

Bacteriophage tail tube  
<http://vacha.ceitec.cz>

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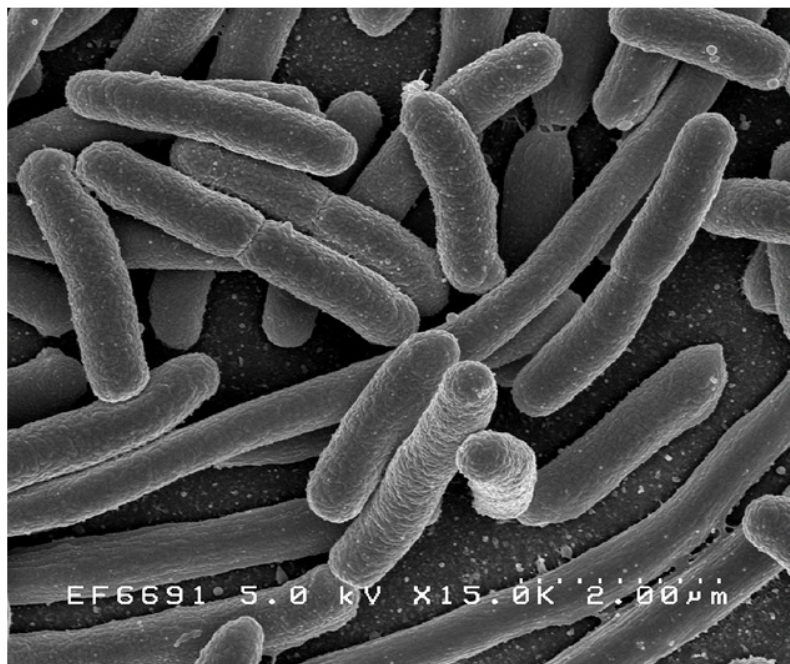
Národní centrum pro výzkum biomolekul  
Laboratoř výpočetní chemie

# Antimikrobiální rezistence

## V USA se po novém objevu bojí „superbakterií“, na které léky nezaberou

27. května 2016 12:54, aktualizováno 15:56 

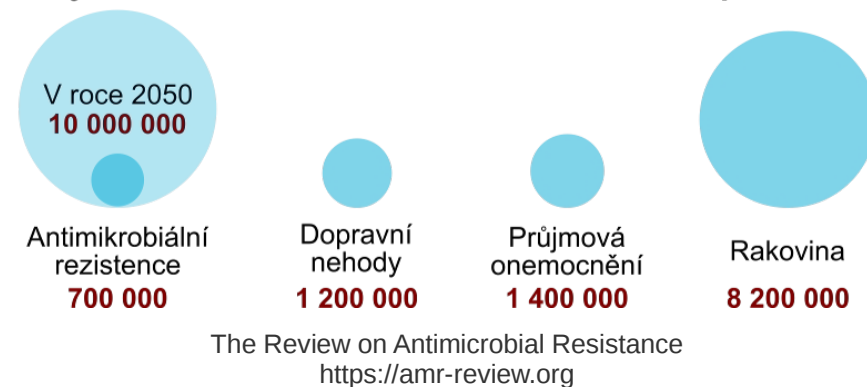
Američtí lékaři vůbec poprvé narazili na bakterii odolnou proti poslednímu antibiotiku, které zatím fungovalo spolehlivě - kolistinu. Znamená to, že bakteriální původci nemocí už se mohou k této „technologii“ postupem času také dostat, a získat odolnost vůči všem dnes používaným antibiotikům.



