



## INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

### SHORT ABSTRACT OF THESIS

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Programme of Study : Ph.D.  
Thesis Title: Design and Synthesis of Indoleamine 2,3-Dioxygenase 1 Inhibitors.  
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Key words for description of Thesis Work : IDO1, TDO, Inhibitors, Kynurenine pathway, *L*-tryptophan.

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The contents of this thesis entitled “*Design and Synthesis of Indoleamine 2,3-Dioxygenase 1 Inhibitors*” have been divided into four chapters based on the results of experimental work carried out during the research period. The introductory chapter (**Chapter 1**) of the thesis describes the various physiological function of the heme-protein indoleamine 2,3-dioxygenase 1 (IDO1). This chapter also describes the importance of IDO1 as a key therapeutic target for the treatment of diseases (like cancer, Alzheimer etc.) which are associated with the *L*-tryptophan (*L*-Trp) metabolism through the kynurenine pathways. **Chapter 2** demonstrates the synthesis of a series of nitrobenzofurazan derivatives of *N'*-hydroxybenzimidamides and their inhibitory activity studies against purified human IDO1 enzyme in both *in vitro* and under cellular environment. **Chapter 3** describes the synthesis of a series of 3-substituted oxindoles and their inhibitory activity studies against purified human IDO1 enzyme in both *in vitro* and under cellular environment. **Chapter 4** demonstrates the synthesis of a series of C3-substituted 1*H*-indazoles and their inhibitory activity studies against purified human IDO1 enzyme in both *in vitro* and under cellular environment.