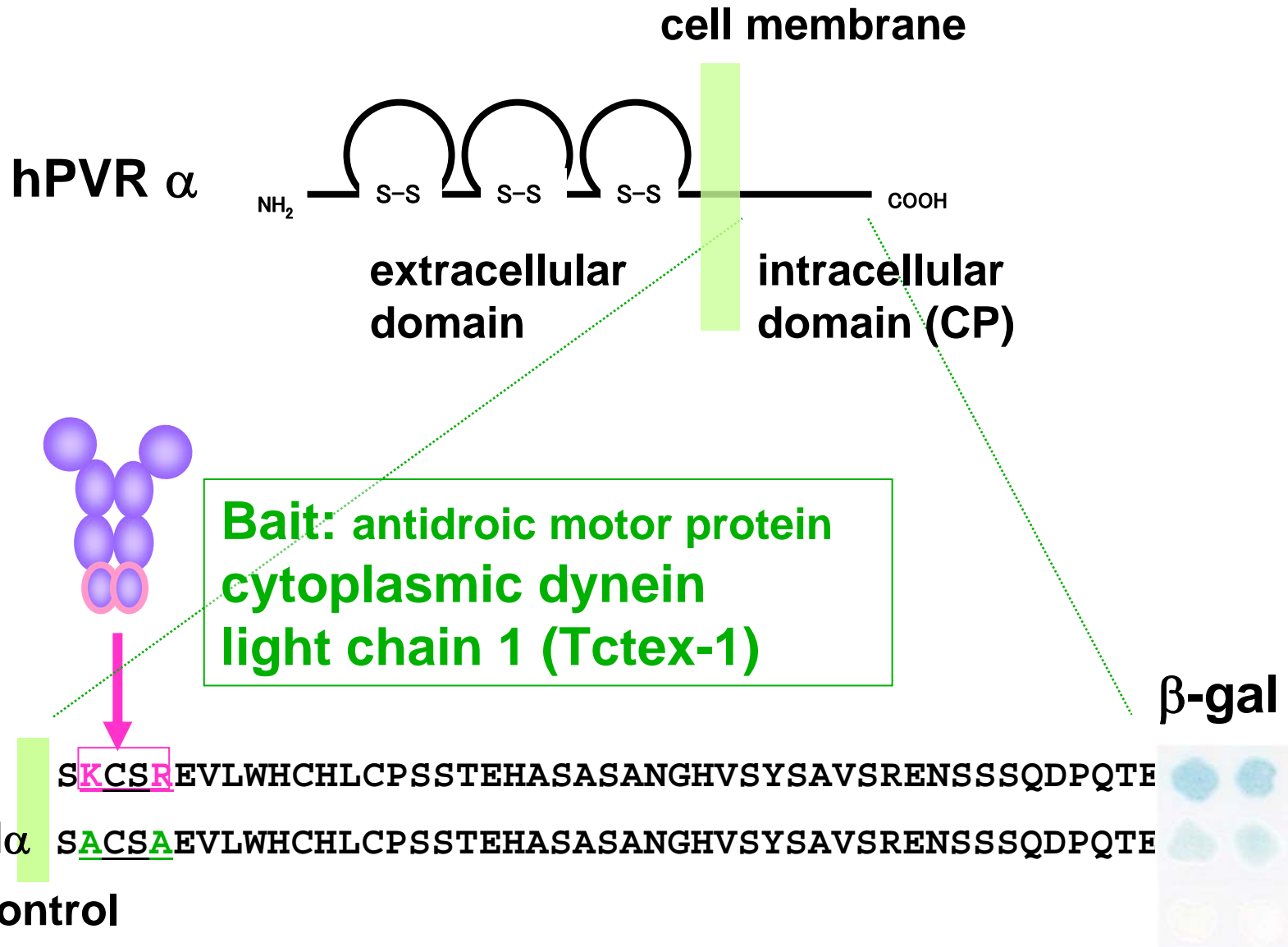
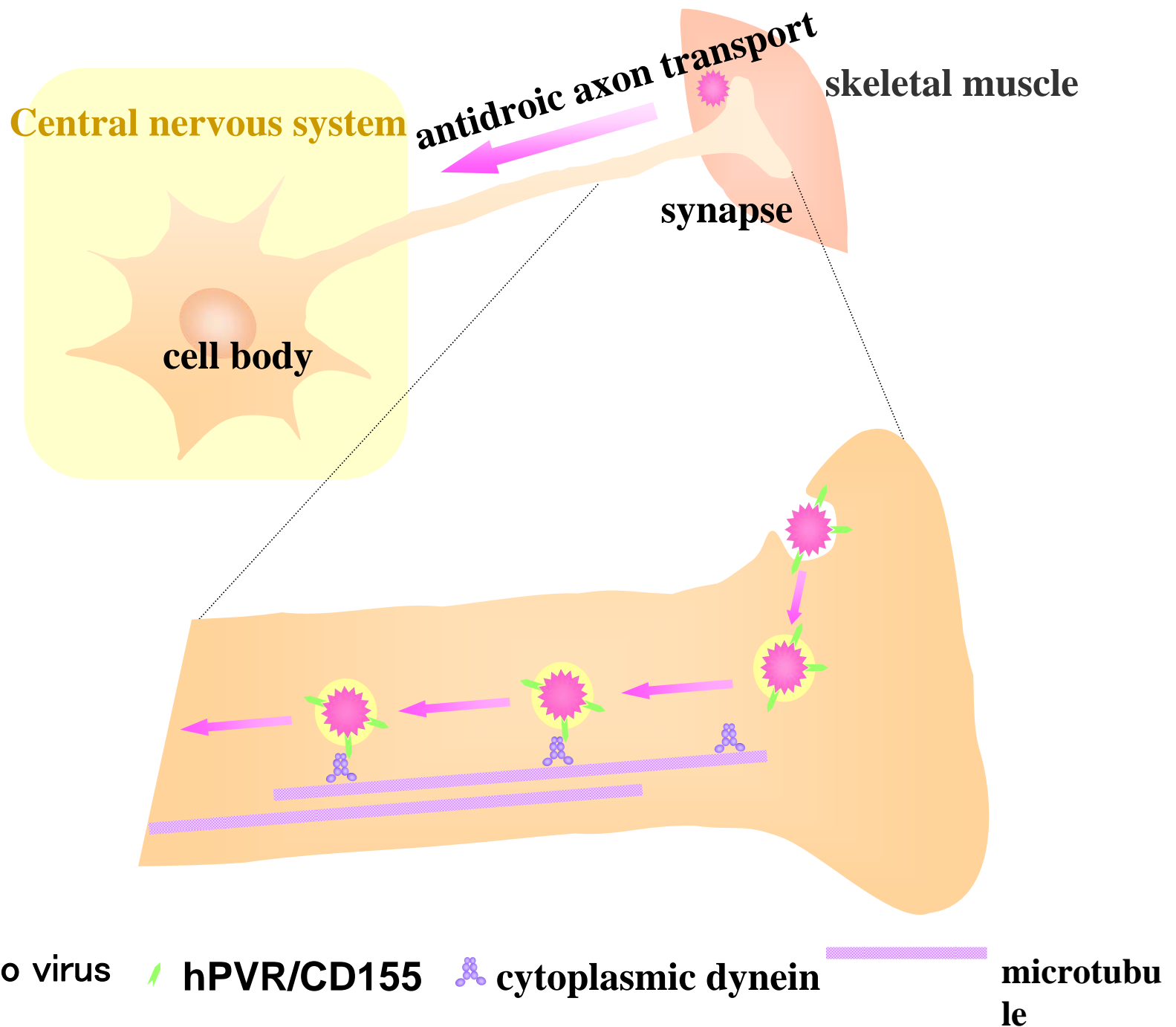


