

Encapsulation of staurosporine using a novel intraliposomal stabilization strategy: Therapeutic efficacy in glioma

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OBJECTIVES

Problem: High efficiency liposomal drug loading is limited some classes of drugs (e.g. anthracyclines). However, the majority of current therapeutics are not compatible with traditional loading techniques- signifying need for new encapsulation method.

Solution: We utilized reverse pH gradient method for encapsulation of different drugs for tumor therapy.

APPROACH

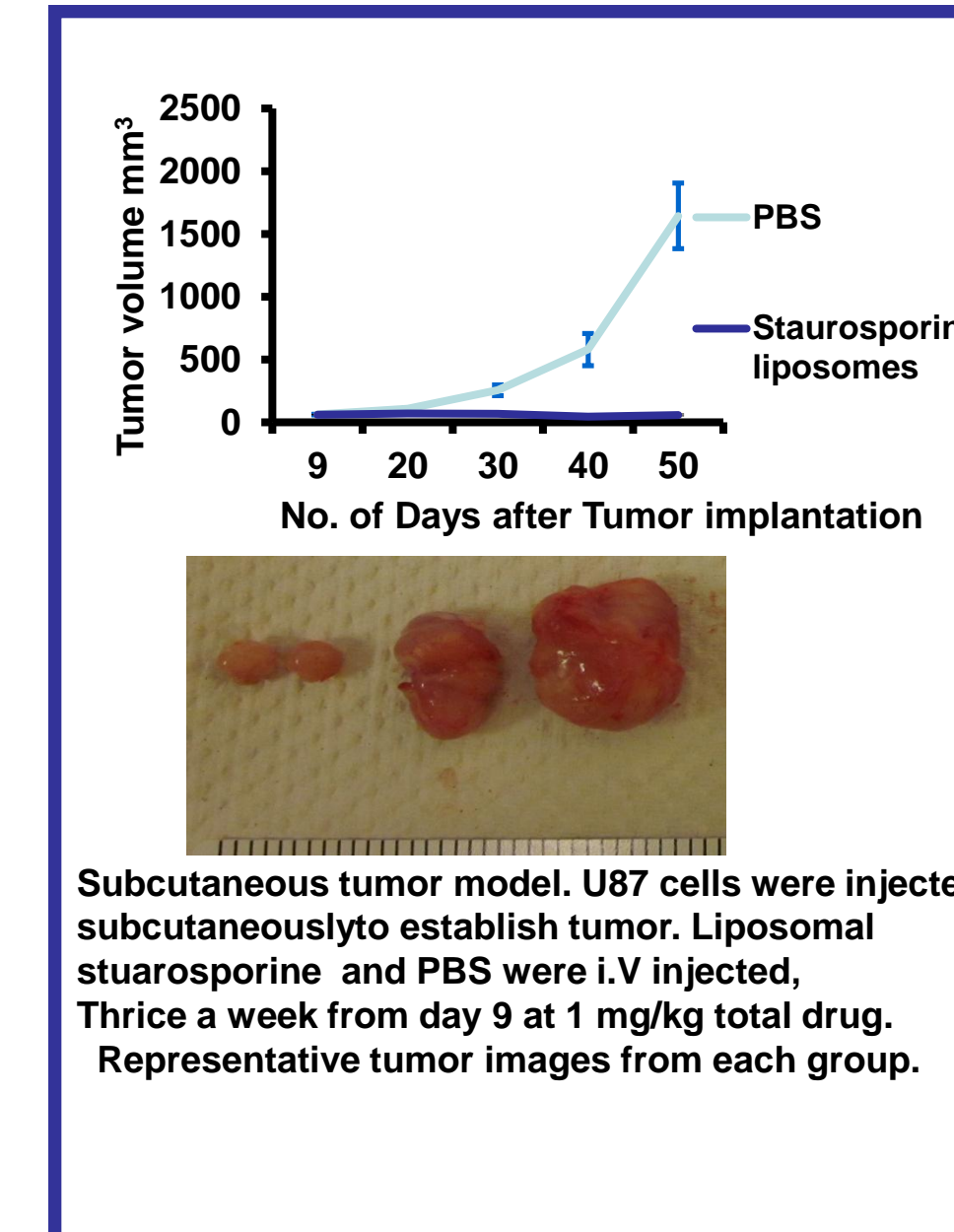
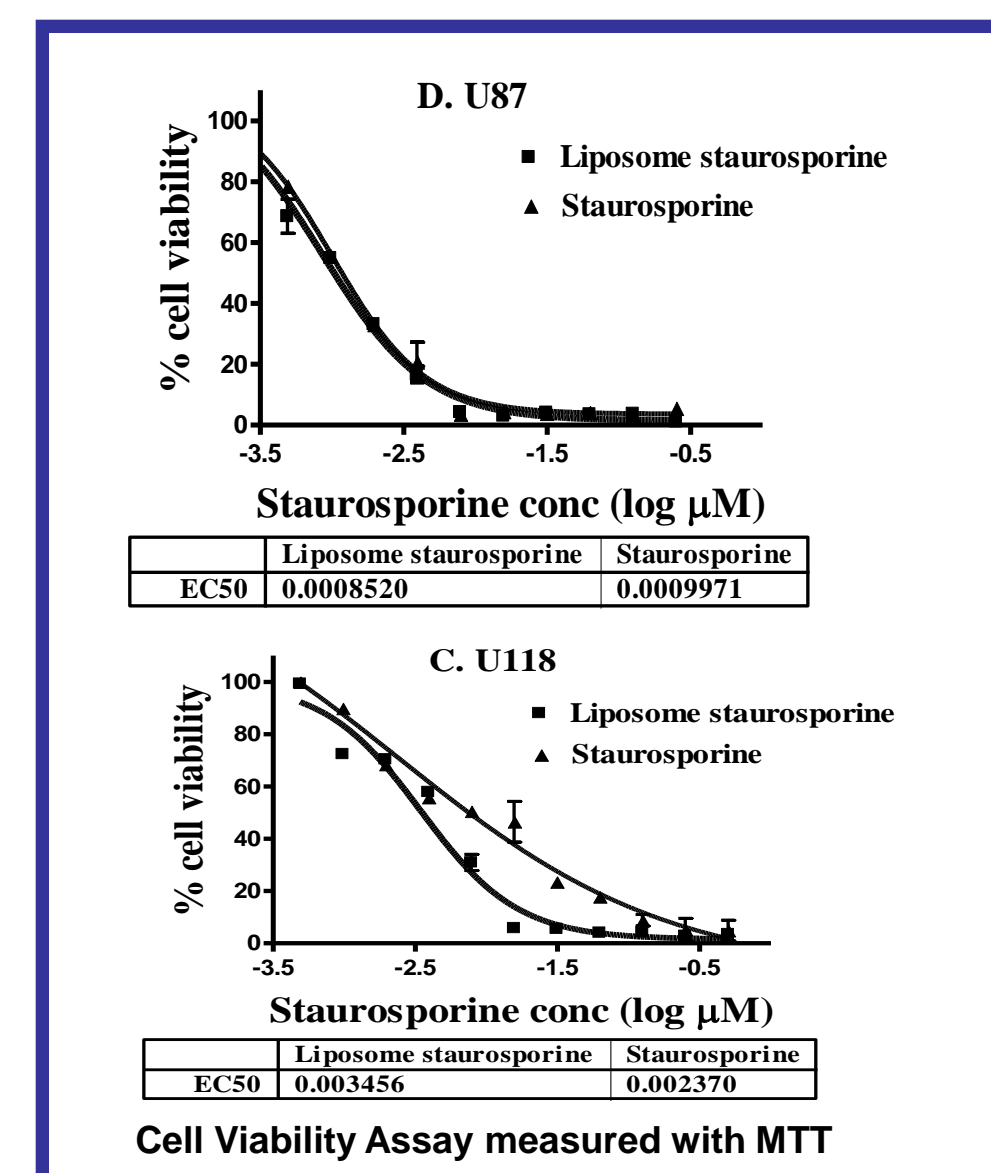
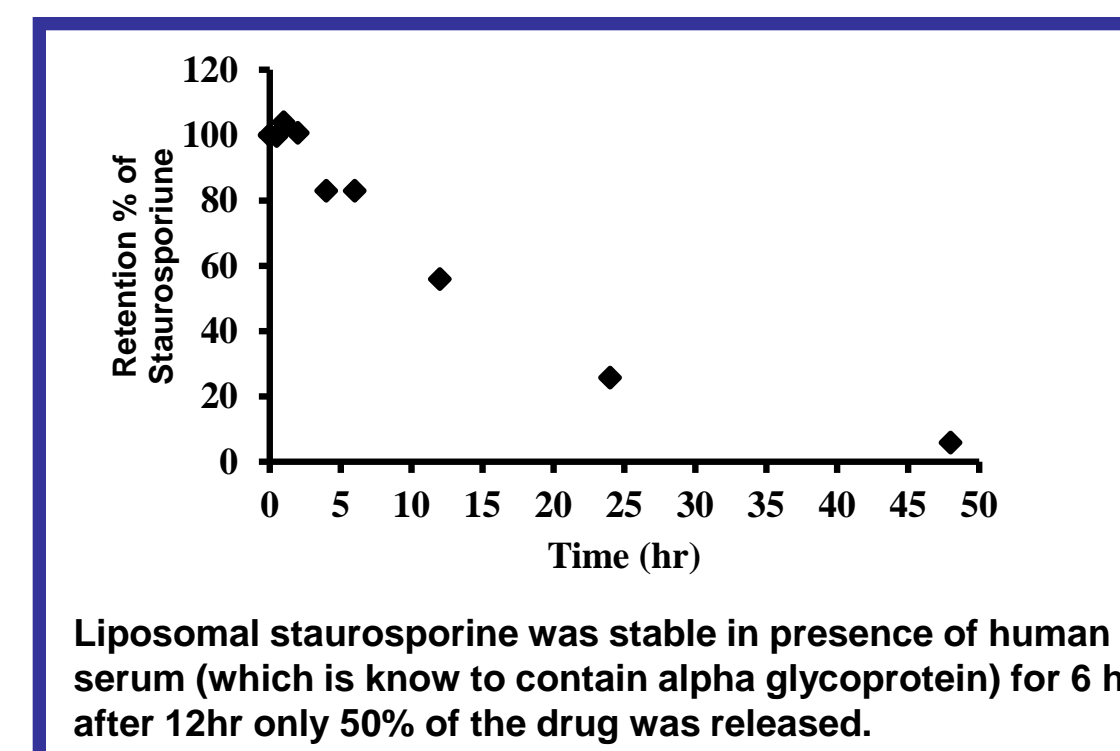
