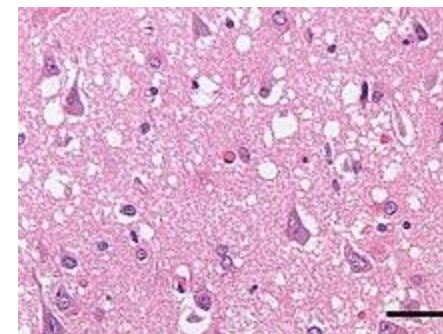


SUBVIRUSNI PATOGENI

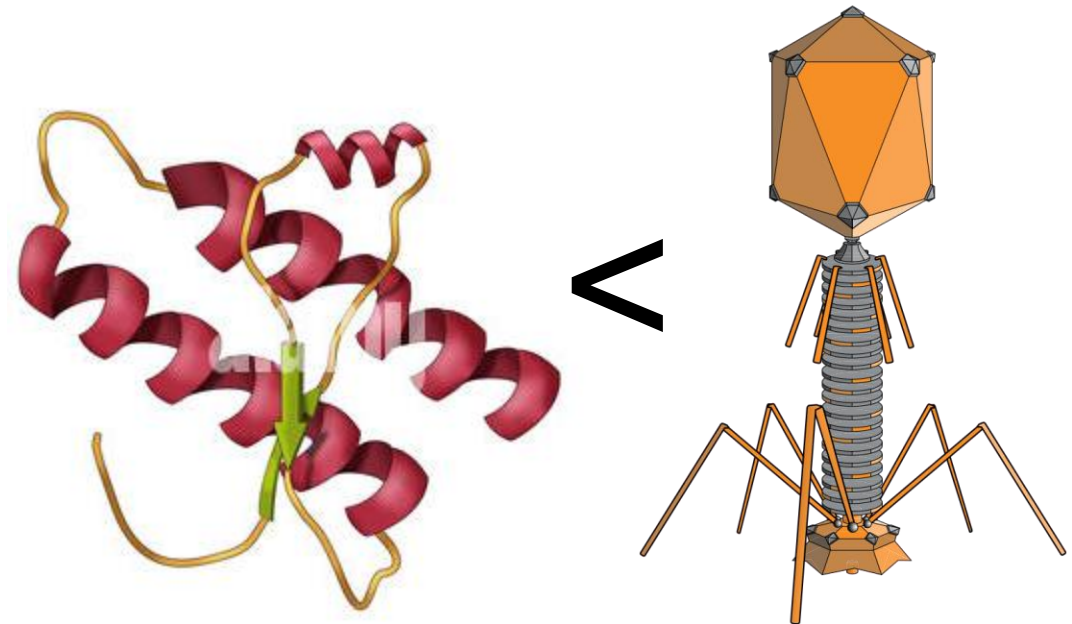
TAMARA-ANA KRUŠELJ

PRIRODOSLOVNO-MATEMATIČKI FAKULTET



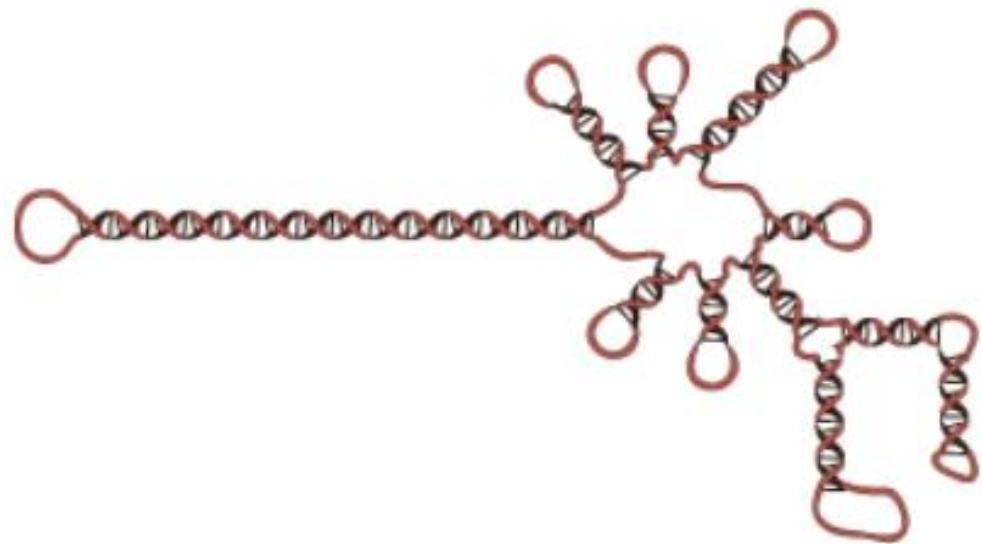
SUBVIRUSNI PATOGENI

