Methyltransferases are a large group of enzymes that all methylate their substrates but can be split into several subclasses based on their structural features. The most common class of methyltransferases is class I, all of which contain a Rossman fold for binding S-Adenosyl methionine (SAM). Class II methyltransferases contain a SET domain, which are exemplified by SET domain histone methyltransferases, and class III methyltransferases, which are membrane associated.[1] Methyltransferases can also be grouped as different types utilizing different substrates in methyl transfer reactions. These types include protein methyltransferases, DNA/RNA methyltransferases, natural product methyltransferases, and non-SAM dependent methyltransferases. SAM is the classical methyl donor for methyltrasferases, however, examples of other methyl donors are seen in nature. The general mechanism for methyl transfer is a SN2-like nucleophilic attack where the methionine sulfur serves as the nucleophile that transfers the methyl group to the enzyme substrate. SAM is converted to S-Adenosyl homocysteine (SAH) during this process. The breaking of the SAM-methyl bond and the formation of the substrate-methyl bond happen nearly simultaneously. These enzymatic reactions are found in many pathways and are implicated in genetic diseases, cancer, and metabolic diseases.

From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki** 

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=rna\_methyltransferase



Last update: 2024/06/07 02:56