

NC State University
Chemical and Biomolecular Engineering
Graduate Student Association
Seminar Series

**The capture of porcine parvovirus
with small peptide ligands**

Caryn Heldt

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4:00–4:45 p.m.
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The removal of viruses from process streams is an important problem to the pharmaceutical industry, particularly as more products are produced from human or cell-based sources. There are many ways to clear viruses during protein purification, the most common of which are virus inactivation using low pH and virus removal by nanofiltration. These unit operations work well for clearance of enveloped and large viruses, respectively. However, porcine parvovirus (PPV), a small, non-enveloped virus, is difficult to remove by these processes and is therefore a good model for virus clearance studies.

In an effort to find a novel way to clear viruses from process streams, trimeric peptides were found from the screening of a solid-phase combinatorial library. Many trimers have been discovered that completely remove PPV when it is spiked into saline. One trimer has been found that also can clear PPV from the first three column volumes from a solution of 7.5% human blood plasma spiked with PPV. These peptide columns were compared to a weak ion exchange resin that was able to clear less than 3 logs of PPV from the same spiked solutions.

In addition to viral clearance, there are also many other uses for these small peptides, including the removal of viruses from process streams, concentration of viral vectors for gene therapy, and molecular surface detection for use in a sensor. These small peptide ligands have promising uses in many areas of virus capture, and the use will be determined by the ease of elution that is needed for each application.

Refreshments will be served 4:45-5:00 p.m. in the faculty lounge.