Purpose of Cell Division

Cell division is an essential process for organism creation, growth, and repair. There are two main types of cell division in humans.

Cells can divide to make reproductive cells, sperm and eggs. Those cells are unique and not identical clones. They also have only one set of chromosomes (half). Once they combine and fuse, they share a full set of chromosomes again.

The other type of cell division is for all non-reproductive cells. That division results in exact clones that have full sets of chromosomes. The daughter cells are identical to each other, and identical to the original parent cell. Remember, the parent cell splits into two daughter cells. Instead of 1 cell creating 2 cells, 1 cell turns into 2 cells. Cells divide in order to repair organisms. They also divide in order for an organism to grow. Humans start from 1 cell and divide as they grow into babies, children, and adults.

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Cells divide to make reproductive cells (sperm and eggs)

Cells dividing to make Sperm and Eggs

Reproductive cells undergo a special type of cell division. They divide and make sperm and egg cells.

Reproductive cell division produces unique cells, not clones

Sperm and Eggs Unique from one another

Reproductive cell division produces unique cells that have genetic differences, not clones. Other types of cell division produce clones.

New reproductive cells have only one set of chromosomes (half)

Sperm and Eggs with Half Set of Chrome-Chromosomes

Reproductive cells have only one set of chromosomes after dividing, meaning they have only half the genetic information.

Reproductive cells can combine and share a full set of chromosomes

Sperm and Egg Combining to Share Full Chrome-Chromosome Set

Once reproductive cells (sperm and egg cells) fuse, they share a full set of chromosomes.

Most cell division produces exact clones with full sets of chromosomes

New Cells are mirror image of each other with Full Set of Chrome-Chromosomes

Most cell division produces cells that are exact clones and have full sets of chromosomes. These cells are identical daughter cells.

Cells divide for organism repair

Cells Dividing to Repair Injury

Cell division often occurs to repair damage to the body of an organism. For example, human cells divide to repair cuts to the skin and tissue.

Cells divide for organism growth

Cell marking Growth of child

Cell division is also critical to the growth of an organism. A human starts out as 1 cell, the fusion of the sperm and the egg. Through cell division, they grow into a baby, a child, and an adult.