

## **“Design and application of biocompatible dendrimers for cancer therapy”**

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**Abstract:** Dendrimers are highly branched tree-like polymers that have several unique and medically-useful properties due to their unusual architecture. Dendrimers can be derivatized, creating a multivalent surface suitable for membrane binding, or can be used to encapsulate drugs and thereby serve to facilitate cellular drug delivery. The usefulness of dendrimers in humans has been limited due to the fact that dendrimers cannot be degraded by the body and because of the difficulty and expense associated with their synthesis. This grant application seeks to develop dendrimers that are readily degraded by the body into nontoxic biologically inert subunits. Experiments in this application utilize a novel boronate ester synthesis that permits facile synthesis and biological degradation of dendrimers. Furthermore, these dendrimers will be derivatized and their function tested as novel drug delivery agents for cancer chemotherapy using cultured cell lines.