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# Generation of Antibody Diversity

National Cancer Institute

## Source

National Cancer Institute. *Generation of Antibody Diversity*. NCI Thesaurus. Code C26555.

Generation of Antibody Diversity during B-lymphocyte development results from a cascade of temporally ordered random gene shuffling translocations by a recombinase that join any one of multiple alternative discrete V, D, and J (heavy chain) or V and J (light chain) antibody gene variable region DNA coding segments that produce in each B-lymphocyte an antibody with a unique antigen binding region composed of a heavy and a light protein chain. In addition, splicing inaccuracies or insertion of additional nucleotides at the segment junctions generate further junctional diversity and somatic hypermutation of V regions, as B-lymphocytes proliferate, create better fitting antigen-binding sites.