



We demonstrate that graphene surfaces inhibit this undesirable reaction and would offer superior performance as nanoscale coatings in cancer treatment applications” Mazzola et al (2015).

Reference:

Mazzola, F., Trinh, T., Cooil, S., Ramleth Østli, E., Høydalsvik, K., Torbjørn Bakken Skjønsfjell, E., Kjelstrup, S., Preobrajenski, A., Cafolla, A.A. and Evans, D.A. (2015) Graphene coatings for chemotherapy: avoiding silver-mediated degradation. 2D Materials. 2(2).

Central venous catheter surface chemistry and the delivery of fluorouracil (5-Fu)

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Abstract:

Chemotherapy treatment usually involves the delivery of fluorouracil (5-Fu) together with other drugs through central venous catheters. Catheters and their connectors are increasingly treated with silver or argentic alloys/compounds. Complications arising from broken catheters are common, leading to additional suffering for patients and increased medical costs. Here, we uncover a likely cause of such failure through a study of the surface chemistry relevant to chemotherapy drug delivery, i.e. between 5-Fu and silver. We show that silver catalytically decomposes 5-Fu, compromising the efficacy of the chemotherapy treatment. Furthermore, HF is released as a product, which will be damaging to both patient



and catheter. We demonstrate that graphene surfaces inhibit this undesirable reaction and would offer superior performance as nanoscale coatings in cancer treatment applications.

**Full Text**

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