- druga polovica 20. stoljeća
- manji od virusa
- strukturno i funkcionalno manji od virusa
- neživuće čestice
- bolesti biljaka, životinja, ljudi



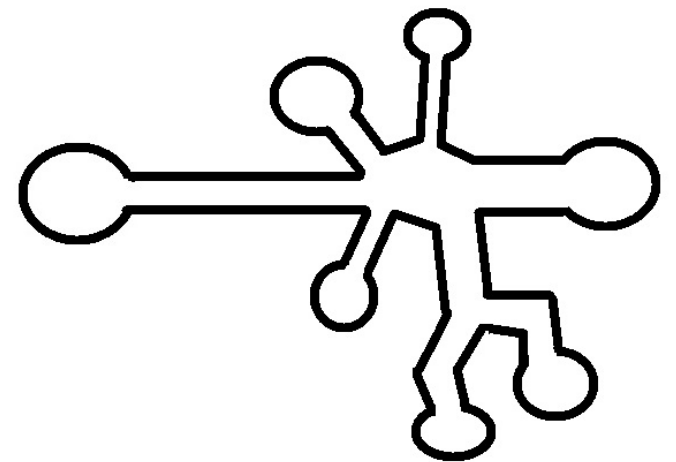
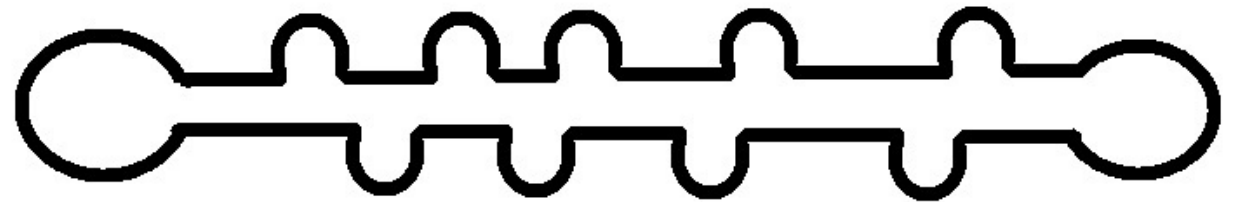
SUBVIRUSNI PATOGENI

