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Antiviral Drug Development: Targeted Design and Broad Spectrum Approach

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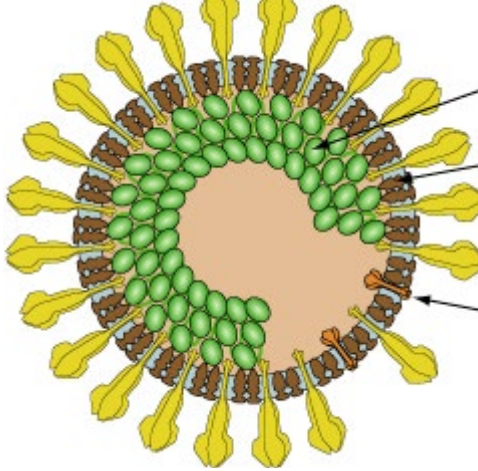
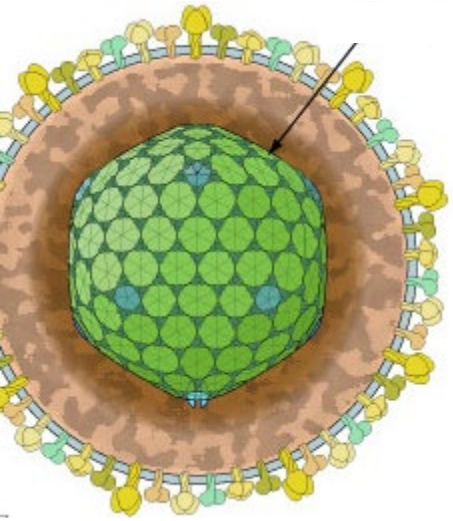
Virtual Faculty Research Day 2022



Antiviral Drug Development: targeted design and broad-spectrum approach



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Molecular and Cellular Biosciences

Biological Sciences

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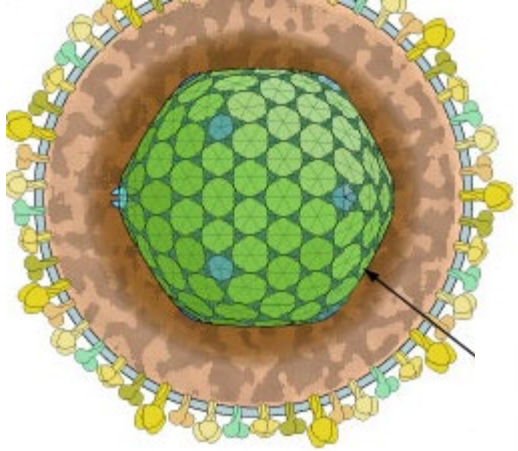
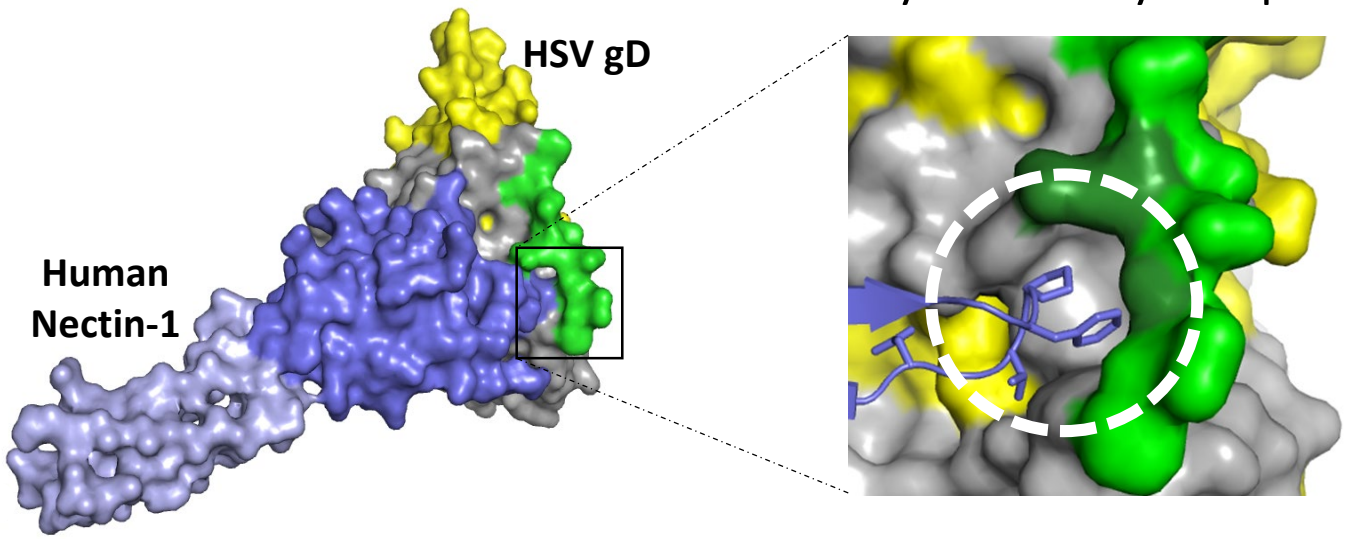
Small molecules to block herpes simplex virus entry into cells

