Genomic imprinting is an epigenetic phenomenon that causes genes to be expressed in a parent-of-origin-specific manner.

Forms of genomic imprinting have been demonstrated in fungi, plants and animals.

As of 2014, there are about 150 imprinted genes known in the mouse and about half that in humans.

Genomic imprinting is an inheritance process independent of the classical Mendelian inheritance. It is an epigenetic process that involves DNA methylation and histone methylation without altering the genetic sequence. These epigenetic marks are established (“imprinted”) in the germline (sperm or egg cells) of the parents and are maintained through mitotic cell divisions in the somatic cells of an organism.

Appropriate imprinting of certain genes is important for normal development. Human diseases involving genomic imprinting include Angelman syndrome and Prader–Willi syndrome.