- I VIROIDI
- II VIRUSNI SATELITI
- III PRIONI



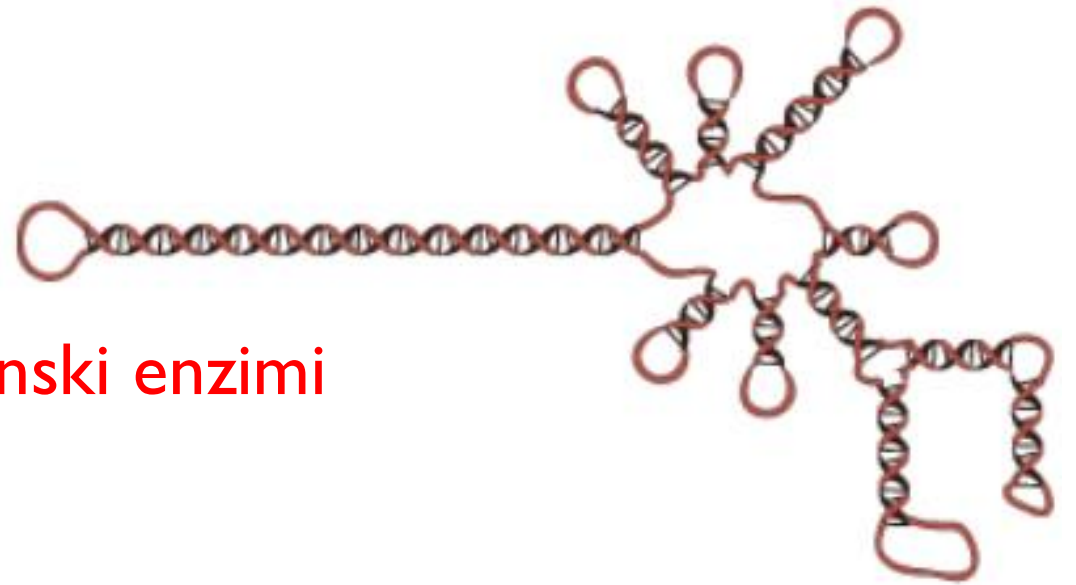
VIROIDI

- Gola ciklička RNA
- Biljne bolesti
- Hepatitis D u čovjeka?
- 30 poznatih vrsta



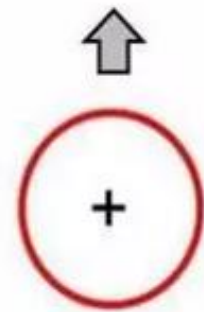
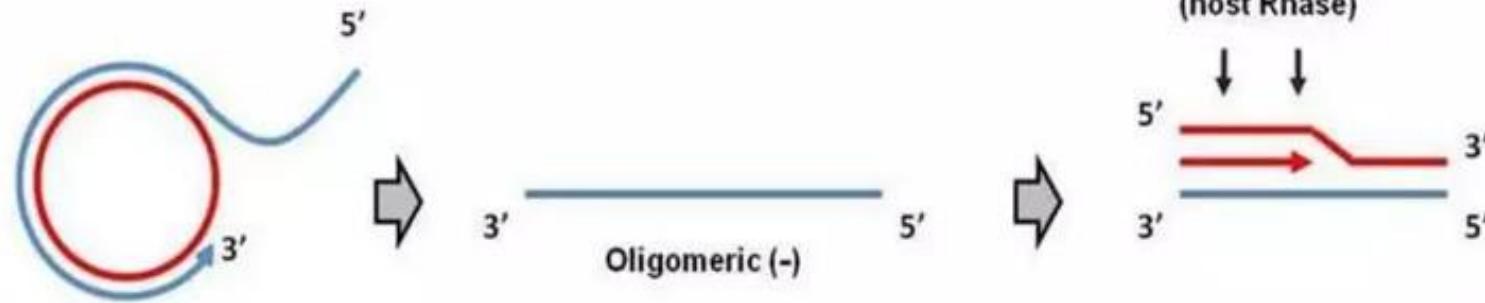
REPLIKACIJA VIROIDA

- Replikacija u biljnim stanicama: **domaćinski enzimi**
- Premali da nose genetičku uputu
- Plazmodezmiji, mitoza
- Inficirani biljni materijal: sjemenke, pelud, dio biljke
ali i poljodjelskim alatom, vegetativnim razmnožavanjem

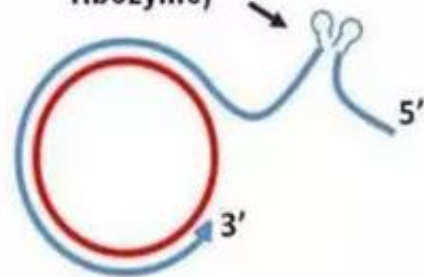


Pospiviroidae
Family

Asymmetric
Pathway

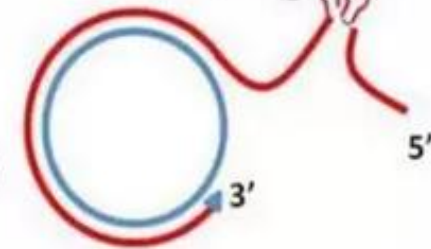


Cleavage site
(hammerhead
ribozyme)