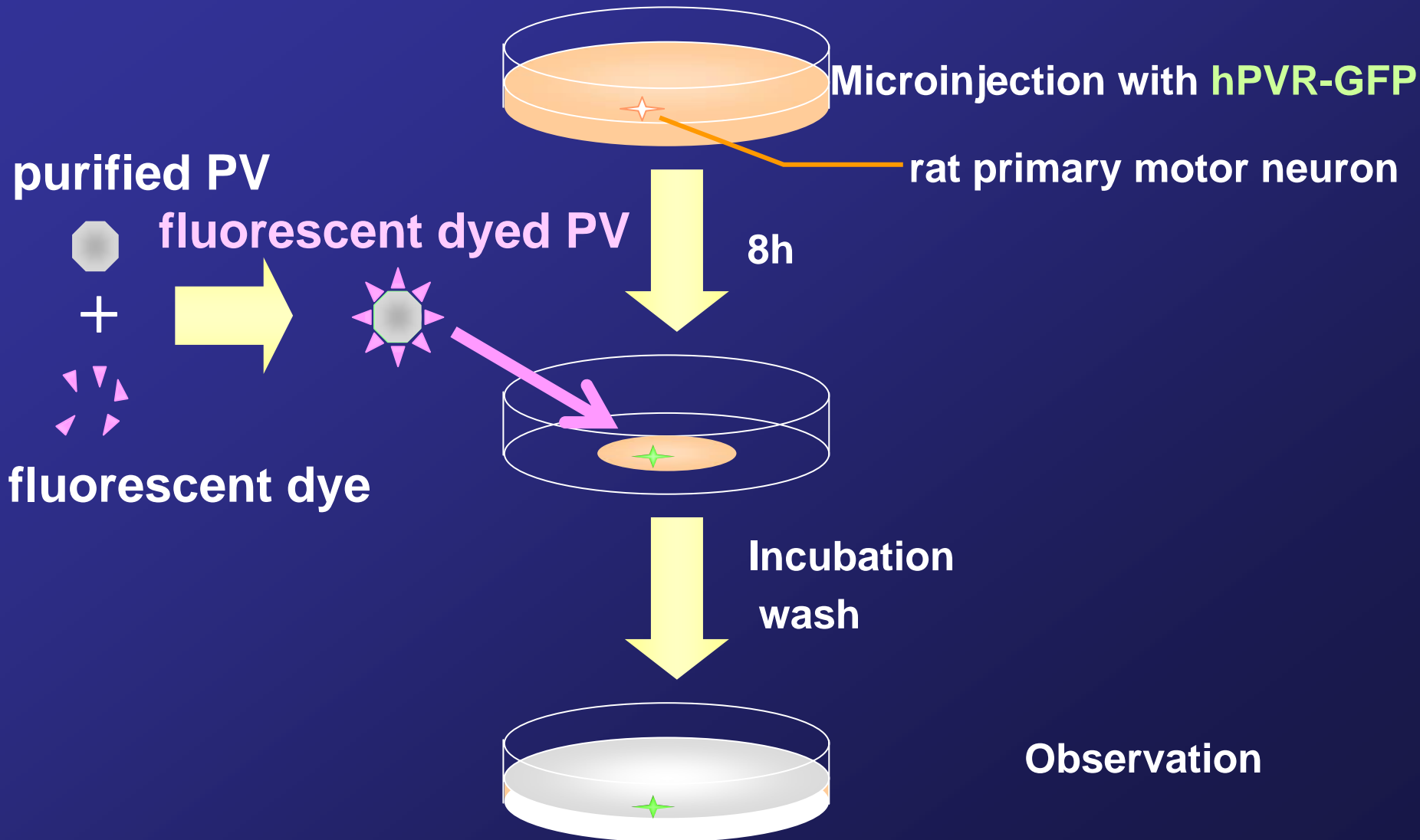
Interactions between hPVR cytoplasmic domain and Tctex-1 (Yeast two-hybrid system)



