

## **BCL-2 Apoptosis Regulation**

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Members of the BCL-2 protein family act as either apoptosis or anti-apoptosis regulators. Proteins in this family contain several homologous domains, the combination of which causes them to act as either apoptosis inhibitors or promoters. We studied BCL2L1, a gene in this family. The proteins produced by this gene are located on the outer mitochondrial membrane and are thought to regulate apoptosis through activation or inactivation of an inner mitochondrial permeability transition pore. Using TreeSAAP, we discovered selective pressure on a portion of the BCL2L1 gene where the function is unknown. One of the properties under positive selection is an increase in alpha-helical tendencies. The regions under this selection are restricted to the portions of the protein, which appear to be embedded in the mitochondrial membrane. We hypothesize that this portion of the gene is influential in apoptosis regulation.