

### Stem Cell differentiation/Manipulation

stem cells can give rise to **progenitor** or cells progenitor cells give rise to another stem cell and progenitor cell (or 2 stem cells OR two progenitor cells) this ability is how *stem cells maintain their own population and generate differentiated cells*

pluripotent capable of differentiating into many different cell types

progenitor cells can differentiate into one of several cell types *depending on external factors*

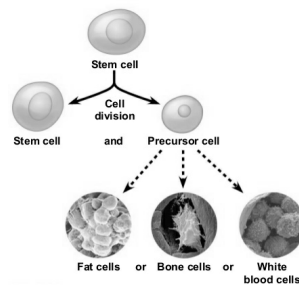
### Stem Cell differentiation/Manipulation (cont)

(iPS) turns induced Pluripotent System cells using differentiated cells into undifferentiated cells these undifferentiated cells are called using retroviral vector introduces 4 genes into fully differentiated human (skin) cell (experimental ) differences in gene expression and other cellular functions appeared to generally function just like an embryonic cell but there are differences in gene expression and other cellular functions

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### Stem Cell replication

Figure 16.14



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