

Technology/ Title	A Novel Small Molecule Drug Conjugate (SMDC) with Positive Feedback Encoded Ability on Tumor Site Apoptosis	
Technology Type	<input type="checkbox"/> Biotechnology	<input type="checkbox"/> Device/Diagnostics
	<input checked="" type="checkbox"/> Pharmaceutical	<input type="checkbox"/> Others:_____ -
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Link	N/A	
Technology Description	<p>Ligand-targeted therapeutics offer enormous potential to enhance the precision and efficacy of anticancer therapies. One successful strategy is to covalently link chemotherapeutic agents to antibodies that selectively recognize tumor antigens.</p> <p>Current drug conjugates are designed to target disease-associated antigens or receptors for selective chemotherapeutic delivery to tumor sites. The inevitable decrease in the respective homing signals during the treatment lowers the efficacy of ligand-targeted therapeutics. Moreover, lower density of the targeted antigen of tumor cells also presents a bottleneck in the delivery efficiency. Recent studies have demonstrated that down-regulation and modulation of turnover kinetics of target biomarkers can significantly reduce ADCs' efficacy. To improve the efficacy in cancer therapy, it would be optimal a positive feedback mechanism in which selective delivery of an SMDC to the tumor site induces amplification of the homing signals that mediates further recruitment of circulating SMDC. We design and synthesis of a chemically distinct, ligand-targeted drug conjugate with homing signals amplifying potential <i>in vivo</i>.</p> <p>Normally segregated only to the inner leaflets of the plasma membrane in cells, the negatively charged phospholipid phosphatidylserine (PS) is abundantly found on the external surfaces of viable vascular endothelial cells in tumor microenvironments and is an established target molecule for cancer therapy. Moreover, by losing the enzymatic activities of flippase, apoptosis leads to symmetrical distribution of the anionic PS at the transmembrane of the dying cells. PS can then be viewed as the targeting molecule as the delivery of a cytotoxic agent should result in an increase of PS to the outer membrane surface.</p>	

Intellectual Property	N/A
Key Publications	N/A
Business Opportunity	This is a first-in-class and novel design of drug delivery system capable of being developing into theranostics with precision medicine application potential.