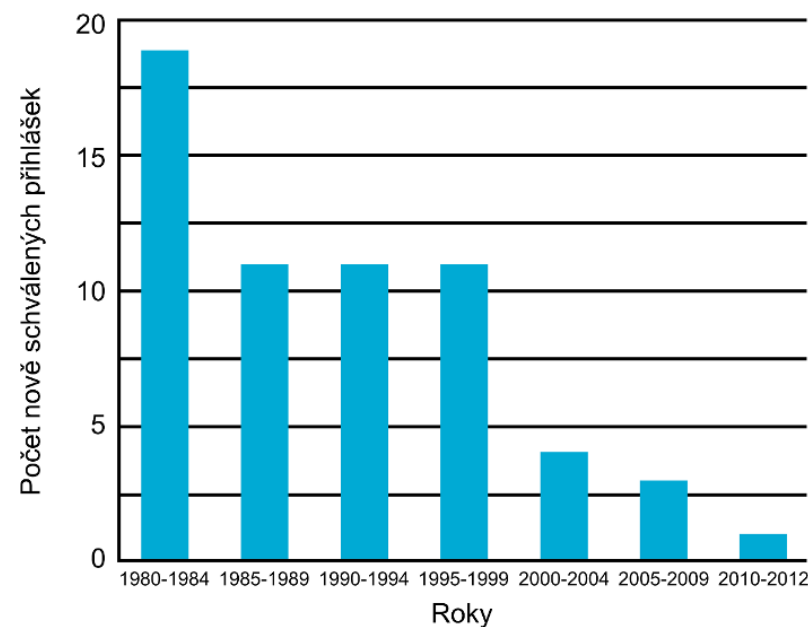
<http://technet.idnes.cz>

Chen, L. (2017). Notes from the Field: Pan-Resistant New Delhi Metallo-Beta-Lactamase-Producing *Klebsiella pneumoniae*—Washoe County, Nevada, 2016. *MMWR. Morbidity and Mortality Weekly Report*, 66.

## Srovnání počtu úmrtí přisouzených rezistentním mikrobům za jeden rok ve srovnání s dalšími hlavními příčinami



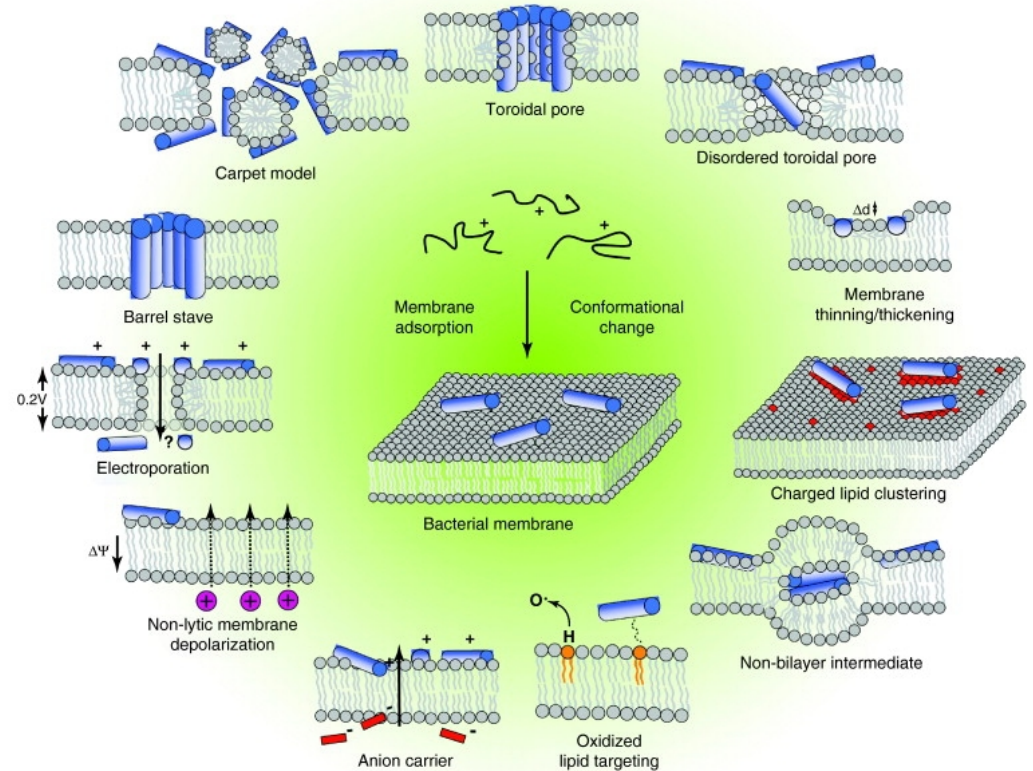
## Počet nově schválených přihlášek antibakteriálních léčiv



Antibiotic Resistance Threats in the United States, 2013  
<https://www.cdc.gov/drugresistance/threat-report-2013/>