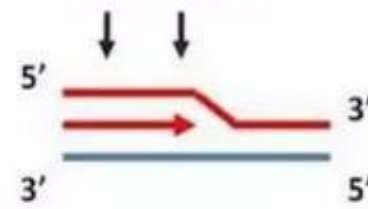
Avsunviroidae
Family

Symmetric
Pathway



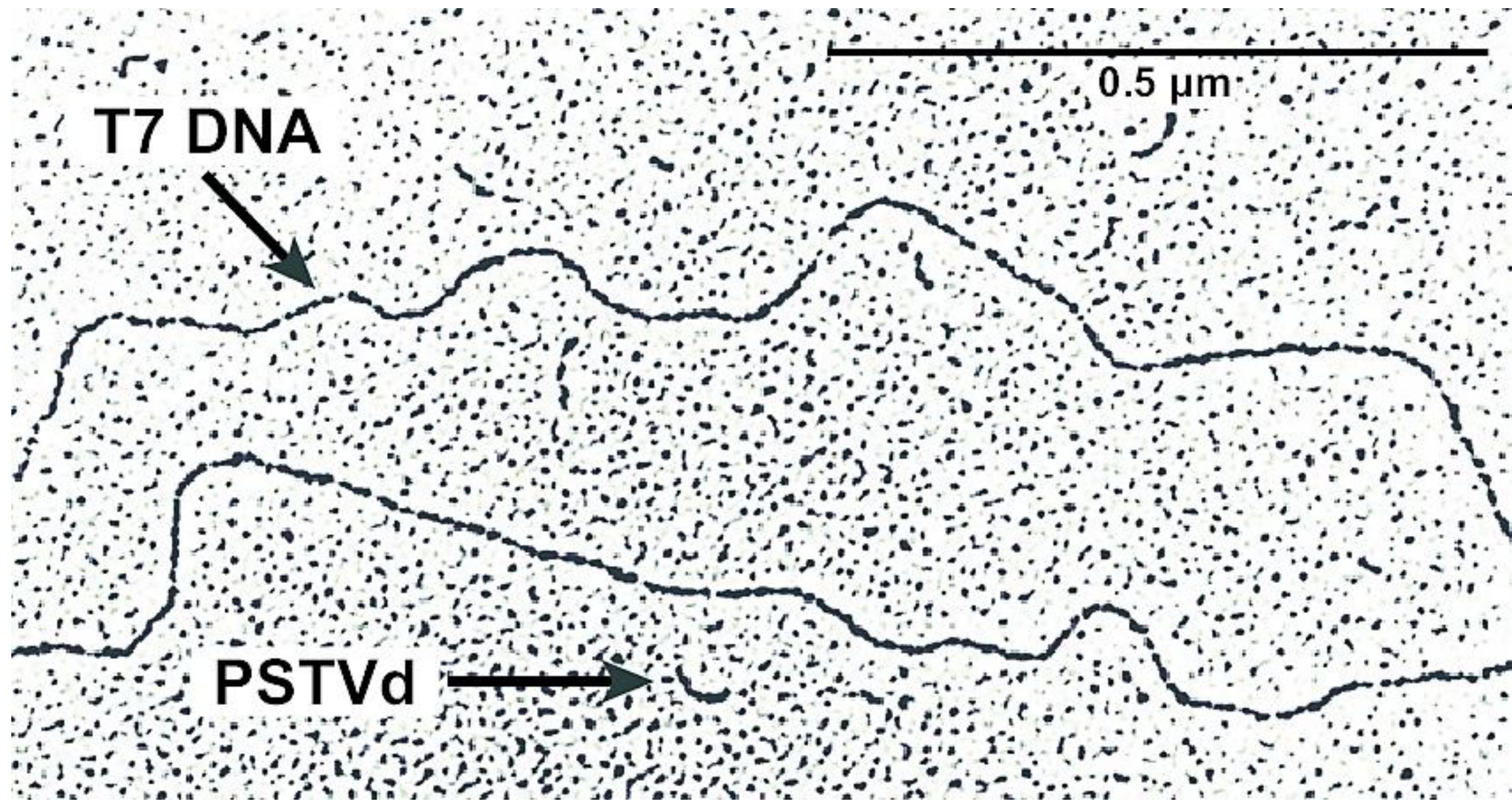
Cleavage site
(hammerhead
ribozyme)

Cleavage sites
(host Rnase)



