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**Rabbit Muscle Aldolase catalytic mechanism: Trapping of covalent intermediates**

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**Introduction:** Rabbit muscle aldolase (EC 4.1.2.13) is a class I fructose-1,6-bisphosphate aldolase that utilizes covalent enzymatic intermediates in its catalytic mechanism [1]. Although the chemical composition of these covalent intermediates has been known for years, a molecular description of the transient enzymatic complexes has not been available.

**Methods and Materials:** Complexes were formed by soaking Rabbit muscle aldolase crystals with ligand solution.

**Results:** We have succeeded by modifying crystallization conditions in trapping various covalent intermediates. Analysis of the datasets clearly shows electron density consistent with formation of covalent complexes between ligand and lysine residue responsible for Schiff base formation. Trapping of covalent complexes in the aldolase active site together with active site differences among aldolase isozymes should allow the design of transition state inhibitors active against various pathogen aldolases.

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**References:**

[1] J. Sygusch, D Beaudry and M. Allaire, "Molecular architecture of rabbit skeletal muscle aldolase at 2.7-Å resolution", *Proc Natl Acad Sci U S A* 1987 Nov;84(22):7846-50