

Department of Physics & Astronomy

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Time: 3:00 p.m.-4:00 p.m.

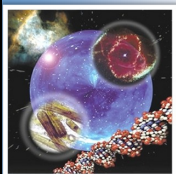
BB 3.03.02

Comparative Studies of Human Indoleamine 2,3-dioxygenase (IDO) and Tryptophan Dioxygenase (TDO)

In contrast to the wide spectrum of cytochrome P450 monooxygenases, there are only two heme-based dioxygenases in humans, tryptophan dioxygenase (TDO) and indoleamine 2,3-dioxygenase (IDO). TDO and IDO catalyze the same oxidative ring cleavage reaction of L-tryptophan (L-Trp) to N-formyl kynurenine (NFK), the initial and rate-limiting step of the kynurenine pathway. Despite immense interest, the mechanism by which the two enzymes execute the dioxygenase reaction remains elusive. In this talk I will present a novel dioxygenase mechanism of the two enzymes revealed by our new spectroscopic, kinetic and computational studies.

REFERENCES

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2. C. Lu, Y. Lin, and S.-R.Yeh, JACS, 131, 12866-7 (2009).
3. D. Batabyal D and S.-R.Yeh, JACS, 131, 3260-70 (2009).
4. Capece L, Lewis-Ballester A, Batabyal D, Di Russo N, Yeh SR, Estrin DA, Marti MA. JBIC, 15, 811-23 (2010)



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