VIRUSI I VIROIDI

| VIRUSI | VIROIDI |
|--|---|
| Više od 2000 dušičnih baza | Od 246 do 467 dušičnih baza |
| RNA ili DNA | RNA |
| Proteinski omotač, kapsida | Gola RNA |
| Genetički materijal kodira za proteine | RNA ne kodira za proteine |
| Replikacija RNA u jezgri ili citoplazmi tuđe stanice | Replikacija RNA isključivo u jezgri (ili u kloroplastima) |



BOLESTI UZROKOVANE VIROIDIMA

- Viroid vretenastog gomolja krumpira
 - Prvi otkriven, prije oko 40 godina
 - Zaostajanje u rastu nadzemne stabljike
 - Smanjen prinos i kvaliteta gomolja



BOLESTI UZROKOVANE VIROIDIMA

- Viroid ljuštenja kore na stablima agruma
 - Limuni, naranče, mandarine
 - Ljuštenje kore → ugibanje stabla
 - Tropska područja: ugibanje kokosovih palmi



SATELITNE RNA

- Poznato oko 40 vrsta
- Linearna ili ciklička RNA
- Nesamostalni biljni patogeni
- Replikacija → virusni enzimi
- Rasprostranjuju ih virusni vektori → „lisne uši” sa **virusom pomagačem**



SATELITNE RNA

- Ne dijele homologiju sa nukleotidnog slijeda s pomoćnim virusom
- Pomoćni virus:
 - Nema učinka
 - Ublaženi simptomi
 - Pogoršani simptomi

SATELITNA RNA VIRUSA MOZAIKA KRASTAVCA

- Prva otkrivena satelitna RNA
- 300 – 400 nukleotida
- Y – satelitna RNA
- Zeleni mozaik → žuto
- Japan, 1981.



CMV - VIRUS

- Cucumber Mosaic Virus
- Satelitna RNA:
 - Lisne uši (žuta boja)

apple aphid
(*Aphis pomi*)