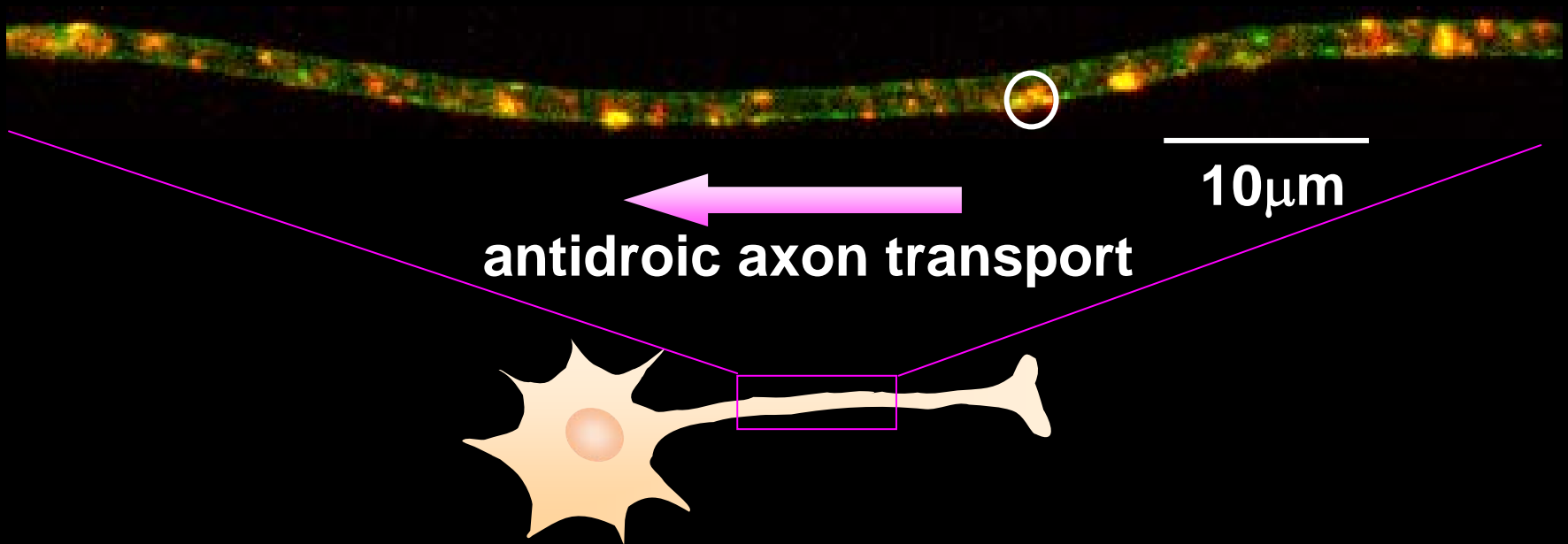


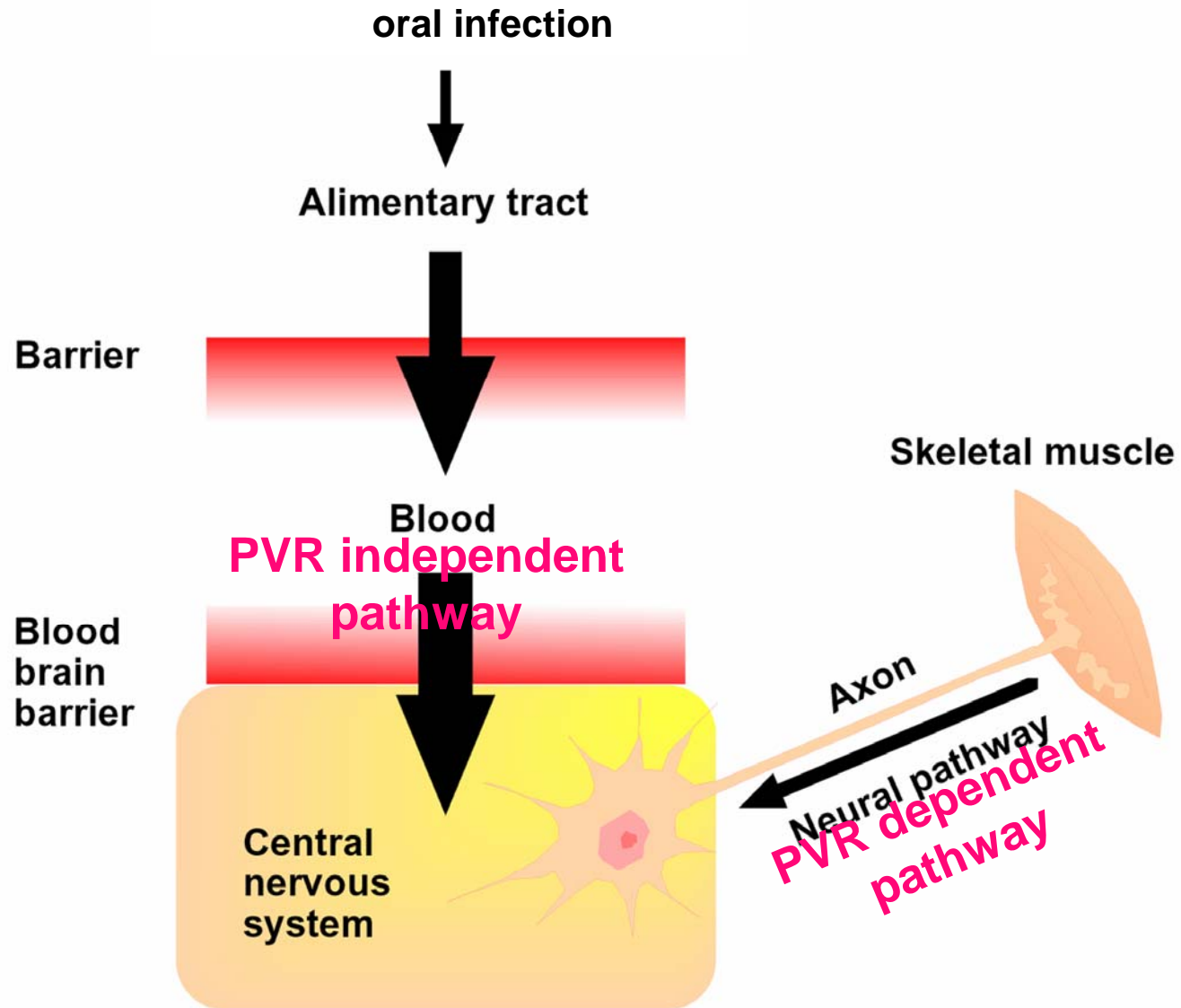
Establishment of PV
highly sensitive detection system:

Direct staining of PV by fluorescent dye
Direct observation of PV in a raw cell



antidroic axon transport of vesicles containing both **hPV** and **PV**



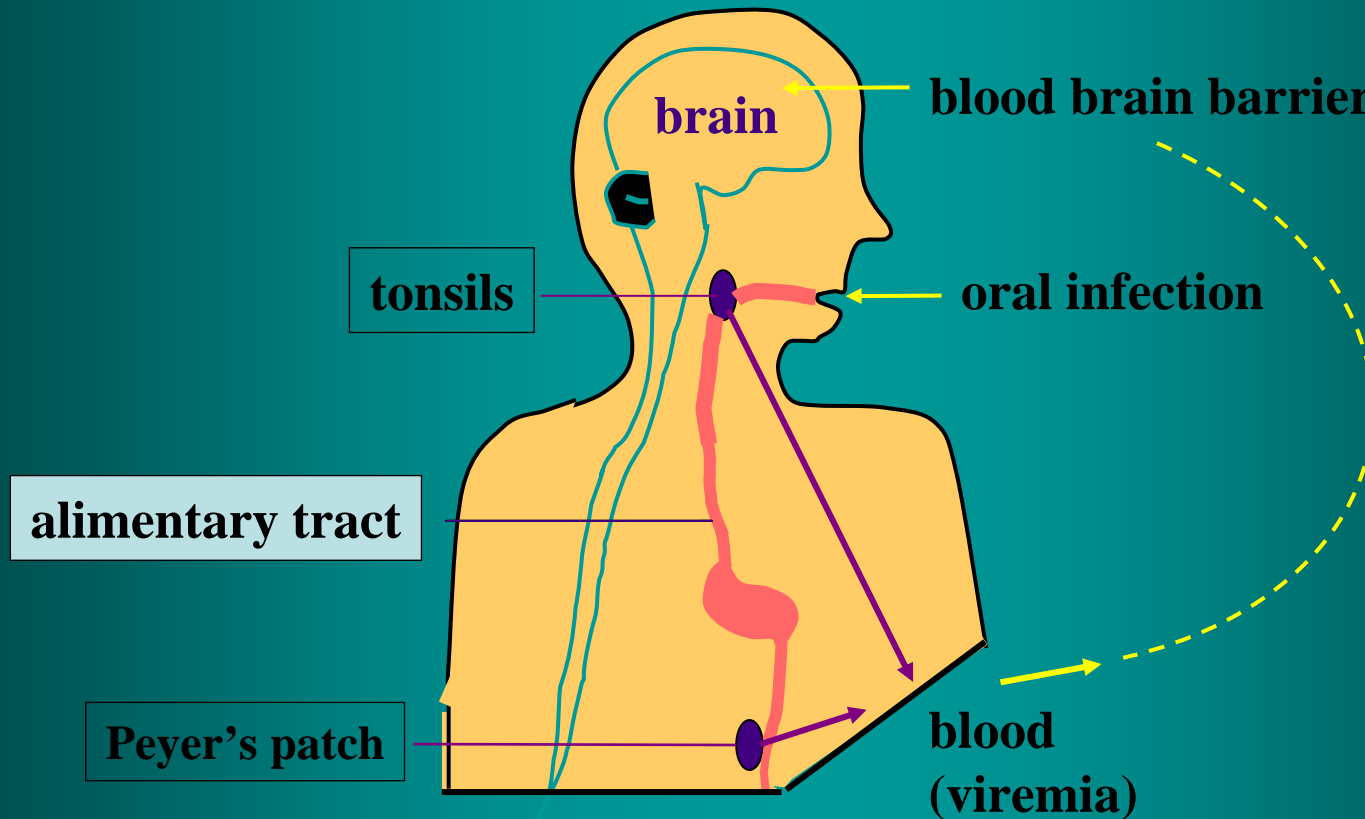


**Pathway of polio virus
transmission in the body**

Research on pathogenicity

1. Mechanisms for determining species-specificity
2. Mechanisms of dissemination
3. Mechanisms for determining tissue-specificity
4. Ability to cause damage to the target cell

