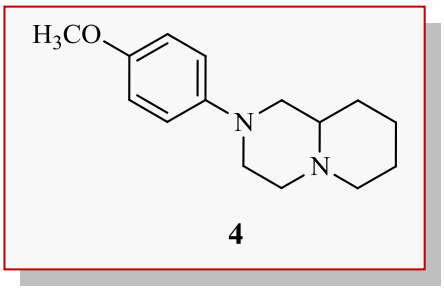
PROBLEM 3

[SUPPL Problem 3 # 1]

In Perspective

*Piperazines with the bicyclic scaffold of product **4** are active antagonists of brain neuron receptors which influence behavioral deviations such as schizophrenia, memory dysfunction, psychoses and depression*



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Apart from these gloomy ailments, these compounds have been employed against parasites and angina. It is all contingent upon the substituent on the secondary amine function. The particular synthetic approach to pyperazines brought about by professor Javier González Fernández at Universidad de Oviedo in Spain takes advantage of a peculiar rearrangement during the reduction step which constitutes the core of the present mechanistic problem.

Despite its apparent simplicity, the sequence of Scheme 3.1 in your TAPSOC involves a number of intriguing issues around β-lactam chemistry and stereochemistry which is of the essence for bioactivity and thus elicits a detailed discussion. A cursory solution would miss all the fun and learning so take your time and participate with your own proposals.