2011

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Recommended Citation
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Applications Thus Far

- A library of 12 conical dendrons that self-assemble into hollow dendrimers was studied. It reported that they had the capability to encapsulate things in their core and also change shape from hollow spheres to porous columns.
- A study involving the use of dendrimers to encapsulate Paclitaxel (a cancer treatment drug) shows the dendrimers ability to carry medicine to the tumor.

Potential in Drug Delivery

- Show potential as nanocarriers in drug delivery, gene transfection, tumor therapy, and a variety of diagnostics.
- Can be made biologically active or inert and are small enough to pass into a cell to deliver material.
- Toxicology studies of certain dendrimers showed that 0.5 mg/ml was the max accepted non-toxic range.

Results from toxicity studies (dendrimers G1 and G2 as compared to a non-toxic control)

Conclusion

- Dendrimers hold great potential for the future of science, especially the medical fields. A key interest is in drug delivery. This spherical-polymer class has the ability to encapsulate drugs and carry them to parts of the body due to their void spaces and highly controllable properties. In addition, their simple and cost-effective synthesis make them an efficient and very viable means of production as a drug delivery system.

References