Dissemination of the Polio Virus in Humans



	alimentary tract	viremia	CNS
Virulent strain	○	○	○
Attenuated strain	○	×	×

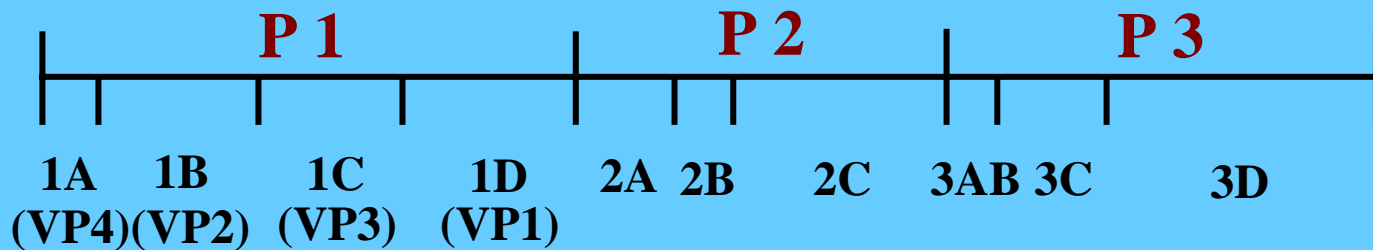
Length of Nucleotides (kb)



