

BRCA (sometimes called the "breast cancer gene") is a mutation in a tumor suppressor gene. If a person has a BRCA mutation, he or she has a greatly increased risk of getting certain types of cancer compared to someone without the mutation. A person with the mutation in one allele would still have one functional tumor suppressor allele, so the occurrence of cancer would not be a certainty, but it would be a more likely occurrence than in a person without the mutation who has two functional copies of the tumor suppressor allele. Sometimes a living organism's survival depends on some cells dying and not reproducing. This programmed cell death is called apoptosis. Apoptosis may be triggered when a cell acquires a mutation that could cause cancer. During embryonic development, apoptosis may also occur to ensure proper development of various organs or structures. For example, during early embryonic development, the digits of the hand are initially attached with a weblike structure. During the sixth to eighth weeks of embryonic development, apoptosis eliminates the webbing between the digits of the hand, resulting in the formation of separated fingers.