# Antimikrobiální peptidy

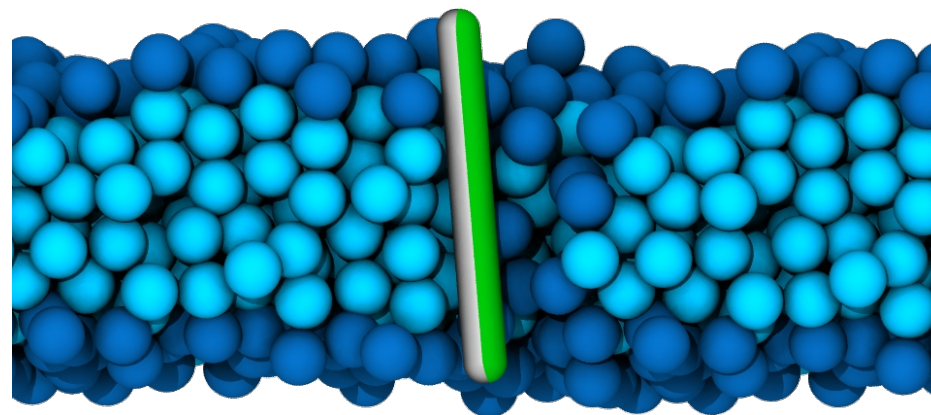
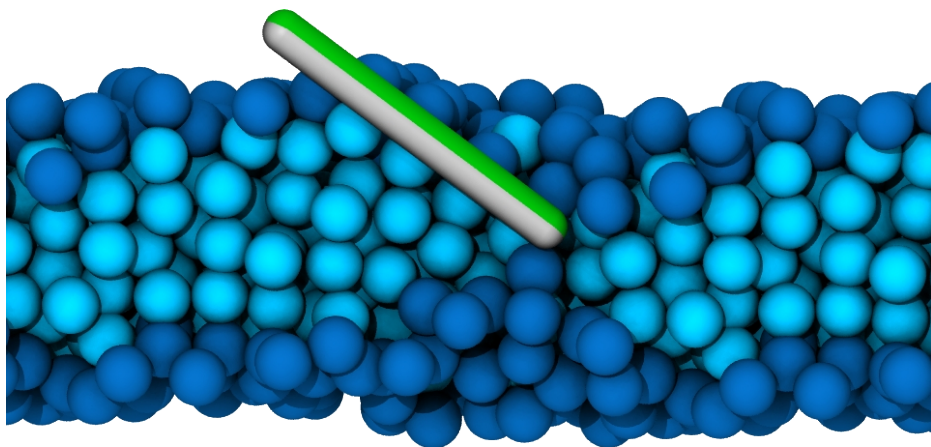
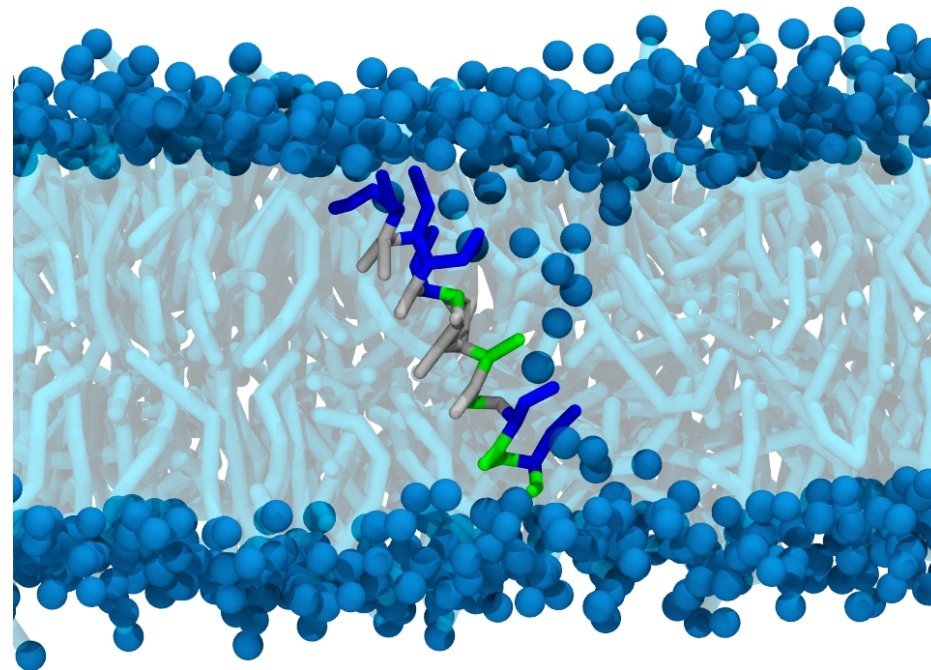
