Executive summary of the report of major research project of University Grants Commission (UGC) entitled ‘Rational Therapy With Glutamine Analogs As Possible Anticancer Agents’ [Ref. No. 41-747/2012 (SR)] of Prof. Tarun Jha

Derivatives and analogs of glutamine may act as anticancer agents by inhibiting phosphate dependent kidney type glutaminase (KGA), matrix metalloproteinase-2 (MMP-2) and histone deacetylase-8 (HDAC-8) enzymes. One of these glutamines inhibited phosphate dependent kidney type glutaminase (KGA) and two of them showed anticancer activity about 90%. Moreover, quantitative structure-activity relationship (QSAR) study directed some leads may be obtained. Some of these glutamines were found to inhibit MMP-2 enzyme selectively (activity in lower nanomolar concentration) whereas some of the isoglutamines (derivatives of glutamines) may act as dual MMP-2/HDAC-8 inhibitors (activity in lower micromolar concentration). Multi chemometric modeling techniques were tried to design and develop such glutamines and isoglutamines. These designed compounds were synthesized and subsequently screened for biological evaluation. Apart from exerting potent enzyme inhibition (KGA, MMP-2 and HDAC-8), these compounds showed anti-migratory and anti-invasive properties. These compounds may be used as adjuvant therapeutic agents in cancer after detailed study.

List of Publications

Number of Books/Book Chapters published:

Journal Publications:

National:


International:


