



Breakthrough in Cancer Drug Delivery: Polymer-Based Nanocarriers Show Promise Against Aggressive Tumors

Researchers have made a promising breakthrough in the fight against two of the most aggressive and treatment-resistant cancers: glioblastoma (GBM) and triple-negative breast cancer (TNBC). The study, conducted in collaboration with Polymer Factory, explored new ways to deliver cancer drugs more effectively using advanced polymer-based nanocarriers.

Treating GBM and TNBC is notoriously difficult. Traditional chemotherapy struggles with issues such as poor drug solubility, toxicity, and, in the case of brain tumors, the blood–brain barrier – a natural defense that blocks many drugs from reaching the tumor.

To tackle these challenges, the research team tested two innovative drug delivery systems:

- *Polymeric micelles made from two commercially available systems*
- *Dendritic nanogels (DNGs) based on Polymer Factory's proprietary bis-MPA dendritic nanotechnology*

These nanocarriers were designed to encapsulate and transport common chemotherapy agents like docetaxel, carboplatin, and doxorubicin, increasing their stability and effectiveness. The results were encouraging:

- DNGs were especially effective at delivering water-soluble drugs, offering high loading capacity.
- Micelles improved solubility and uptake of water-insoluble drugs like docetaxel.
- Both systems showed strong tumor penetration and significantly reduced cancer cell growth in laboratory tests.

“This study represents a meaningful step forward in precision oncology,” said Mats Wallnér, CEO of Polymer Factory. “By improving how cancer drugs are delivered, we can potentially make treatments both safer and more effective for patients with hard-to-treat tumors.” The findings not only offer hope for future cancer therapies but also highlight the potential of polymer-based nanotechnology in personalized medicine.

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dendritic materials act as smart delivery systems that enhance the effects of the substances they carry, e.g. a vaccine or an anticancer drug. They have also shown great promise in diagnostics, tissue engineering and in the development of vaccines. In addition, Polymer Factory has used the Company's vast knowledge and expertise to develop a patented calibration technology, named SpheriCal®, designed for Mass Spectrometry instruments. The Company's dendritic nanotechnologies have the potential to accelerate innovation in technologically demanding sectors, such as MedTech and BioTech. Learn more at www.polymerfactory.com.