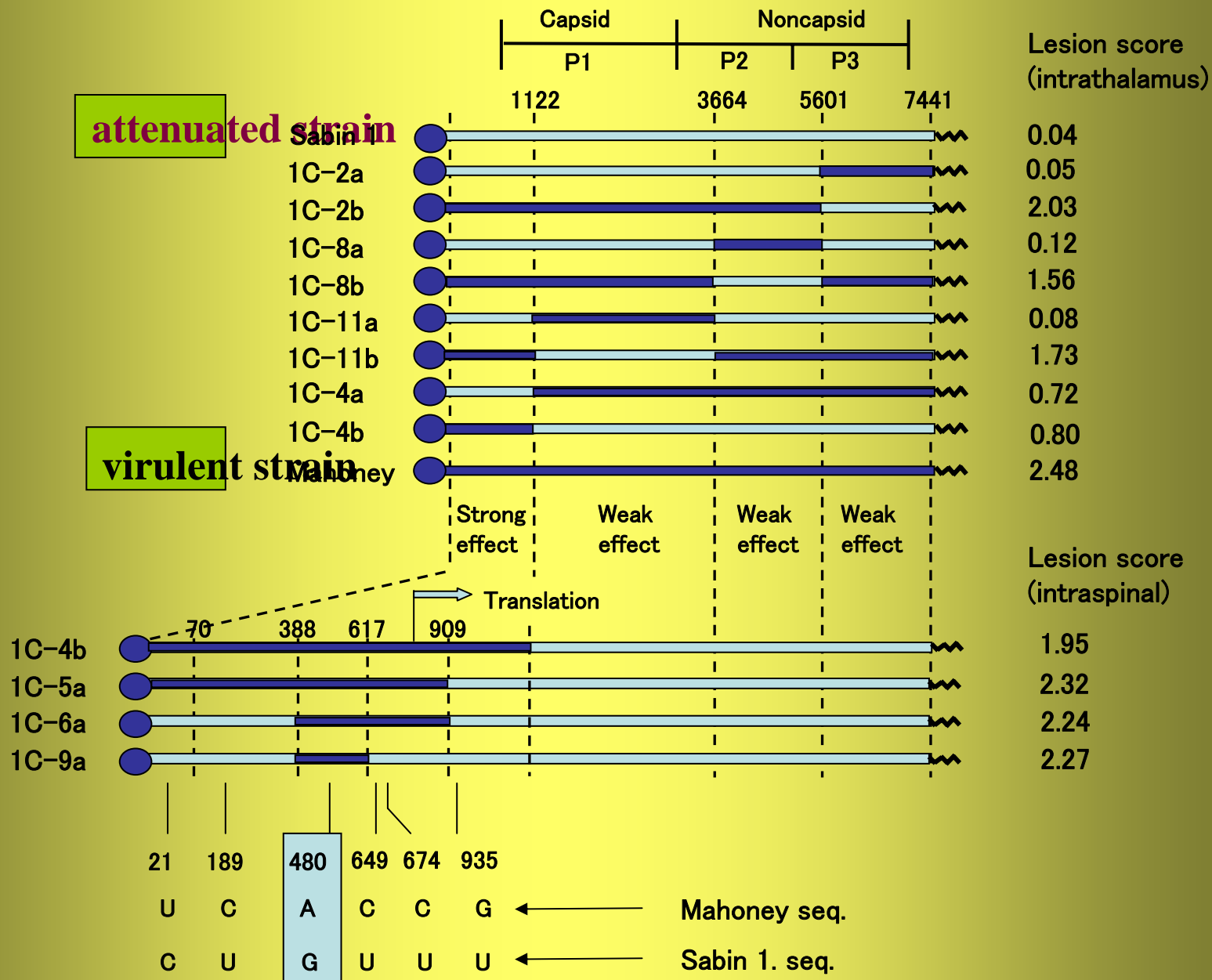
different nucleotides



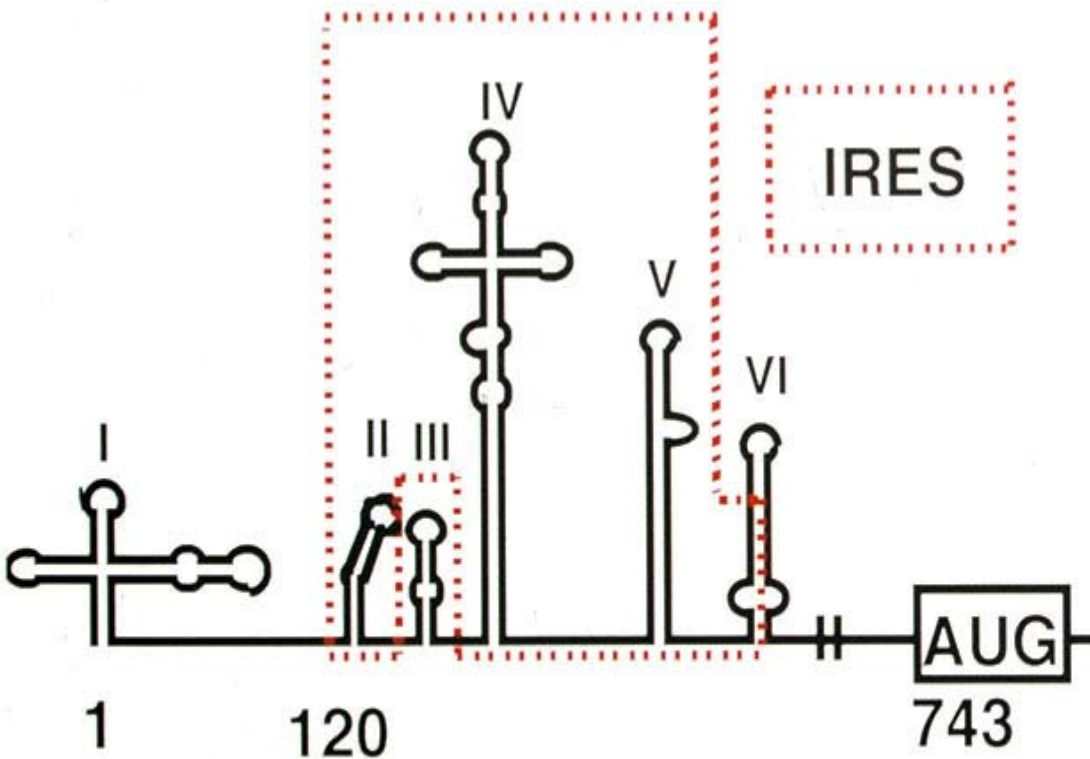
different amino acids



Genome structures of recombinant viruses



Poliovirus IRES and Host Factors

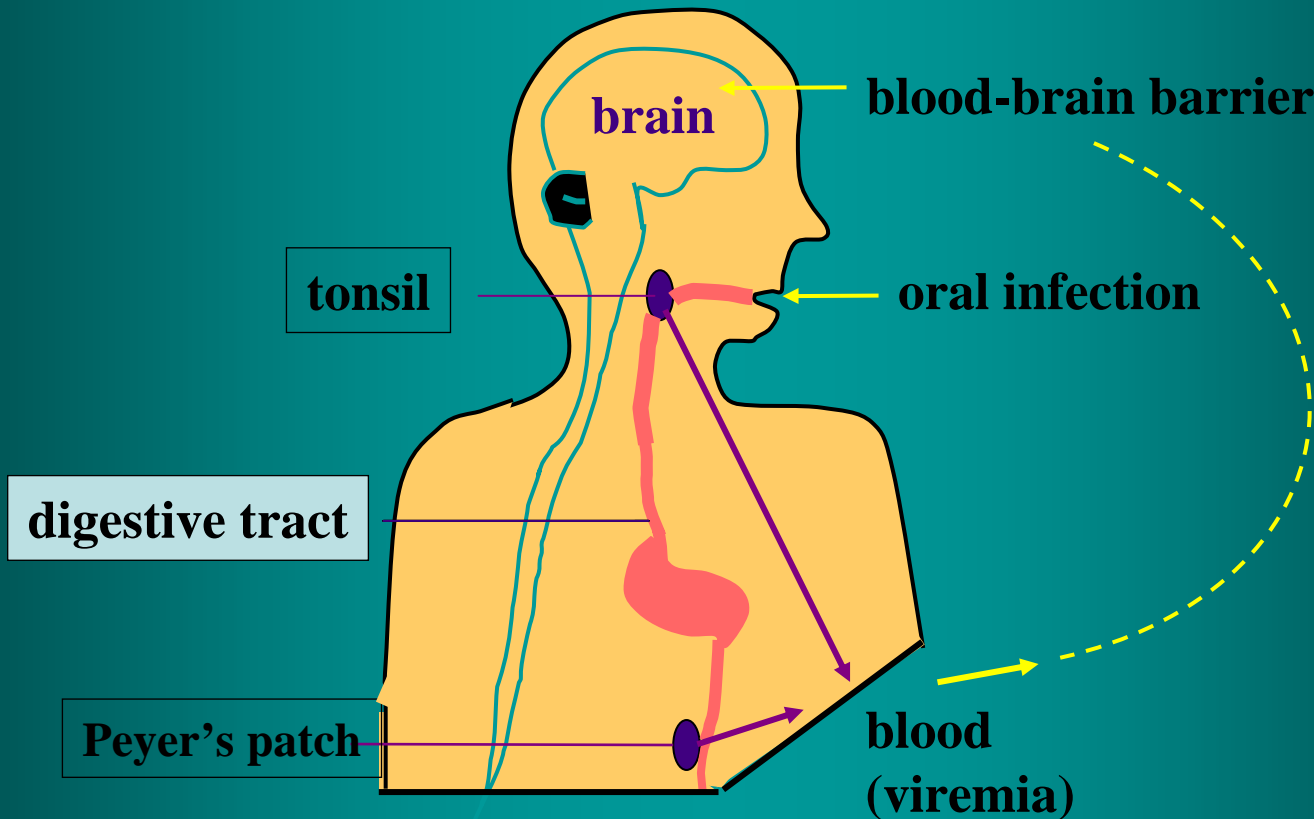


Cellular factors for IRES

La protein (SLVI)
PCBP-1,2 (SLI, IV)
PTB (SLV)