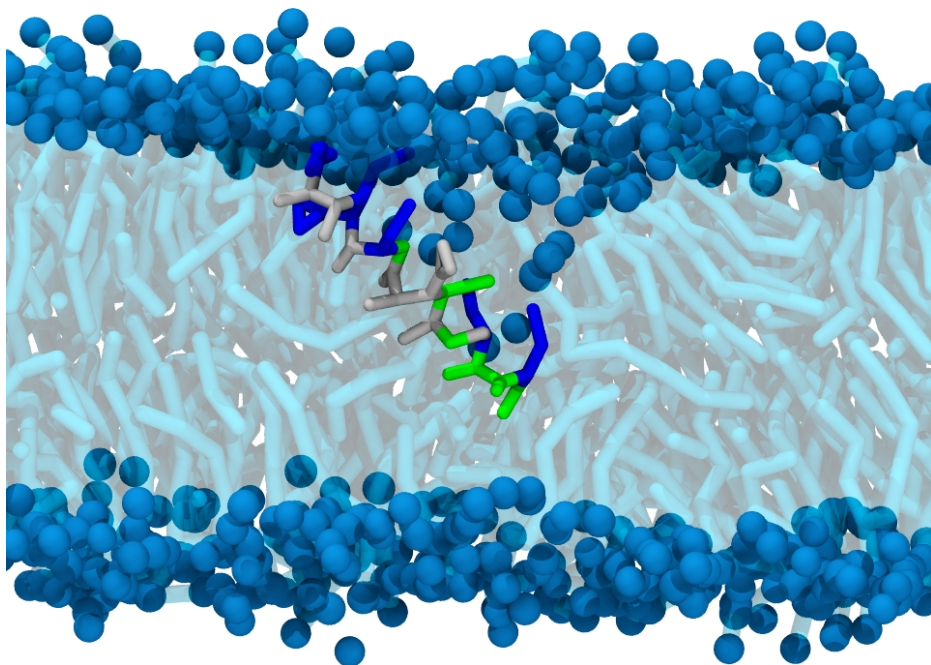
- Součást imunitního systému
- Cíleně zabíjí bakterie
- Narušují funkci nebo celistvost buněčných membrán



