

Superoxide Dismutases

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“Superoxide dismutases (SOD)” refer to a group of enzymes that catalyze the _____ reaction, which eliminates oxygen free radicals implicated in neurodegeneration¹.

i Note

These oxygen free radicals are produced in normal cell metabolism, but nonetheless are still implicated in neurodegeneration¹

hat, although products of normal cell metabolism, have been implicated in neurodegeneration.

1 Types

There are 3 human SOD isoform:

1. Cytosolic copper-zinc superoxide dismutase ([CuZnSOD](#))¹
2. Mitochondrial manganese superoxide dismutase (MnSOD)¹
3. Extracellular superoxide dismutase (ECSOD)¹

SOD1, a gene on chromosome 21, encodes CuZnSOD. Genetic studies of individuals with adult-onset FALS have determined that about 20% of these individuals have mutations in SOD1; however, the primary gene defect is unknown. When the SOD enzyme activity is decreased, as has been observed in individuals with FALS with SOD1 mutations, free radicals may accumulate causing damage

Pathological implications

1. O'Sullivan SB, Schmitz TJ, Fulk GD, eds. *Physical Rehabilitation*. 7th ed. F.A. Davis Company; 2019.