IRES: Internal Ribosome
Entry Site

Polio virus transmission in the human body

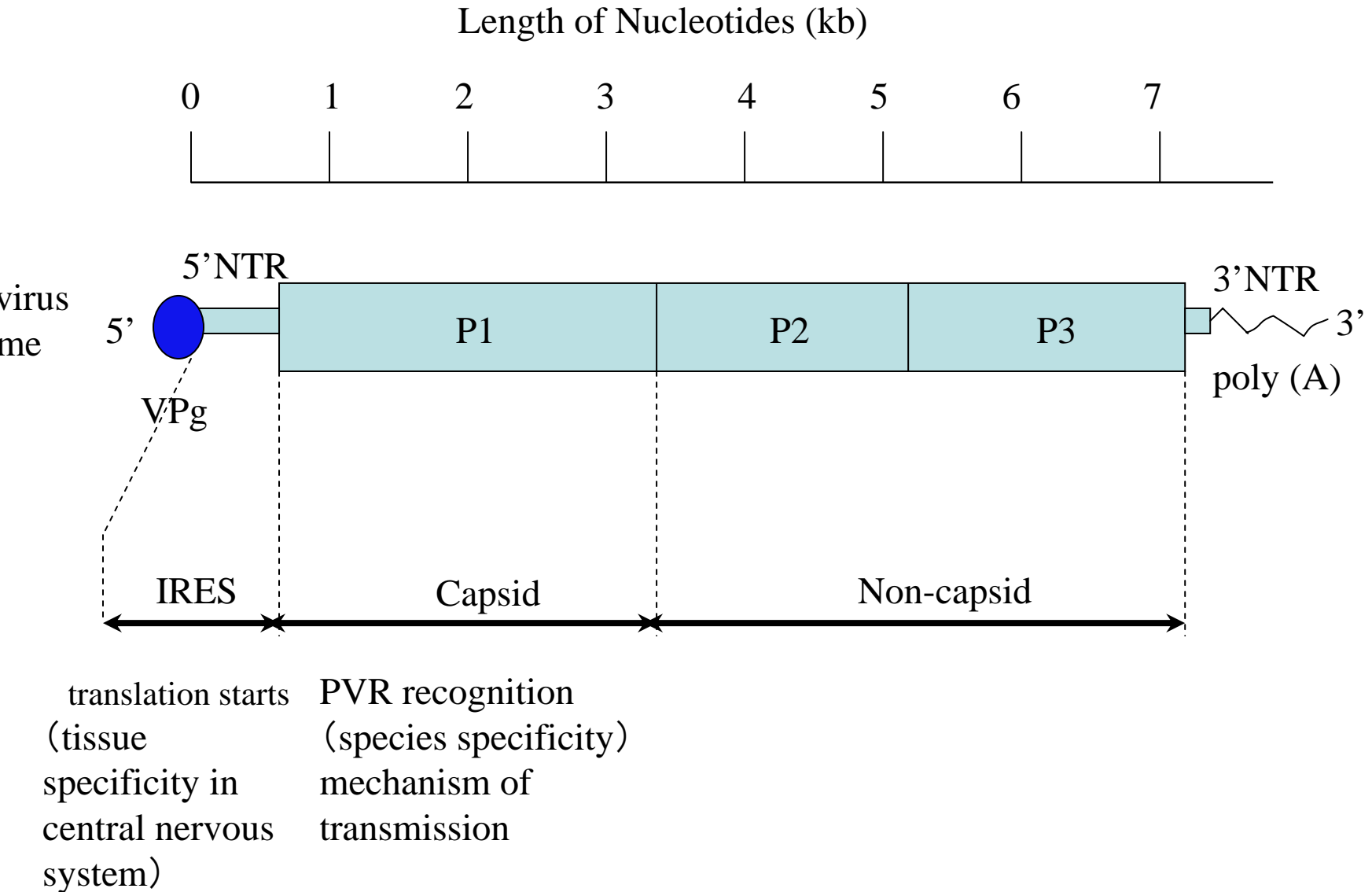


	digestive tract	viremia	central nerve system
high virulent strain	○	○	○
less virulent strain	○	×	×

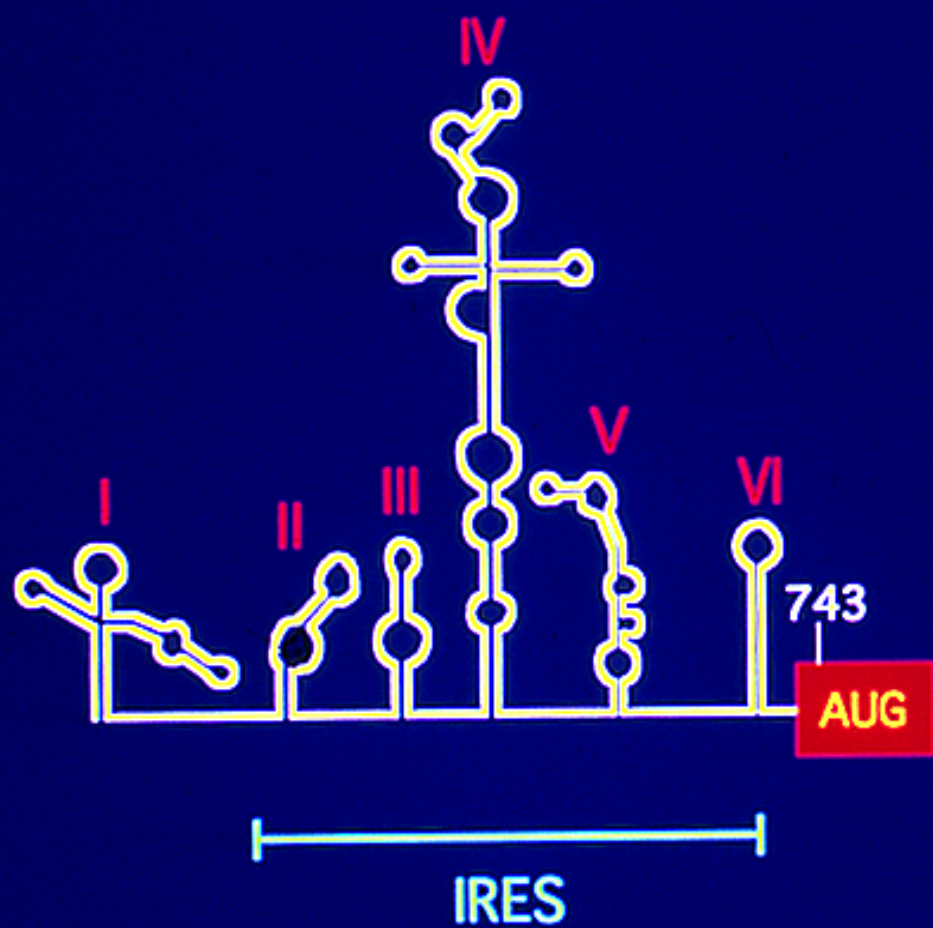
Principles of viral tropism

- 1. Receptor-dependent tropism**
- 2. Protease-dependent tropism**
- 3. IRES-dependent tropism**
- 4. Natural immunity-dependent tropism**
- 5. Others**

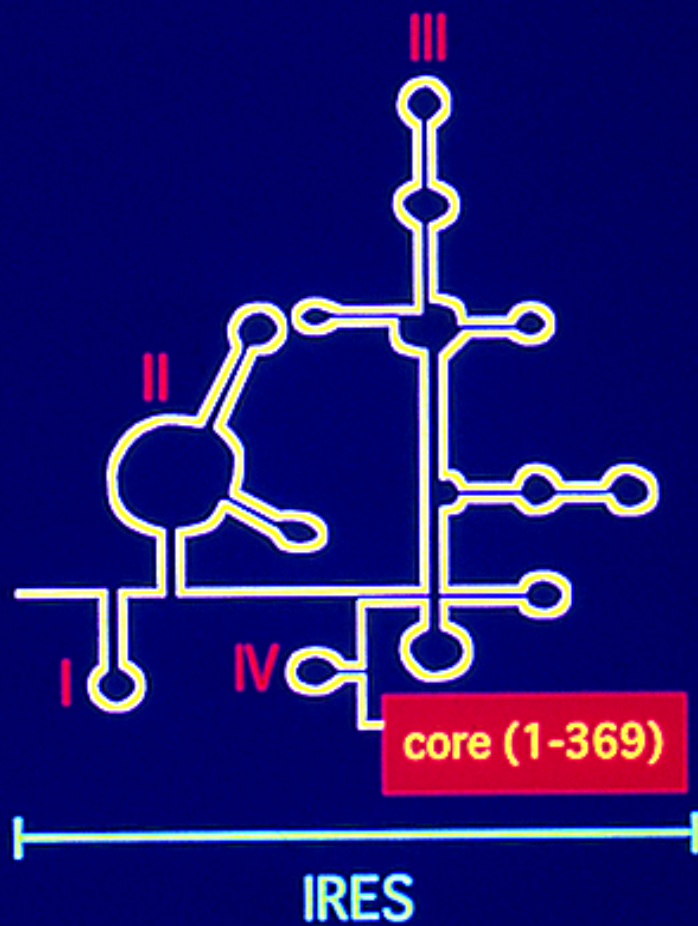
Functions of polio virus genomes during pathogenicity expression



