How do pluripotent cells develop?

A) in vivo

- Zygote
  - Blastocyst
    - Inner cell mass
      - Embryonic stem cells (ES cells)

- Ectoderm (outside layer)
  - for example: skin, nerves, sensory organs

- Mesoderm (middle layer)
  - for example: blood, muscles, bones

- Endoderm (inside layer)
  - for example: pancreas, lungs, liver

- Germ cells
  - sperm, oocyte

B) in vitro

- Induced pluripotent stem cells (iPS)
  - e.g. with reprogramming factors, carried by viruses

- Sox2, Klf4, c-Myc, Oct4

C) Induction

- Somatic cells
  - Induced pluripotent stem cells (iPS)

- Ectoderm (outside layer)
  - for example: skin, nerves, sensory organs

- Mesoderm (middle layer)
  - for example: blood, muscles, bones

- Endoderm (inside layer)
  - for example: pancreas, lungs, liver

- Germ cells
  - sperm, oocyte