

## **Towards the Biological Synthesis of fullerene molecules.**

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This invention describes the synthesis of carbon fullerene molecules and nanotubes using biological or enzymatic means. Presently carbon nanotubes are synthesized by either chemical vapor deposition or by electrical discharge in a controlled atmosphere. These approaches are very technically demanding and difficult to control giving heterogeneous populations of products. The present invention describes approaches to de novo synthesis of carbon nanotubes and related fullerenes as well as the stepwise addition of carbon to growing carbon nanotubes. In the latter case, the dimensions of the growing nanotube, including both diameter and length, are customizable and limited only by the input of raw materials and extent to which the reactions are allowed to progress.