MET3 encodes ATP sulfurylase, which catalyzes the initial step of the sulfur assimilation pathway. The sulfur assimilation pathway leads to the formation of hydrogen sulfide, a precursor in the biosynthesis of homocysteine, cysteine, and methionine. Met3p activates inorganic sulfate in an ATP-dependent reaction and forms the products adenosine-5'-phosphosulfateand pyrophosphate. The ATP sulfurylase enzyme is comprised of six Met3p subunits arranged in a formation of two stacked ringsand Met3p homooligomerazation is mediated by a domain in its C-terminus. The presence of methionine strongly represses the transcription of MET3, and this regulation occurs through the action of the transcription factors Met4p, Met31p, and Met32p on the weak but tightly controlled MET3 promoter. Cells with met3 null mutations are methionine, cysteine, homocysteine, AdoMet, and sulfite auxotrophs and can grow when supplied with these sulfur nutrients but are unable to grow on sulfate. ATP sulfurylases are found in many organisms including bacteria, other fungi, and plants.