

Lithium filled nanocapsules for cancer treatment

CSIC through the Institute of Materials Science of Barcelona ICMAB has developed new carbon nanocapsules filled with enriched lithium compounds. These nanocapsules can be applied in Neutron Capture Therapy (NCT) for cancer treatment.

Industrial partners are being sought to collaborate through a patent license agreement.

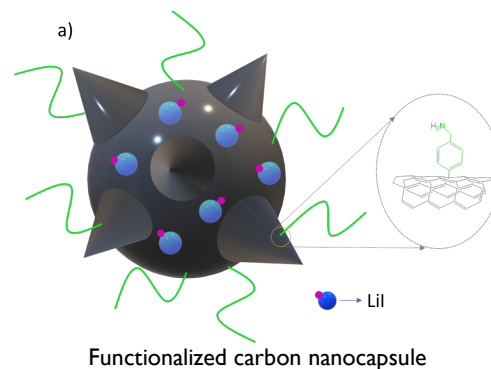
An offer for patent Licensing

Lithium filled nanocapsules for Neutron Capture Therapy (NCT)

NCT is a high linear energy transfer form of radiotherapy that exploits the potential of some specific isotopes that capture neutrons and emit short range particles. The high linear energy (LET) particles are suitable for cancer cell eradication with high precision. Boron-10 (^{10}B) is the mostly used element in NCT. However, critical issues such as biodistribution and low tumor delivery have limited the efficiency of the available molecular systems.

We present an innovative approach, with carbon nanocapsules filled with enriched lithium (^6Li). The encapsulation of ^6Li avoids its interaction with the biological milieu and allows the delivery of a high density of the active isotope to the targeted site. The surface of the nanocarrier has been modified for improved biocompatibility.

Neutron irradiation of ^6Li produce nuclear products with high therapeutic potential, which can significantly improve the efficiency of NCT in the eradication of cancer cells compared with the current state-of-the-art.



Main innovations and advantages

- Functionalized carbon nanocapsules filled with ^6Li .
- Eradication of cancer cells with high precision.
- Great availability of Li as active pharmaceutical agent.
- Production of particles with high therapeutic potential.

Patent Status

Patent application filed suitable of international extension

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