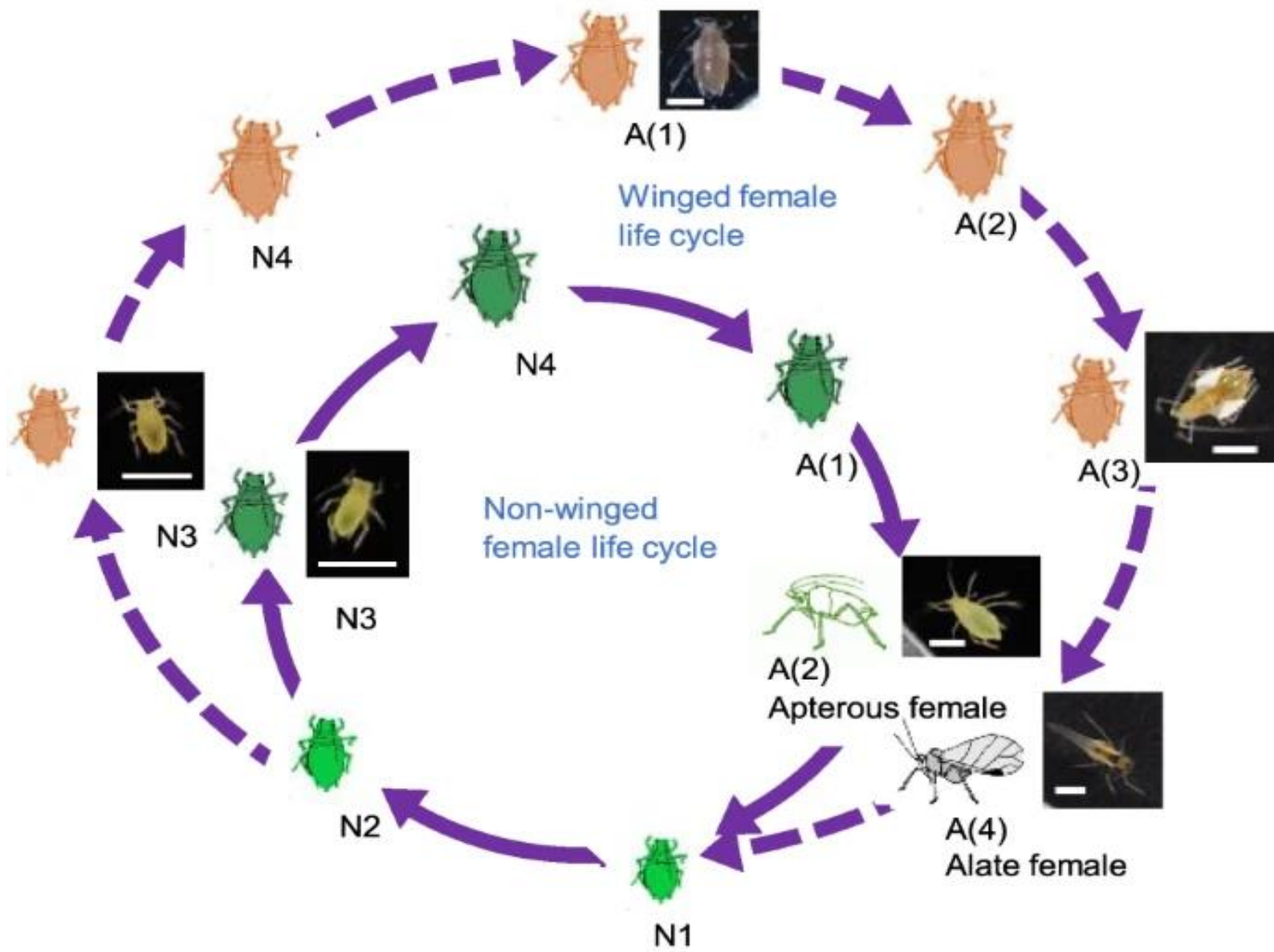
wingless adult



winged adult

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CMV - VIRUS



PRIONI

- Protein infectious only
- nemju genetički materijal
- Isključivo proteinski
- β - ploče

PrP^C
is a normal protein

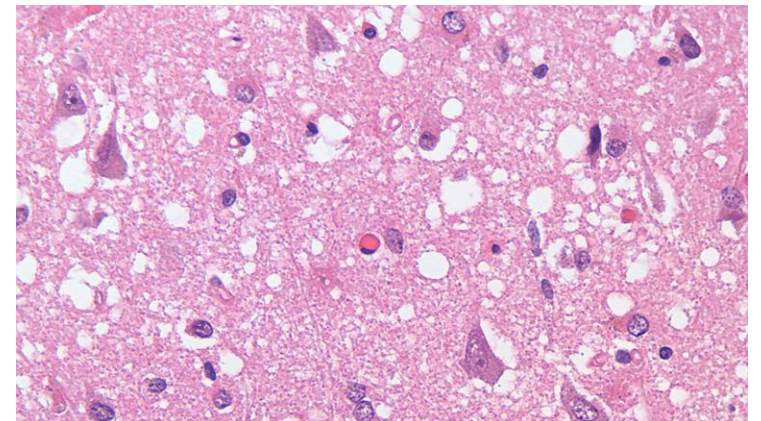


PrP^{Sc}
the disease-causing form of the prion protein



PRIONI

- Gen za sintezu → svi sisavci
- Normalna funkcija → prijenos živčanih podražaja
- mutacije