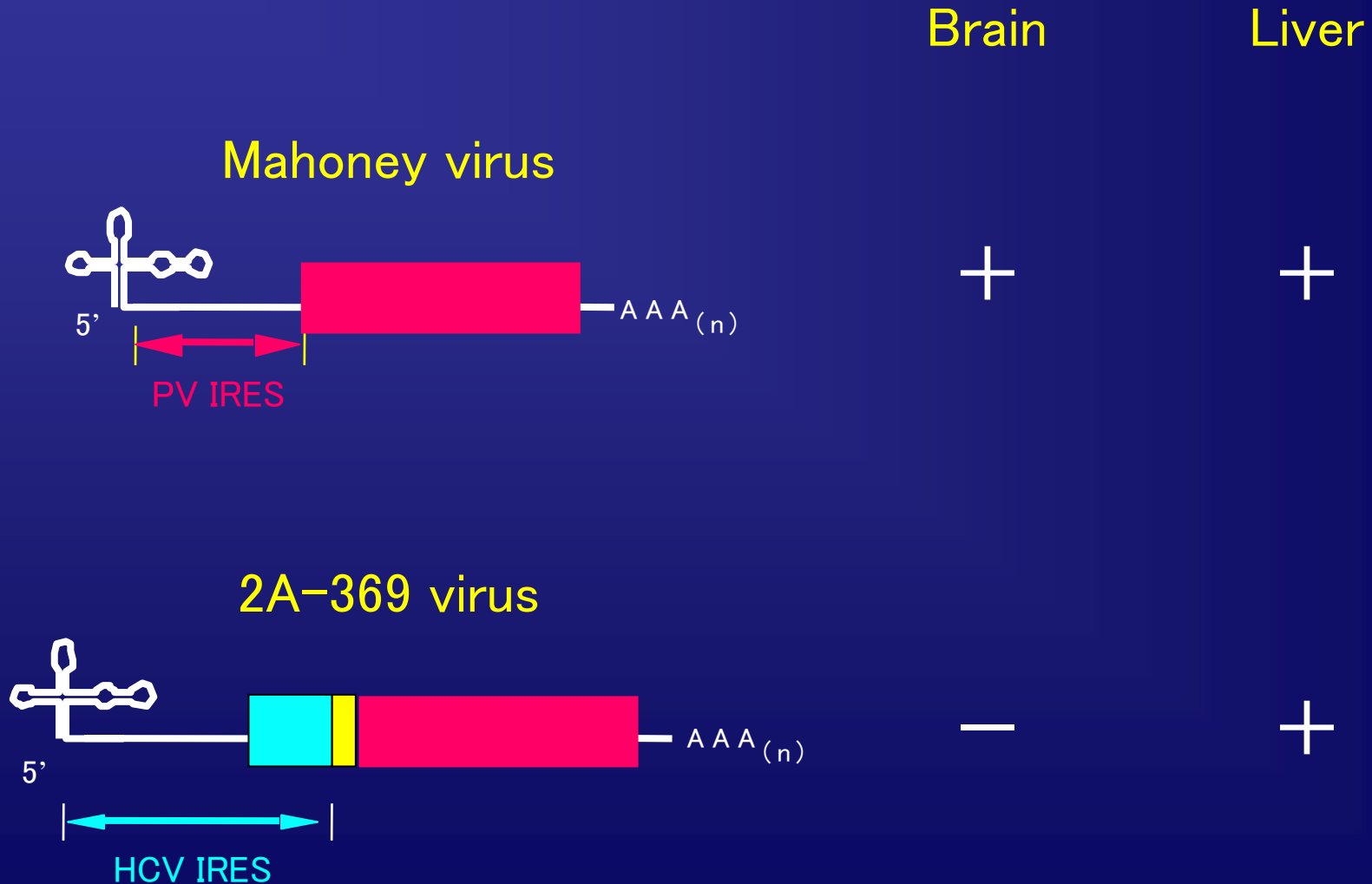
PV IRES (Neuron specific)



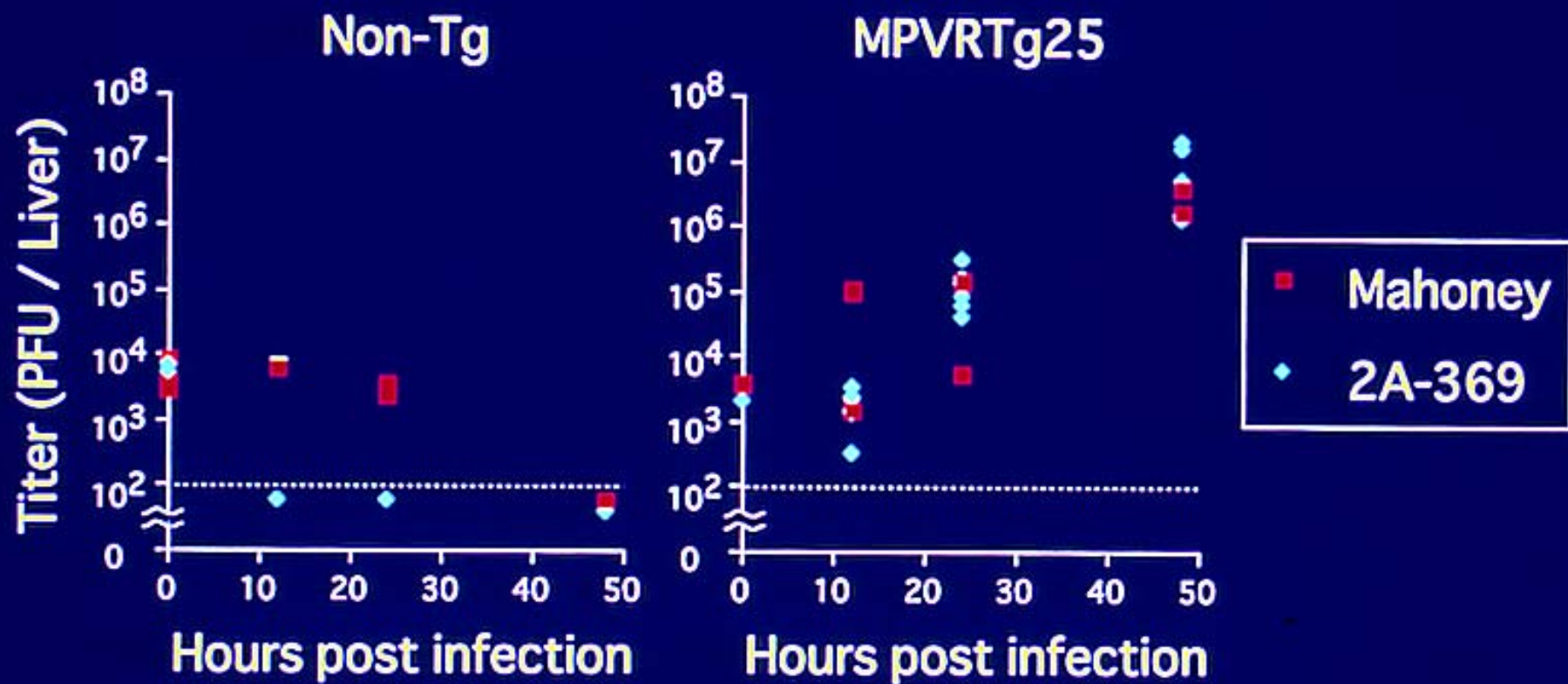
HCV IRES (Liver specific)



Virus Tissue Specificity Directed by IRES



Time Course of Virus Titers in The Liver after Inoculation into The Liver.



