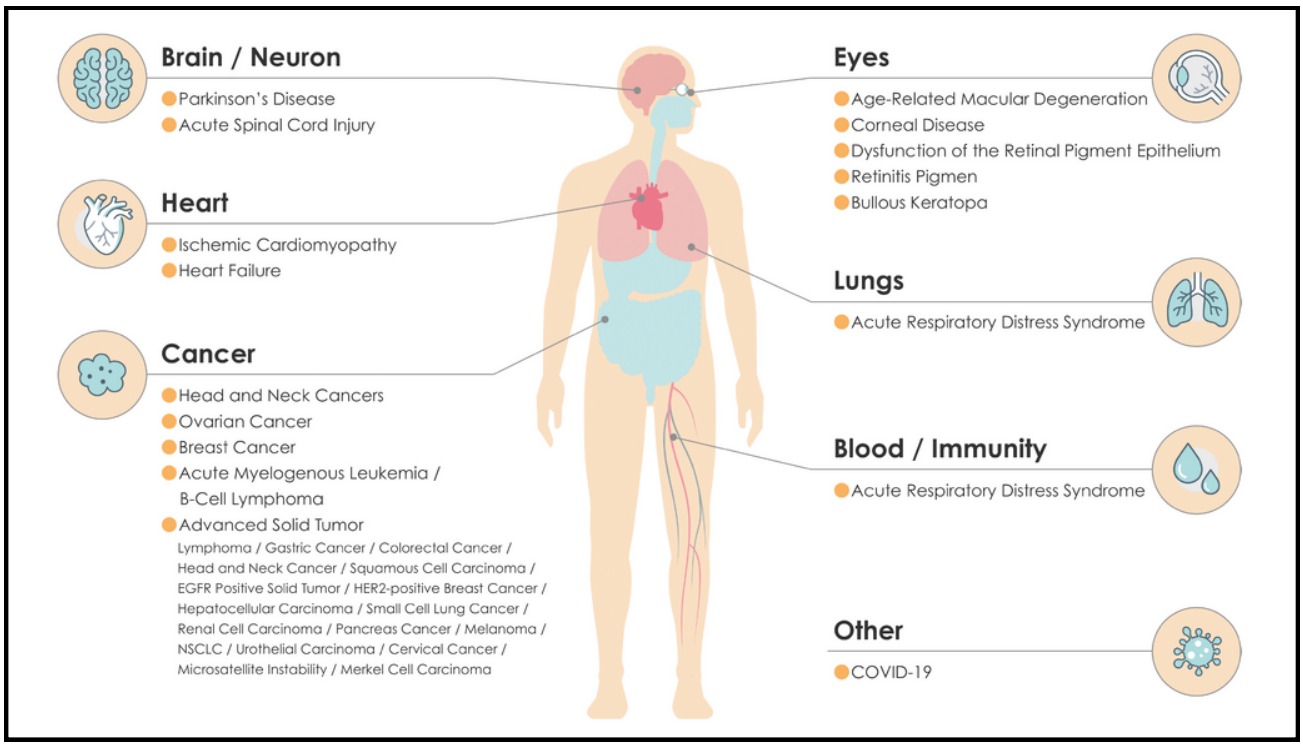
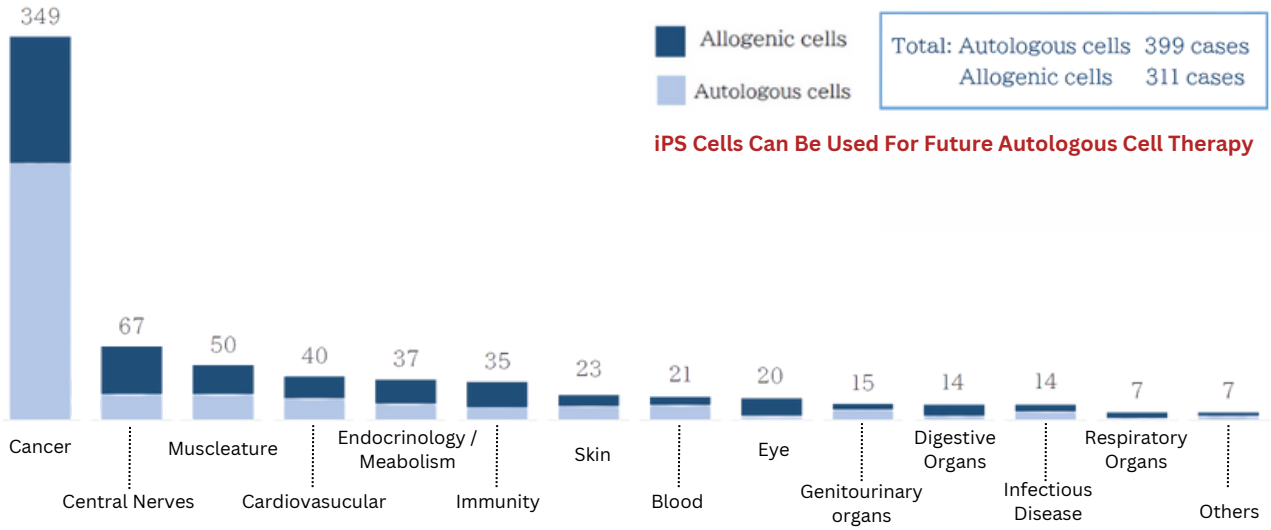
Regenerative Medicine Clinical Pipeline Using iPS Cell Technologies Is Progressing Rapidly & Maturing

Regenerative Medicine With iPS Cells in Clinical Trials



In Japan, clinical trials are underway for age-related macular degeneration, Parkinson's disease and ischemic cardiomyopathy

Global Development Pipeline Of Regenerative & Cell Therapy Developments Using Autologus or Allogenic Cells



Number Of Regenerative And Cell Therapy Developments By Disease Category And By Autologous/Allogenic (including ex vivo gene therapy)

Source: Arthur D Little 'FY 2019 Market Research Services For Regenerative Medicine And Gene Therapy Final Report'

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