Technology bulletin

CSIR-Indian Institute of Chemical Biology

Antileishmanial activity of drug entrapped cationic liposomal formulations

INTRODUCTION : *Leishmania donovani* is the causative agents of visceral leishmaniasis (VL). Emergence of drug resistance , long hospitalisation, expensive treatment and recent surge in PKDL are some of major problems associated with available treatment. Safe, effective, low-cost, short course oral or single-shot parenteral administration of treatment are required. Liposomes has the ability to change the absorbance and biodistribution of drugs by protecting the drugs and decreasing the harmful side effects. Our study clearly shows the leishmanicidal effect of cationic liposomes which involves specific interaction with negatively charged PS of parasite membrane, resulting in severe damage of the membrane and ultimate death of the parasite. Single dose combination therapy using sodium antimony gluconate (SAG) in cationic liposomes resulted in almost complete cure of established and chronic VL in BALB/C mice. Thus, we can say that drug entrapped cationic liposomes can show synergestic killing effect on parasites.

CHALLENGE:

- The major problems behind a successful anti-Leishmanial chemotherapy are toxicity, prolonged treatment duration and inability to control relapse due to immune suppression.

APPLICATION:

- Drug entrapped cationic liposomes can be used to overcome the side effects of existing drugs and increase the efficacy.

Opportunity: Application of cationic liposome to entrap drugs resulting in synergestic effect on successful clearance of infection with induction of protective immunity against parasite.

STAGE OF TECHNOLOGY DEVELOPMENT: Both Indian and US Patents have been granted. No commercialization agreement has been done yet. There is ongoing search for industrial partner to prepare this formulation for commercial standard.

REFERENCES:

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