

Mimicking the Molybdenum Cofactor by Synthesis of Molybdenum-Pterin Complexes.

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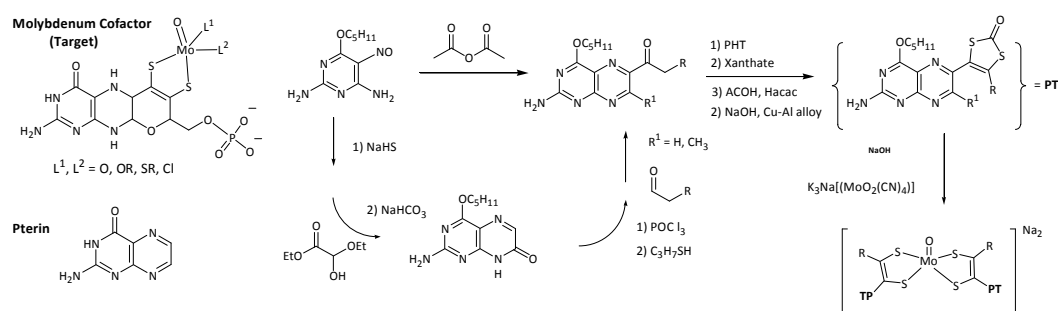
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Pterins fulfil a variety of roles in biology including being pigments, toxins, redox cofactors and C1 transfer cofactors. The pterin structure is also present in a rather complicated molecule called molybdopterin, which, by coordinating to molybdenum, forms the molybdenum cofactor (Fig.)

The main purpose of this project is the study of differently substituted pterin-dithiolene moieties bound to molybdenum (fig.) in order to obtain a better understanding of structure-function relationships and the high instability of this very important part of all molybdenum dependent oxidoreductases. One example of a synthetic pathway is shown below.

Despite having shown that the third ring of mpt does not electronically influence the active site metal strongly if at all¹, we are not convinced that it is actually negligible. Bearing a keto, two amine and one amide group, it is potentially reactive and more importantly it is able to take part in a substantial number of hydrogen bonds.

Input from experts in the field of heterocyclic chemistry during the poster session will be highly appreciated.



References 1.U. Ryde, C. Schulzke, K. Starke, J Biol. Inorg. Chem. 2009, 14, 1053- 1064