

Technology available Sept 2014

Available Technologies:

- ◆ T001877
- ◆ T001931

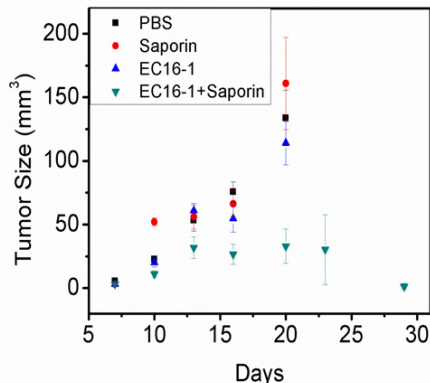
Features and Applications:

- Nanocarriers for protein delivery
- Efficient, cost-effective synthetic methodology
- Traceless delivery method
- Clinical application for delivering protein drugs

Delivering Protein Drugs as a Cancer Therapeutics

The use of cytotoxic proteins for cancer therapy has been hampered by a lack of effective technologies which can safely delivery protein payloads into tumor cells. Researchers at Tufts University have recently reported the successful delivery of two cytotoxic proteins

(ribonuclease A and saporin) into cells using a lipid-based formulation [1]. These formulations were screened on a variety of relevant cancer cell lines and showed nM IC 50 values. The saporin formulation was also administered via tail-vein injection in a murine breast cancer model and shown to efficiently target breast tumor cells. In this experiment, neither the saporin alone or the lipid formulation alone (EC 16-1) demonstrated this same toxicity. This is because saporin only exerts its cytotoxic effects intracellularly. This delivery system is widely applicable to multiple protein platforms and the lipid formulations can be adjusted for tissue-specific and organ-specific targeting capability. This is a powerful tool for protein drug development.



Protein Delivery in Mouse Tumor Model

Using the lipid formulation EC16-1, the protein saporin was shown to reduce tumor volume over a 30 day window.

[1] Wang et al. *Angew. Chem.* **2014**, 126, 2937 – 2942.

Summary

A series of lipid formulations have been developed to deliver proteins into cells. The protein saporin was administered using a key lipid formulation to a mouse breast cancer model and showed

effective reduction in tumor size over a 30 day period. The protein was not toxic when delivered without the lipid formulation.

Several IP positions are now available for licensing from Tufts University. Check out a full description of the technology at <http://techtransfer.tufts.edu/>

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