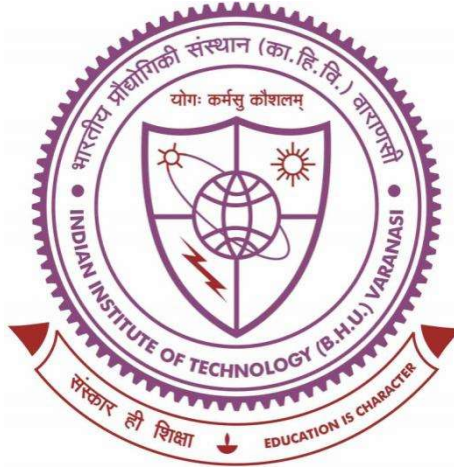


INVESTIGATING ROLE OF INTRACELLULAR MESSENGERS  
AND ENERGY METABOLITES DURING STEM CELLS  
TRANSDIFFERENTIATION ON BIOENGINEERED  
PLATFORMS



**Thesis submitted in partial fulfillment**  
**for the Award of Degree**  
*Doctor of Philosophy*

by  
JUHI JAISWAL

SCHOOL OF BIOMEDICAL ENGINEERING  
INDIAN INSTITUTE OF TECHNOLOGY  
(BANARAS HINDU UNIVERSITY)  
VARANASI- 221005