Quantum catalysis in enzymes—beyond the transition state theory

Introduction. Quantum catalysis in enzymes: beyond the transition state theory paradigm

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Darwin at the molecular scale: selection and variance in electron tunnelling proteins including cytochrome c oxidase

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The role of enzyme dynamics and tunnelling in catalysing hydride transfer: studies of distal mutants of dihydrofolate reductase

L. Wang, N. M. Goodey, S. J. Benkovic & A. Kohen

Protein motions during catalysis by dihydrofolate reductases


Linking protein structure and dynamics to catalysis: the role of hydrogen tunnelling

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Quantum catalysis in B12-dependent methylmalonyl-CoA mutase: experimental and computational insights

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Unusual origins of isotope effects in enzyme-catalysed reactions

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Proton-coupled electron transfer: the mechanistic underpinning for radical transport and catalysis in biology

S. Y. Reece, J. M. Hodgkiss, J. A. Stubbe & D. G. Nocera

Hydride transfer catalysed by Escherichia coli and Bacteriodes subtilis dihydrofolate reductase: coupled motions and distal mutations

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Hydrogen tunnelling in enzyme-catalysed H-transfer reactions: flavoprotein and quinoprotein systems

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An analysis of reaction pathways for proton tunnelling in methyleneamine dehydrogenase

S. Nuñez, G. Tresadern, I. H. Hillier & N. A. Burton

Arrhenius curves of hydrogen transfers: tunnel effects, isotope effects and effects of pre-equilibria


Transition state theory can be used in studies of enzyme catalysis: lessons from simulations of tunnelling and dynamical effects in lipooxygenase and other systems

M. H. M. Olsson, J. Mavri & A. Warshel

Protein dynamics and catalysis: the problems of transition state theory and the subtlety of dynamic control

J. R. E. T. Pineda & S. D. Schwartz

Exploring biomolecular machines: energy landscape control of biological reactions

J. N. Onuchic, C. Kobayashi, O. Miyashita, P. Jennings & K. K. Baldridge

Summarizing lecture: factors influencing enzymatic H-transfers, analysis of nuclear tunnelling isotope effects and thermodynamic versus specific effects

R. A. Marcus