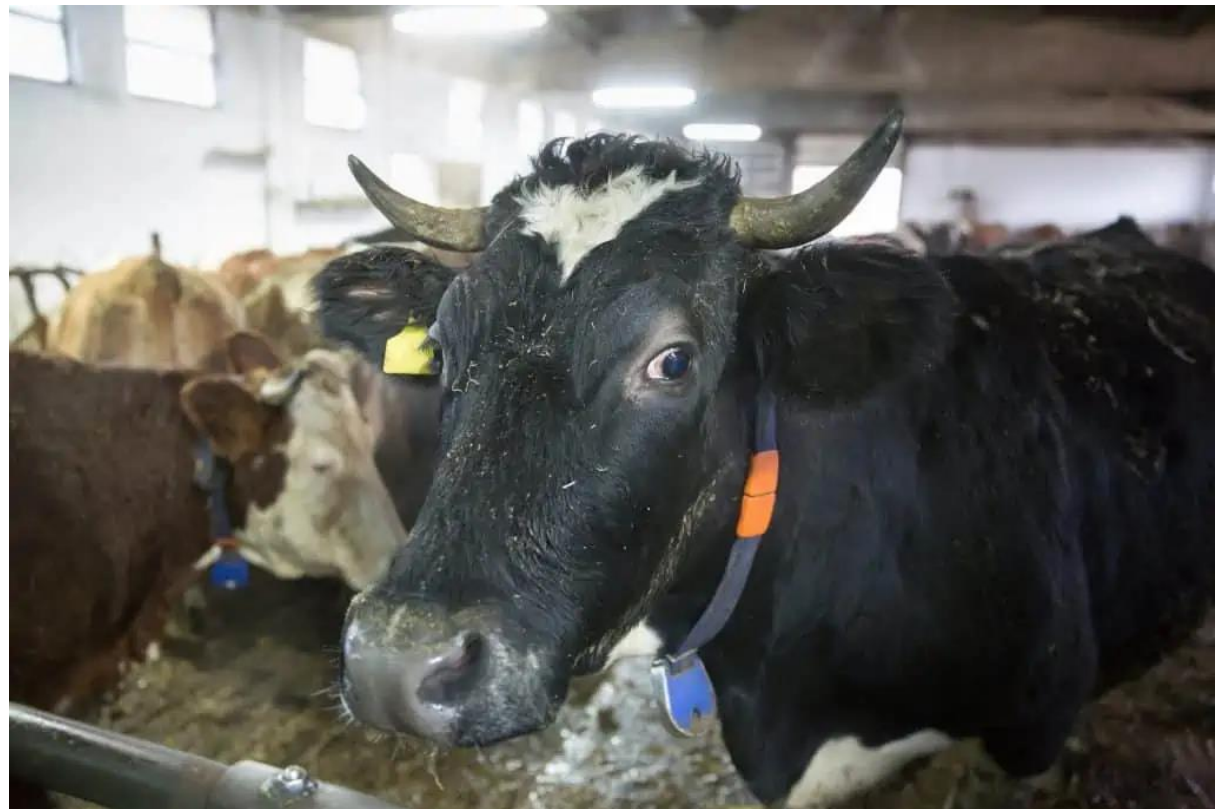
SKREPI

- Patogen prion → struktura normalnih priona
- Skrepi (*scrapie*): bolest ovaca
 - Svrbež



KRAVLJE LUDILO

- Prehrana živalinjskim brašnjama
- Goveđe ludilo
 - Zaražena govedina
 - Neurodegenerativna bolešt
 - VB, 1985.



KRAVLJE LUDILO

- Porasla cijena soje i ribljeg brašna
- Dezorijentiranost, gubitak ravnoteže
- Nervoza, agresija, manje mlijeka, gubitak na težini
- Inkubacija: 2-5 godina
- Krava → tele: 10%



KOD LJUDI

- zaboravnost, bezvoljnost, umor, poremećaji spavanja
- grčenje mišića, poremećaji vida i sluha, depresija, napadi agresivnosti
- Smrt: 2 godine (upala pluća)
- 164 umrlih (154 VB)

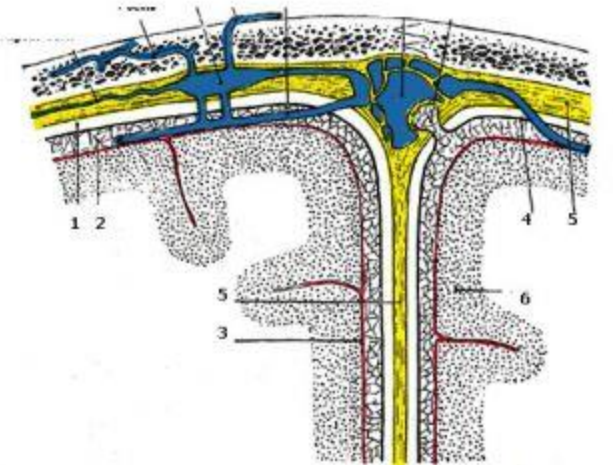


ZARAZA?

DA



NE



KRAJ

- Hvala na pažnji



- Jesi čula za bolest ludih krava?

- Šta me brigaaaaa, ja sam kamion!