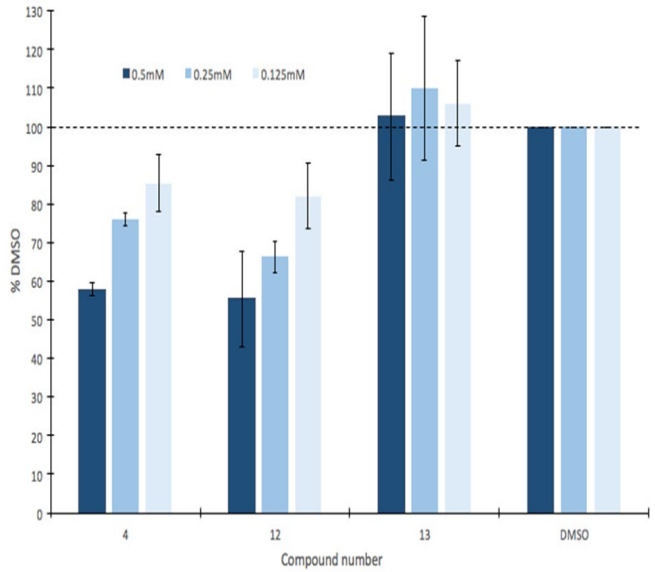


1) Binding of viral glycoprotein D to a cell surface receptor like nectin-1 is essential to initiate infection.

2) Identification of target site using protein structure.
3) Screen small molecule library to identify compounds.

4)Test compounds in cell culture for inhibition of infection.
5) Improve drug to enhance activity





Collaborators: Chun Wu (Chem/Biochem and MCB) and Subash Jonnalagadda (Chem/Biochem)
Funding: Rowan SEED, and NJHF

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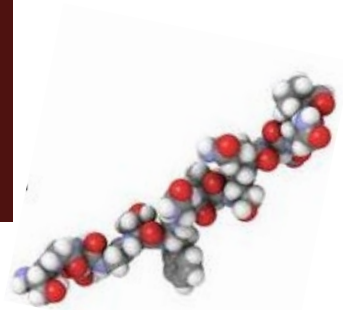
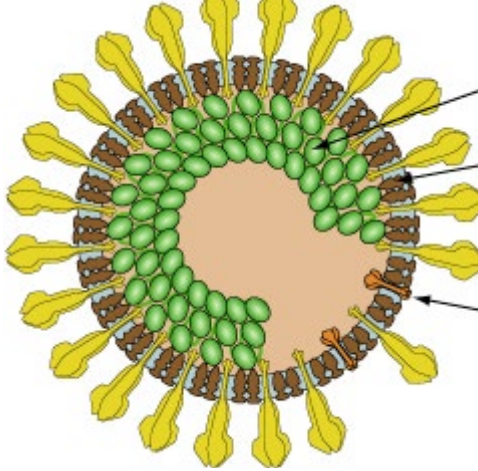
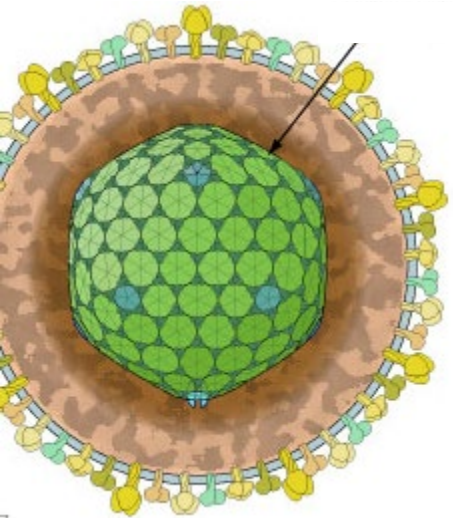


Peptides to disarm enveloped viruses



- **Background:** many viruses, incl. herpesviruses and coronaviruses, are surrounded by a membrane, which integrity is essential for infection.



- **Goal:** Develop small peptides able to destabilize and disrupt viral envelopes. This project could lead to antiviral treatments with broad-spectrum activity.

- **Approach:** Test existing antibacterial peptides against herpesviruses and coronaviruses in cell culture to determine antiviral activity and toxicity.

- **Collaborator:** Greg Caputo (Chem/Biochem and MCB)
  Funding: NJHF