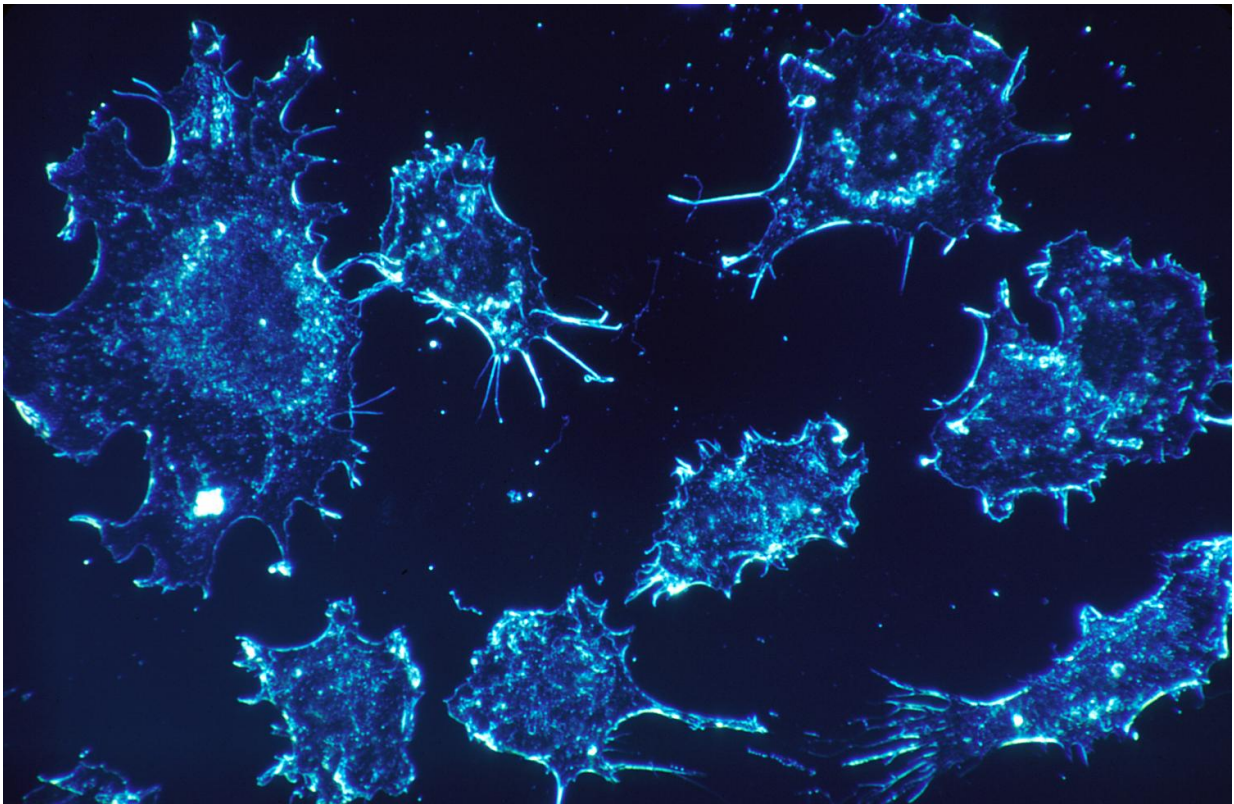


Researchers find more precise way to target tumours with anti-cancer drugs

July 3 2020, by Adrianna MacPherson



Cancer cells. Credit: Dr. Cecil Fox, National Cancer Institute

Researchers at the University of Alberta have found a way to deliver anti-cancer drugs with more precision, which could increase the effectiveness of many cancer treatments.

U of A oncologist Frank Wuest altered the surface of nanoparticles, which are well suited to deliver drugs, with [epidermal growth factor](#) (EGF), a peptide that binds to EGF receptors on [cancer cells](#).

He then tagged the nanoparticles with a radiotracer that would allow their location to be visualized using [positron emission tomography](#) to test whether the modified nanoparticles were specifically targeting tumor cells.

"What we found was that these nanoparticles decorated with EGF showed a higher accumulation in the tumor cells, while sparing [healthy cells](#)," said Wuest, who is also a member of the Cancer Research Institute of Northern Alberta (CRINA) and holds the Dianne and Irving Kipnes Chair in Radiopharmaceutical Sciences.



U of A oncologist Frank Wuest and his team modified nanoparticles and tagged them with a radiotracer to see whether the tiny particles could be used to deliver

cancer drugs to tumours without affecting healthy cells. Credit: Faculty of Medicine & Dentistry

Wuest is collaborating with fellow CRINA members Michael Weinfeld and Afsaneh Lavasanifar on a larger project looking at ways to improve treatment of colorectal cancer by targeting specific components of the DNA repair mechanism. The nanoparticles Wuest examined and modified will be loaded with a drug the larger project team developed, and will be deployed to target the colorectal cancer cells.

"Through our imaging technology, we confirmed that we can achieve targeted delivery of the nanoparticles to the cancer, to the tumor. Now we will incorporate these [anti-cancer drugs](#) into the nanoparticle platform," said Wuest.

While Wuest's team was looking in particular at colorectal cancer for the study, he noted that the general nanoparticle platform for drug delivery can be used with a wide variety of other anti-cancer drugs.

The study was sponsored by the Alberta Cancer Foundation, which also supports Wuest's research chair.

More information: Igor Paiva et al. Synthesis and Analysis of ^{64}Cu -Labeled GE11-Modified Polymeric Micellar Nanoparticles for EGFR-Targeted Molecular Imaging in a Colorectal Cancer Model, *Molecular Pharmaceutics* (2020). [DOI: 10.1021/acs.molpharmaceut.9b01043](https://doi.org/10.1021/acs.molpharmaceut.9b01043)

Provided by University of Alberta

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