Nguyen, L. T., Haney, E. F., & Vogel, H. J. (2011). The expanding scope of antimicrobial peptide structures and their modes of action. *Trends in biotechnology*, 29(9), 464-472.

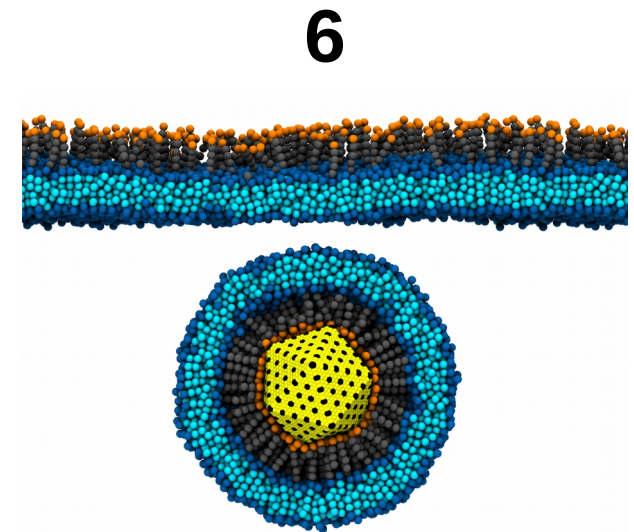
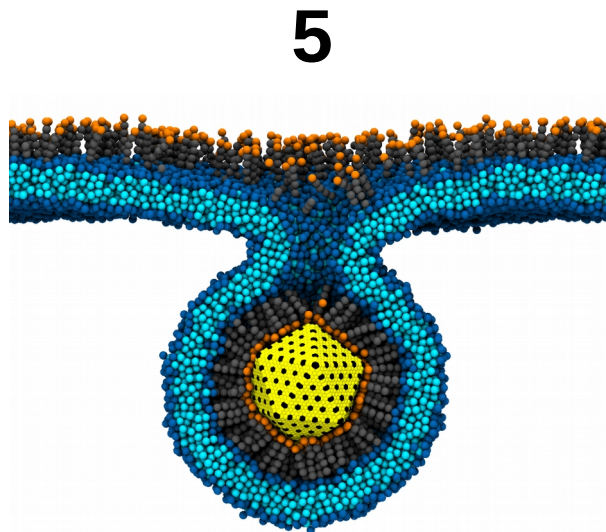
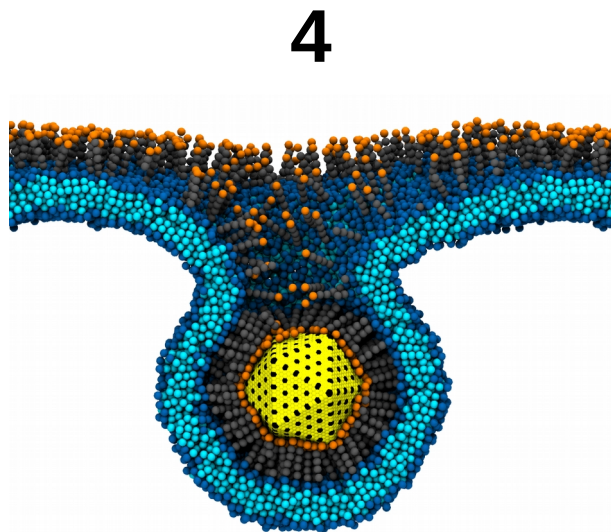
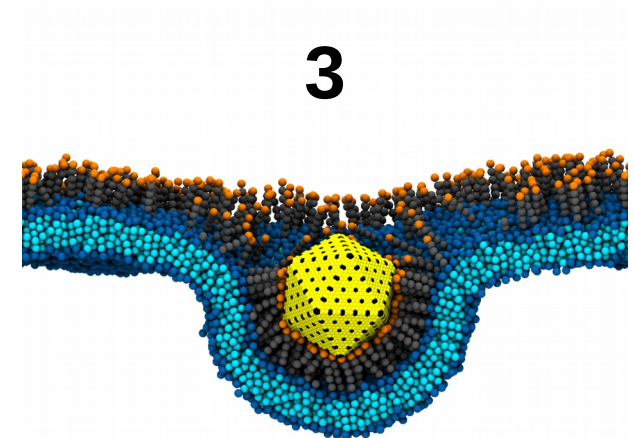
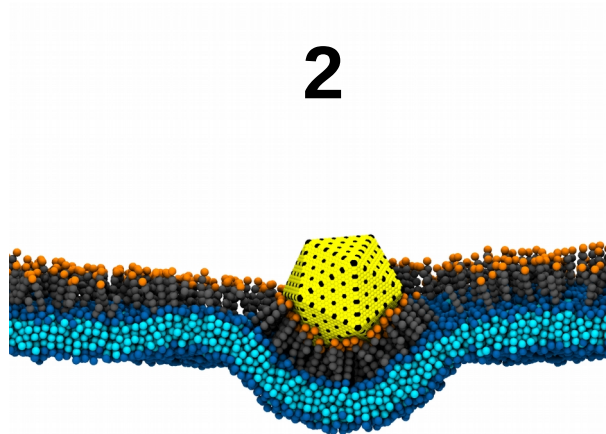
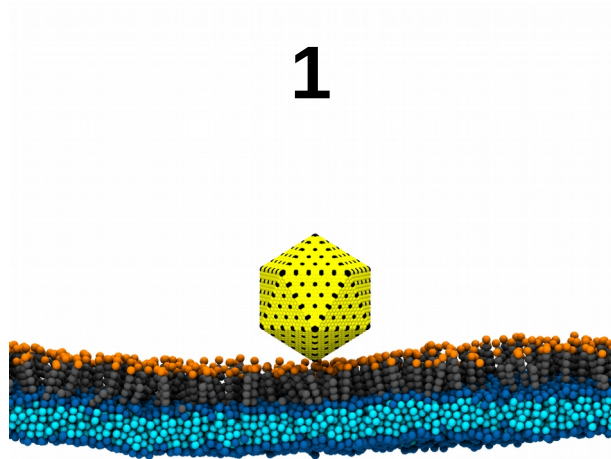


