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Anticancer and Antidiabetic Compound Interaction with Lipid Interfaces; Microemulsions of AOT as Potential Drug Carriers

Drs. Debbie C. Crans, Bharat Baruah and Ernestas Gaidamauskas from Colorado State University Department of Chemistry have developed microemulsions of AOT that can be used as a drug carrier. These microemulsions are made from oil, surfactant, cosurfactant, and water. They are spontaneously forming single-phase colloidal dispersions of oil-in-water (o/w = micelle) or water-in-oil (w/o = reverse micelle) stabilized by an interfacial film of surfactant(s) and an optional cosurfactant(s). AOT is a surfactant, specifically for bisphosphonates, other phosphate based drugs, and chemotherapeutics used to treat cancer.

This method of drug delivery is simple, non-toxic, and more controllable than other current methodologies. Using microemulsion technology, a drug can be delivered at various rates for sustained release and to specific targets based on drug and target characteristics. This drug carrying technology can then be used to treat cancers and other diseases such as diabetes.

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