# A new industrial-scale process for making big molecules with a big future

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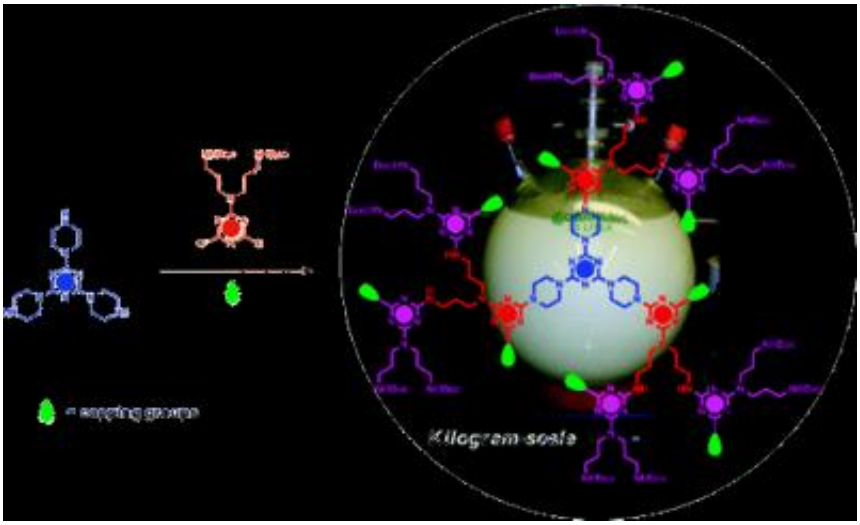

Enormous molecules called dendrimers could serve a variety of functions, including improving drug delivery to materials. Scientists report a method to manufacture them on an industrial scale for the first time. Courtesy of the American Chemical Society

Scientists are reporting discovery of a new method that will enable manufacturers to produce industrial-size batches of dendrimers for the first time. Dendrimers are giant molecules with tree-like branches with a range of potentially valuable commercial and industrial applications. The study is scheduled for the March 21 issue of ACS' monthly *Journal of Organic Chemistry*.

Dendrimers can be produced in custom-designed shapes, sizes, structures and weights suitable for specific uses. Those potential applications range from drug delivery and gene transfer to new materials, coatings, sensors, and herbicides. But because they require multiple steps to make, dendrimers are difficult to produce on an industrial scale.

In their new study, Abdellatif Chouai and Eric E. Simanek describe a practical large-scale synthesis of dendrimers that sidestep this barrier. Their method yields a so-called “uncommitted intermediate,” a dendrimer scaffolding that can be built upon in countless ways.

This intermediate “can be elaborated into a wealth of diagnostic and therapeutic dendrimers — some of which are currently being explored in our laboratory,” the researchers add.

Source: ACS