# Průchod peptidu přes membránu

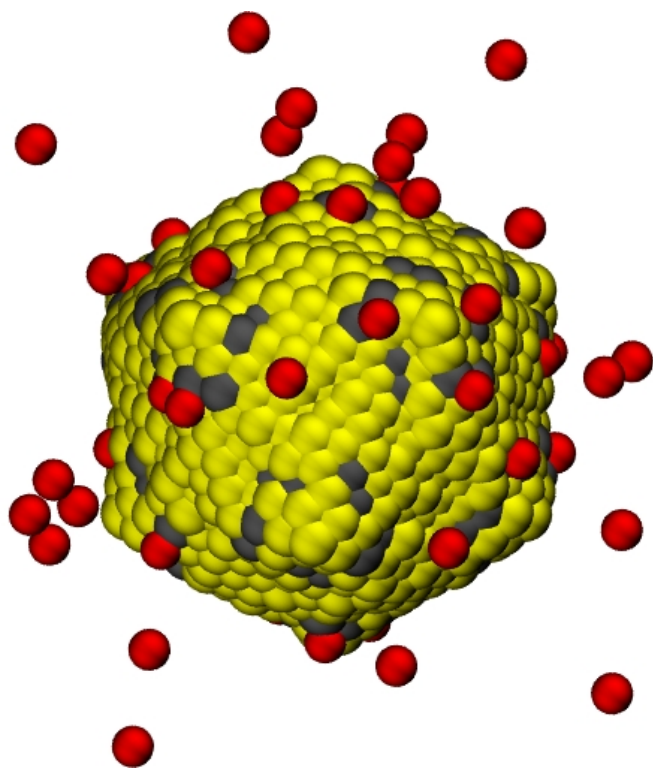




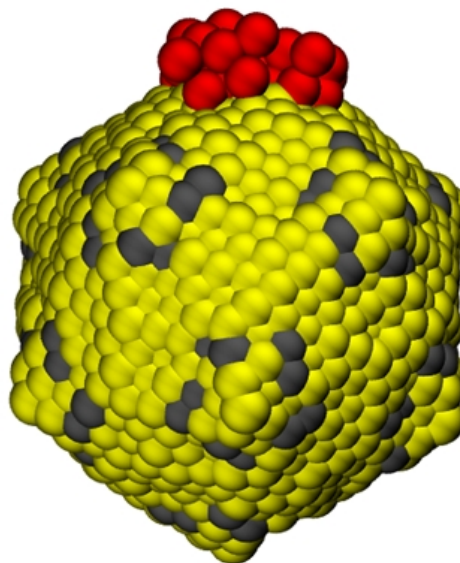
# Endocytóza virové částice



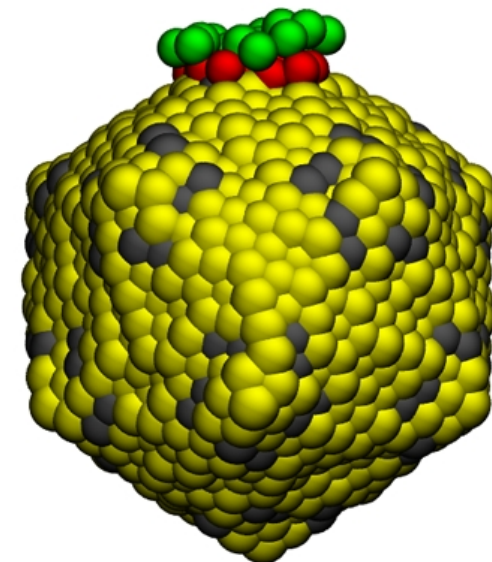
# Inhibitory



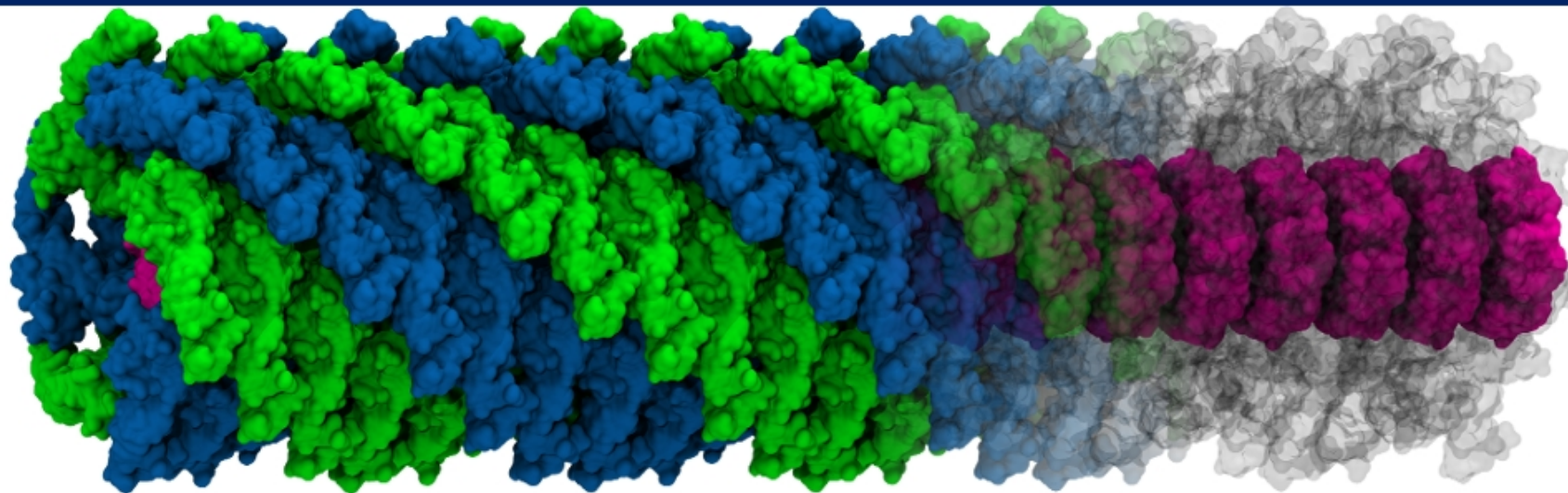
Monovalentní



Multivalentní



Multivalentní  
(Janus)



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Národní centrum pro výzkum biomolekul

