**Stem Cells – A Revolution in Medicine**

“Basics of Stem Cells” Worksheet

**Use the word bank below to fill in the blanks!**

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| --- | --- | --- | --- |
| **Pluripotent** | **Embryonic Stem Cells** | **CIRM** | **Embryonic stem cell line** |
| **Mesenchymal Stem Cells** | **Multipotent** | **Omnipotent** | **Regenerative** |
| **Cancer Stem Cells** | **Adult Stem Cells** | **Differentiation** | **Stromal** |
| **MicroRNAs** | **Alexander Maximow** | **Totipotent** | **Feeder Layer** |
| **Germ Layer** | **Hematopoietic Stem Cell** | **Fertilization** | **DNA** |
| **Proliferation** | **Good Manufacturing Practice** | **Transduction** | **Vectors (as Viruses)** |

1. Cells which can differentiate into bone, cartilage, or fat cells are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. One of the first scientists to identify stem cells, the “precursors” of all cells, is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are known to control the pathway through which stem cell differentiation takes place.
4. The \_\_\_\_\_\_\_\_\_\_\_\_\_ of a stem cell into different types of cells is one of its main characteristics.
5. \_\_\_\_\_\_\_\_\_\_\_\_ is the largest stem cell research organization in the State of California.
6. All cells have \_\_\_\_\_\_\_\_\_\_\_ inside their nucleus. It is the “blueprint of life”.
7. The culturing of stem cells on a dish requires a \_\_\_\_\_\_\_\_\_\_\_ of cells (usually murine embryonic stem cells).
8. Stem cells can make large quantities of other cells and large quantities of themselves – this is known as \_\_\_\_\_\_\_\_\_\_\_\_.
9. It is necessary to use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when producing clinical-grade stem cell products.
10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are used to insert factors and genetic material into cells and stem cells by a process known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are usually weakened.
11. Stem cells which proliferate *too* rapidly and uncontrollably, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, have been known to cause tumors in the body.
12. \_\_\_\_\_\_\_\_\_\_\_\_\_stem cells, also known as \_\_\_\_\_\_\_\_\_\_\_stem cells, can differentiate into any type of cell in the human body.
13. Also known as mesenchymal stem cells, \_\_\_\_\_\_\_\_ cells form the connective tissues in the body.
14. \_\_\_\_\_\_\_\_\_\_\_\_\_medicine deals with cures and therapies derived from stem cells and tissue regeneration.
15. A family of embryonic stem cells from which cells used for experimentation are derived is known as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
16. Union of an egg and a sperm for production of offspring is a process called \_\_\_\_\_\_\_\_\_\_.
17. Stem cells isolated from the bone or blood marrow, cable of regenerating themselves, are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are \_\_\_\_\_\_\_\_\_\_\_\_ stem cells.
18. Undifferentiated, developed stem cells in the human body are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
19. Stem cells which can differentiate into any of the three human \_\_\_\_\_\_\_\_ (endoderm, mesoderm, or ectoderm) are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stem cells.