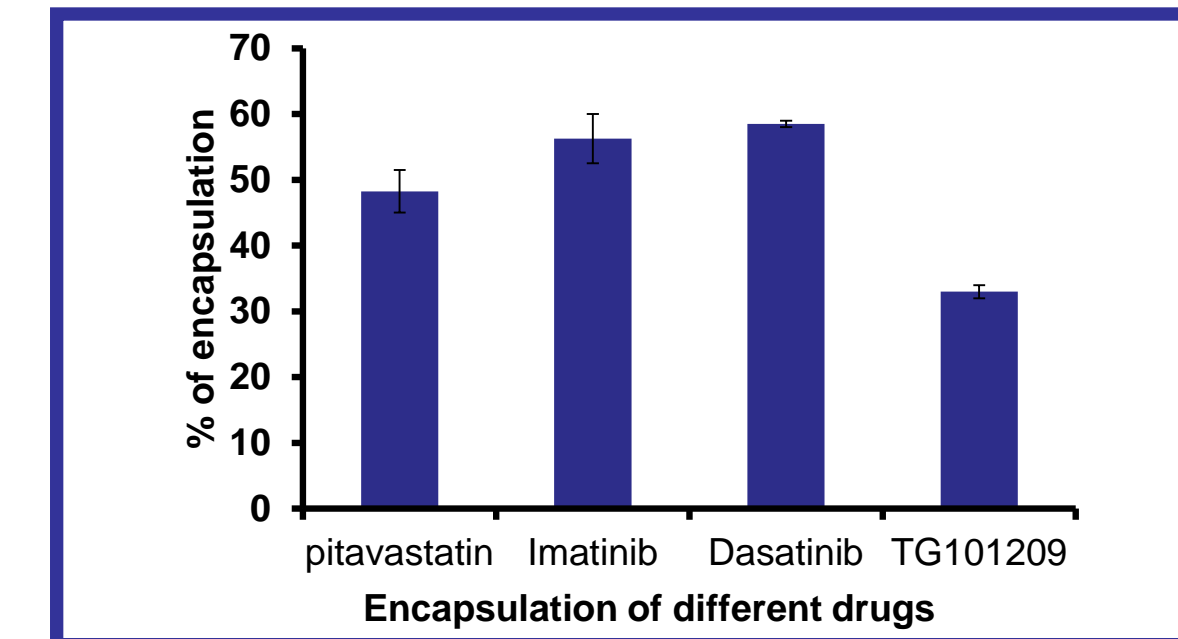
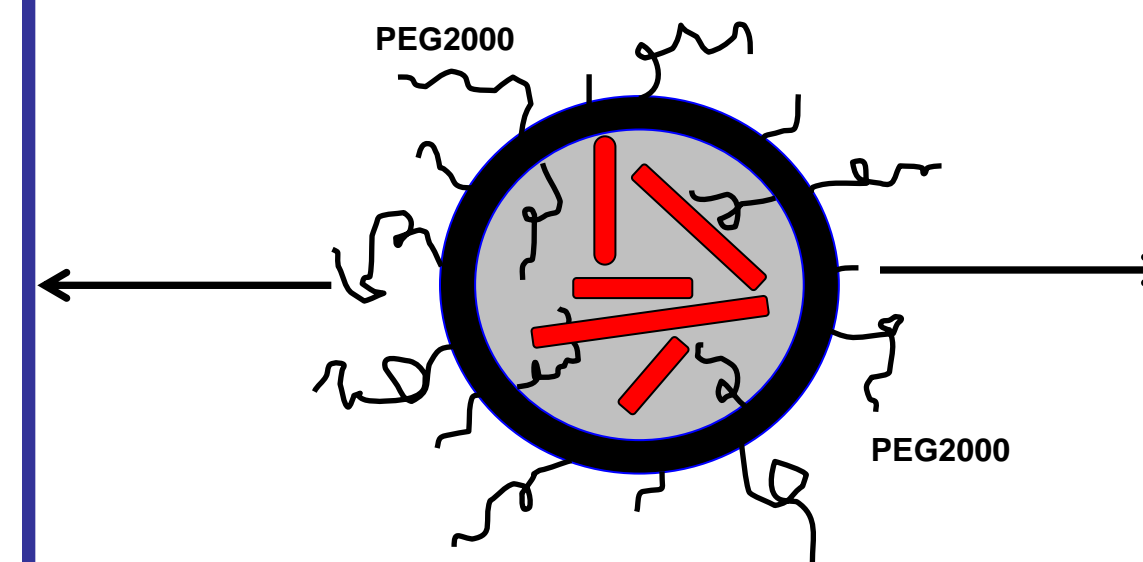
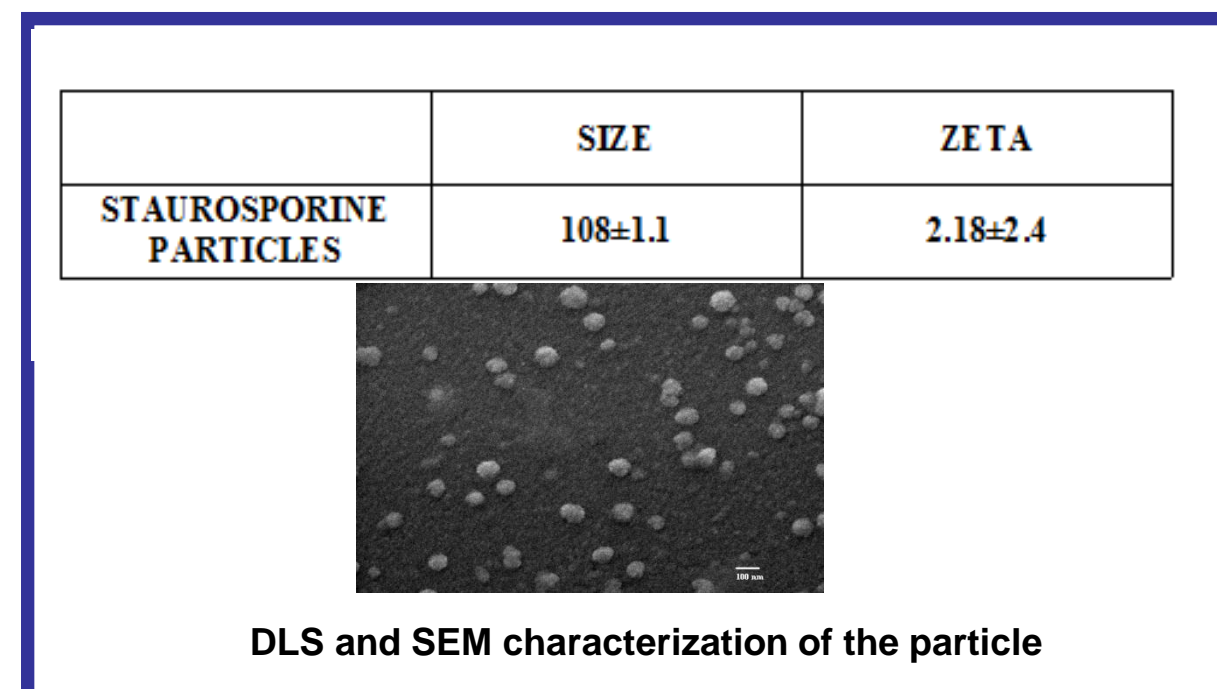
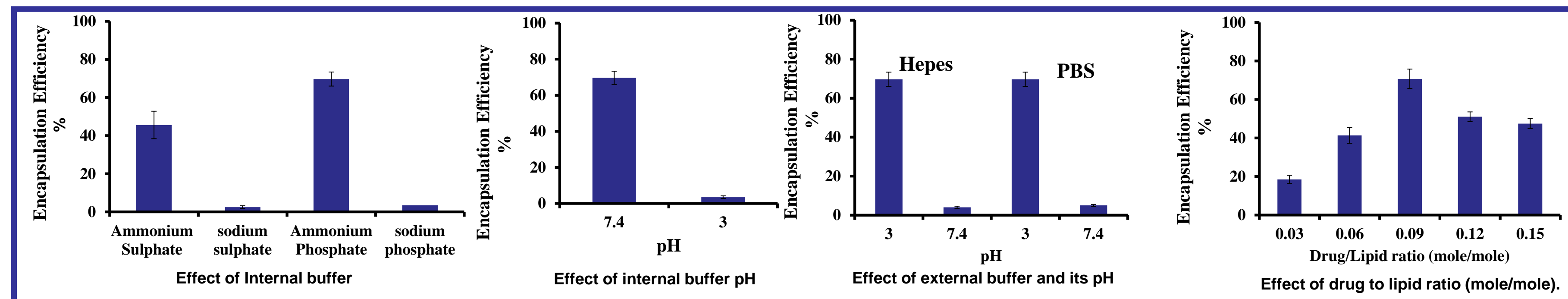
•We developed a reverse pH gradient method for drug encapsulation.

•This method can be used for encapsulation of different kinase inhibitors.

•Serum presence of serum drug was stable for 8hrs.

•By encapsulating staurosporine in liposomes, we can achieve effective dose of chemotherapeutic necessary for the tumor treatments by reducing the side effects.

EXPERIMENTAL RESULTS



CONCLUSIONS

•The Encapsulation method is versatile: Different classes of drugs can be encapsulated.

•Drug to lipid ratio is important factor for drug loading efficacy.

•Staurosporine nanoparticles inhibit cell viability in Brain cancer cell lines.

•Systemic administration of nanoparticles containing 1 mg/kg of Staurosporine prevents tumor growth in subcutaneous U87 tumor models.

Current Studies

Developing orthotropic brain tumor Model to perform therapeutic studies using liposomal Drug Delivery system