

In nuclear physics and nuclear chemistry, a nuclear reaction is a process in which two nuclei, or a nucleus and an external subatomic particle, collide to produce one or more new nuclides. Thus, a nuclear reaction must cause a transformation of at least one nuclide to another.

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[Boron neutron capture therapy](#) is based on a [nuclear reaction](#) between the nonradioactive isotope boron-10 and either low-energy thermal neutrons or high-energy epithermal neutrons, which generate high linear energy transfer  $\alpha$  particles and a recoiled lithium nucleus ( ${}^7\text{Li}$ ) that selectively destroys the DNA helix in tumor cells.

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Last update: **2024/06/07 02:58**

