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New 'Double Decker' Antibody Technology Fights Cancer

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The new ADC technology advances a class of pharmaceuticals that use antibodies to selectively deliver drugs to cancer cells without harming healthy cells and tissues.

Singapore - Scientists from the Florida campus of The Scripps Research Institute (TSRI) have created a new class of antibody-drug conjugates (ADCs), using a versatile "double decker" technology that ties antibodies and a drug together to produce highly potent pharmaceuticals for cancer therapy.

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The study, published online in the journal *Nature Communications*, was led by TSRI Associate Professor Christoph Rader and TSRI Professor William R. Roush.

"Our new ADCs are built something like a double-decker bus," Rader said. "The upper deck is a targeting antibody that locks onto a cancer cell, while the lower deck is a catalytic antibody that carries the drug. This is yet another exciting application of an incredibly versatile class of catalytic antibodies originally developed by TSRI's Carlos F. Barbas III and Richard A. Lerner in the 1990s."

The name for this new technology is dual variable domain antibody-drug conjugates or DVD-ADCs.

Antibodies are large immune system proteins that recognize unique molecular markers on cancer cells called tumor antigens. On their own, antibodies are usually not potent enough to eradicate cancer. However, their high specificity for tumor antigens makes them ideal vehicles for drug delivery straight to cancer cells.

The study was supported by the National Institutes of Health (grant U01 CA174844), the Klorfine Foundation, the Holm Charitable Trust, the Celia Lipton Farris and Victor W. Farris Foundation and the Division of Medicinal Chemistry of the American Chemical Society.