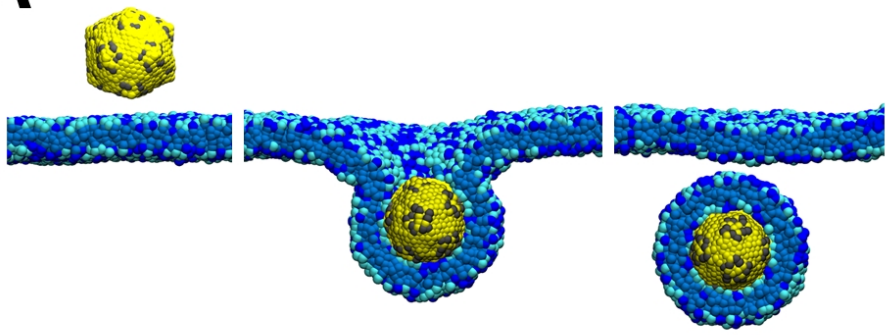
Laboratoř výpočetní chemie

**A4 2.13**

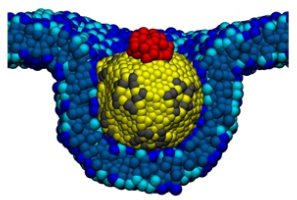


# Efekt inhibitorů na endocytózu

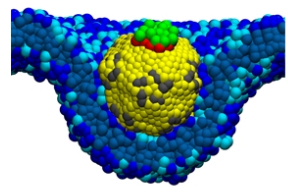
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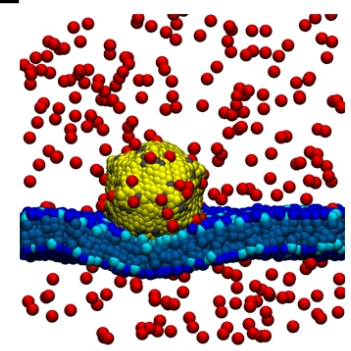
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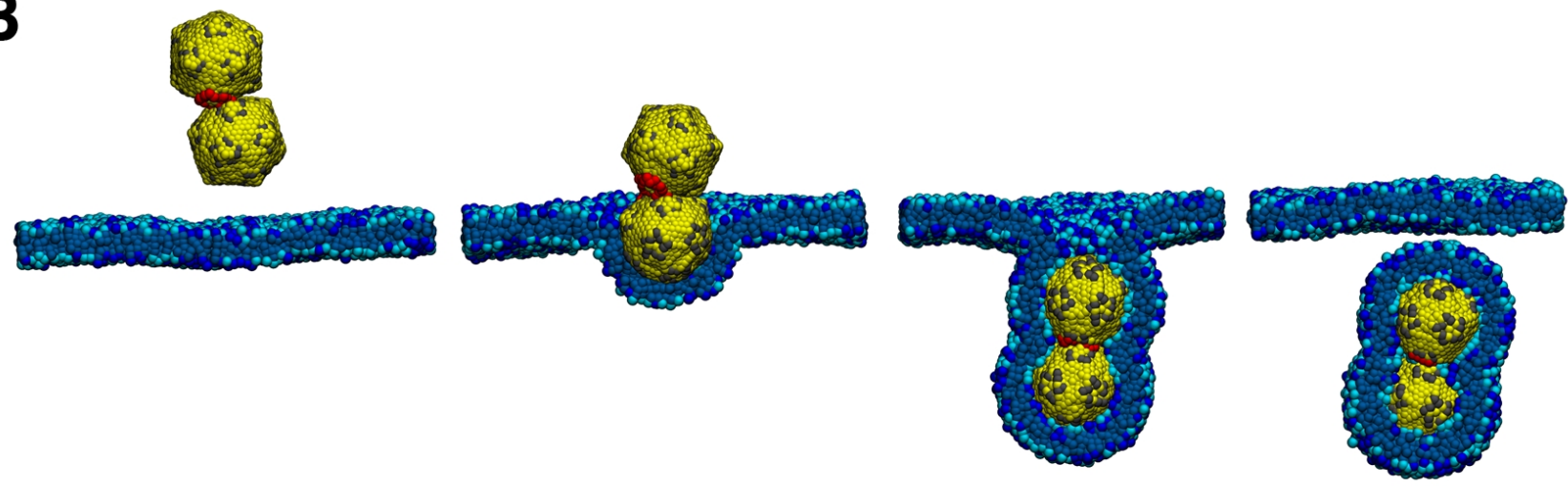
D



