



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

This thesis includes exploratory, experimental and quantitative studies. It aims at extrapolating the benefits of drug repurposing through the nano realms. While nanomaterials help with stability, solubility and selectivity; repurposed drugs are sustainable and safe. Together, they can smoothen the edges of a therapeutic module that would otherwise be unreliable. Since inflammation is often correlated with cancer, the anti-proliferative potential of antihistamines was explored. Following the experimental screening of several over the counter drugs, promethazine hydrochloride and levocetirizine dihydrochloride were sieved in. Further investigations demonstrated promethazine's obvious potential against triple-negative cancer and levocetirizine's against lung adenocarcinoma. Additional studies also demonstrated promethazine's remarkable anti-bacterial abilities. Thus, augmenting the idea of repositioning with nanotechnology can present a sustainable and workable strategy. Altogether, we are hopeful that the numerous findings from this thesis will pave certain prospects for future investigations that further cement the faith in repurposing.