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Novel Drug Delivery Platform

VTIP 19-064/19-065: "Methods for Loading Exosomal Drug Delivery Vehicles with Therapeutic Molecules/Methods for Hemichannel Loading of Exosomal Drug Delivery Vehicles with Therapeutic Molecules"

THE CHALLENGE

Many therapeutics on the market have limited efficacy due to their ability to cross physiological barriers within the body. In addition, many drug delivery technologies do a poor job of releasing the therapeutic cargo once they have reached their desired location. Improved drug delivery methods are much needed for the treatment of a myriad of physical ailments.

OUR SOLUTION

Rob Gourdie and his team have developed a novel method for exosomal drug loading that is a platform technology which could be used to encapsulate a range of therapeutic molecules, therapeutic peptides, proteins, and microRNAs, as well as non-biologic drugs with cytoplasmic targets. This method will enable the making of exosomaldrug compositions that could be used in the treatment of a range of maladies.

These Include:

- heart disease
- cerebral stroke
- cancer
- neurodegenerative diseases



Lead inventor, Virginia Tech's Rob Gourdie, pictured in the lab.



Illustration of the biological barriers crossed by therapeutic agents with the aid of these drug delivery techniques.



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