

Crystallographic Studies of Human Methionine Adenosyltransferase (MAT)

Christina L. Rush, M. Kotb, S. White, *Molecular Sciences, University of Tennessee, Memphis, TN 38163 and Department of Structural Biology, St. Jude Children's Research Hospital, Memphis, TN 38105.*
E-mail: christina.rush@stjude.org

Methionine adenosyltransferase (MAT) catalyzes the formation of the key enzymatic cofactor, S-adenosylmethionine (AdoMet), from ATP and methionine. AdoMet is important because of its involvement in various biochemical pathways including polyamine synthesis as well as the methylation of nucleic acids and lipids. MAT activity, in mammals, is regulated by a β subunit which lowers the K_m of MAT for L-methionine and renders the enzyme more susceptible to feedback inhibition by AdoMet. This regulatory subunit has been modeled and is currently in crystallization trials. Furthermore, to better understand the role of the β -regulatory subunit, the three dimensional structure of the human MAT complexed to its β subunit will be determined through crystallographic studies.

[1] LeGros H.L. Jr., Halim A.B., Geller A.M., Kotb M., *J Biol Chem.* 2000 , **75(4)**, 2359. [2] Kotb M., Geller A.M., *Pharmacol Ther.* 1993, **59(2)**, 125.

Keywords: **methionine** **adenosyltransferase,**
S-adenosylmethionine, L-methionine