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## Research Interests

There are three major research areas in Dr. Tai's laboratory:

1. Cloning, expression and gene regulation of key enzymes involved in prostaglandin biosynthesis and metabolism and development of specific inhibitors for these enzymes as anti-inflammatory, anti-thrombotic and anti-hypertensive agents.
2. Molecular pharmacology of prostaglandins and other lipids mediators receptors. Synthesis of potent and specific agonists or antagonists for identification and characterization as well as cloning and expression of these receptors. Further elucidation of the interaction of recombinant receptors with other components in the signal transduction system is achieved by molecular modeling, photoaffinity labeling and site-directed mutagenesis studies.
3. Development and genetic engineering of antibodies for analytical and therapeutic purposes. Production of monoclonal and polyclonal antibodies against drugs and other biologically active substances and development of immunoassays for these substances. Further improvement of these antibodies in affinity and specificity is achieved by antibody engineering.

## Research Publications Presentation

Kan, W.M. and Tai H.H. (1993) "Monoclonal Anti-idotypic Antibody to a Potent Thromboxane A2 Receptor Antagonist and its interaction with Thromboxane A2 Receptor," *J. Biol. Chem.*, 268:6364-6370.

Chavan, A.J., Ensor, C.M., Wu, P., Haley, B.E. and Tai, H.H. (1993) "Photoaffinity Labeling of Human Placental NAD<sup>+</sup>-Linked 15-Hydroxyprostaglandin Dehydrogenase with (α<sup>32</sup>P)-2N<sup>3</sup>NAD<sup>+</sup>: Identification of a Peptide in the Adenine Ring Binding Domain." *J. Biol. Chem.* 268:16437-16442.

Xia, Z.N., Shen, R.F., Baek, S.J. and Tai, H.H. (1993) Expression of Two Different Forms of cDNA for Thromboxane Synthase in Insect Cells and Site-Directed Mutagenesis of a Critical Cysteine Residue. *Biochem. J.* 295:457-461.

Huang, C. and Tai, H.H. (1995) "Expression and Site Directed Mutagenesis of Mouse Prostaglandin E2 Receptor EP3 Subtype in Insect Cells. Arginine 309 Is Critical for Ligand Binding," *Biochem. J.* 307:493-498.