E

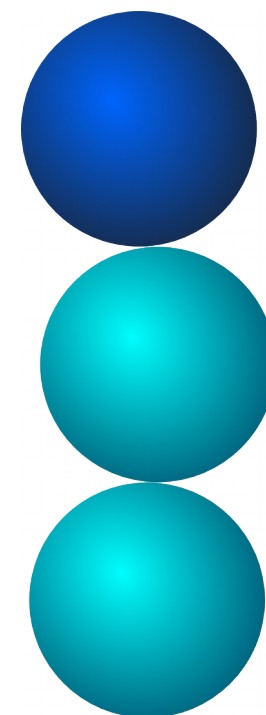
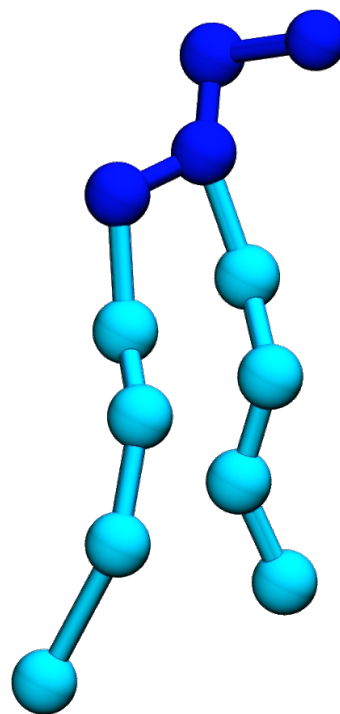
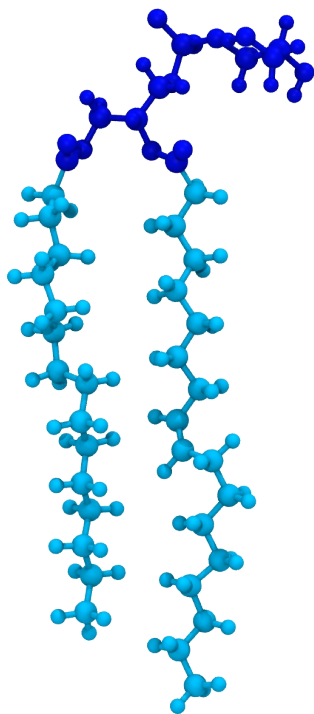
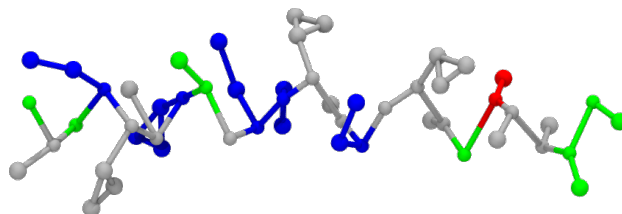
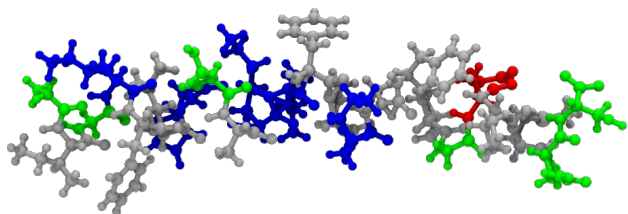


B





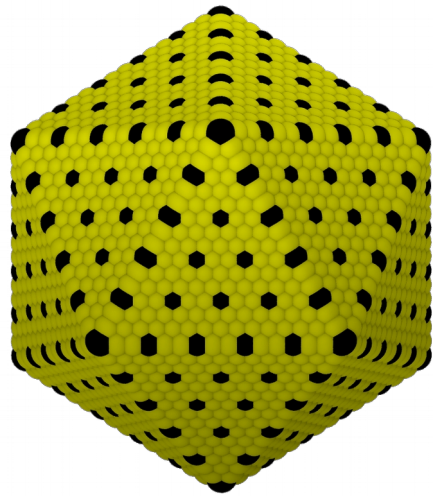
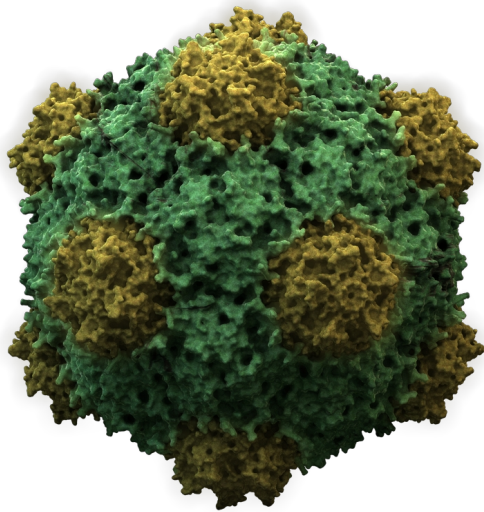
# Modely peptidů a lipidů



All-atom model

Zhrubené (coarse-grained) modely

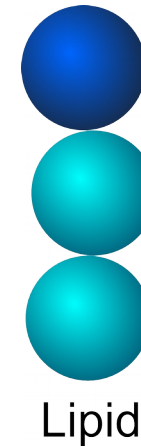
# Endocytóza virové částice



Virová částice



Buněčný receptor



Lipid

Hydrofilní část

Hydrofobní část