Principles of viral tropism

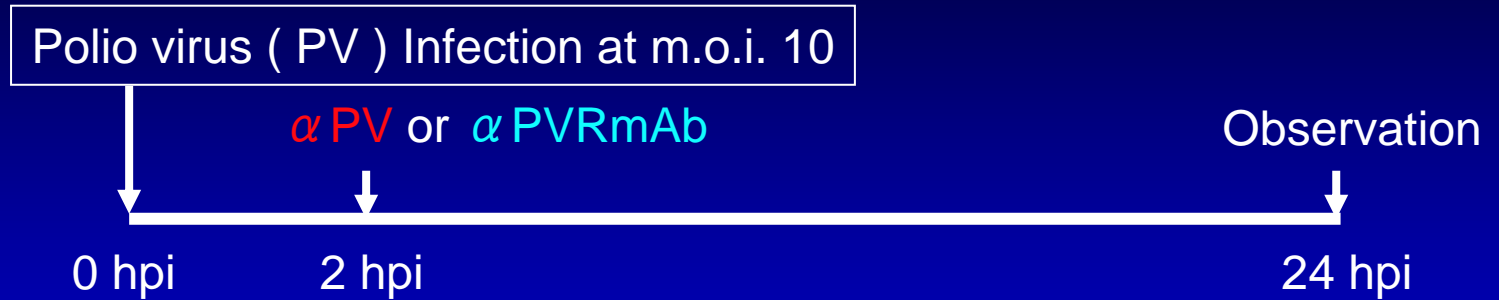
- 1. Receptor-dependent tropism**
- 2. Protease-dependent tropism**
- 3. IRES-dependent tropism**
- 4. Natural immunity-dependent tropism**
- 5. Others**

Research on pathogenicity

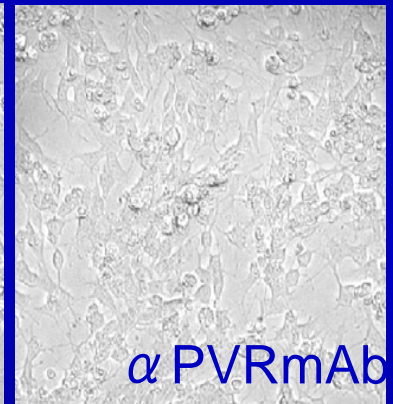
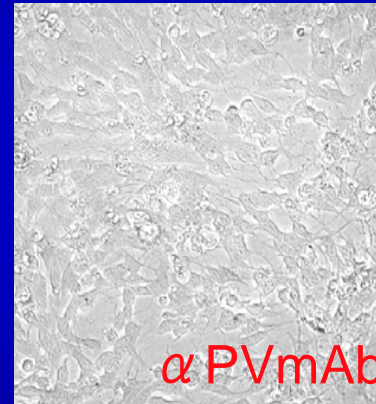
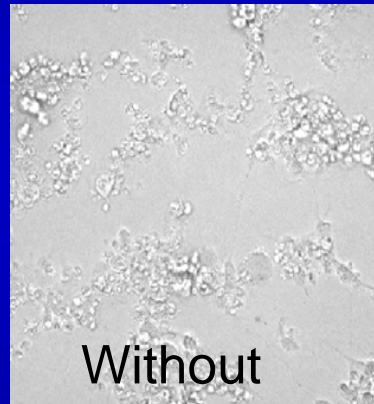
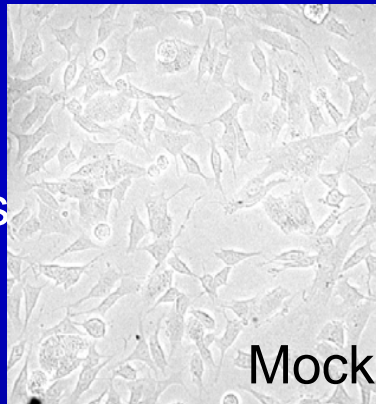
1. Mechanisms for determining species-specificity
2. Mechanisms of dissemination
3. Mechanisms for determining tissue-specificity
4. Ability to cause damage to the target cell

Polio virus resistance in nerve cells

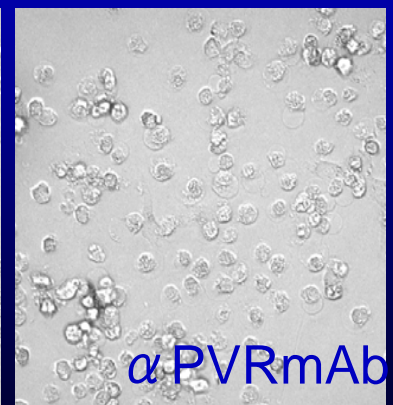
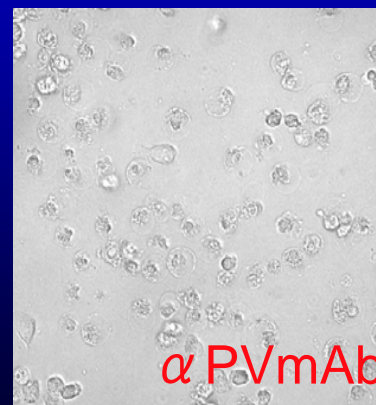
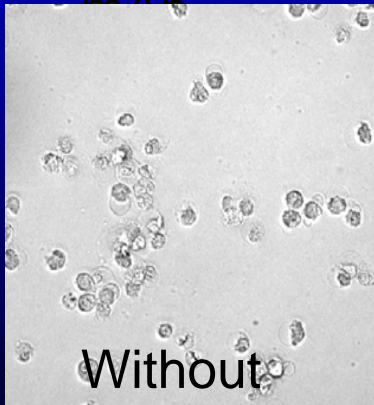
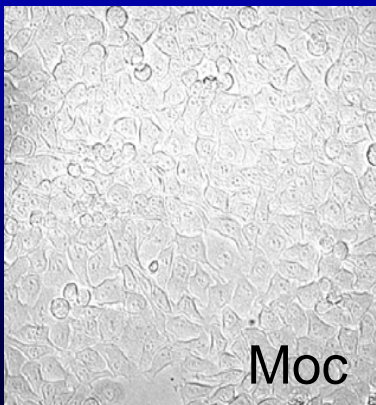
Inhibition of PV-induced Cytopathic Effect in Neural Cells by mAbs



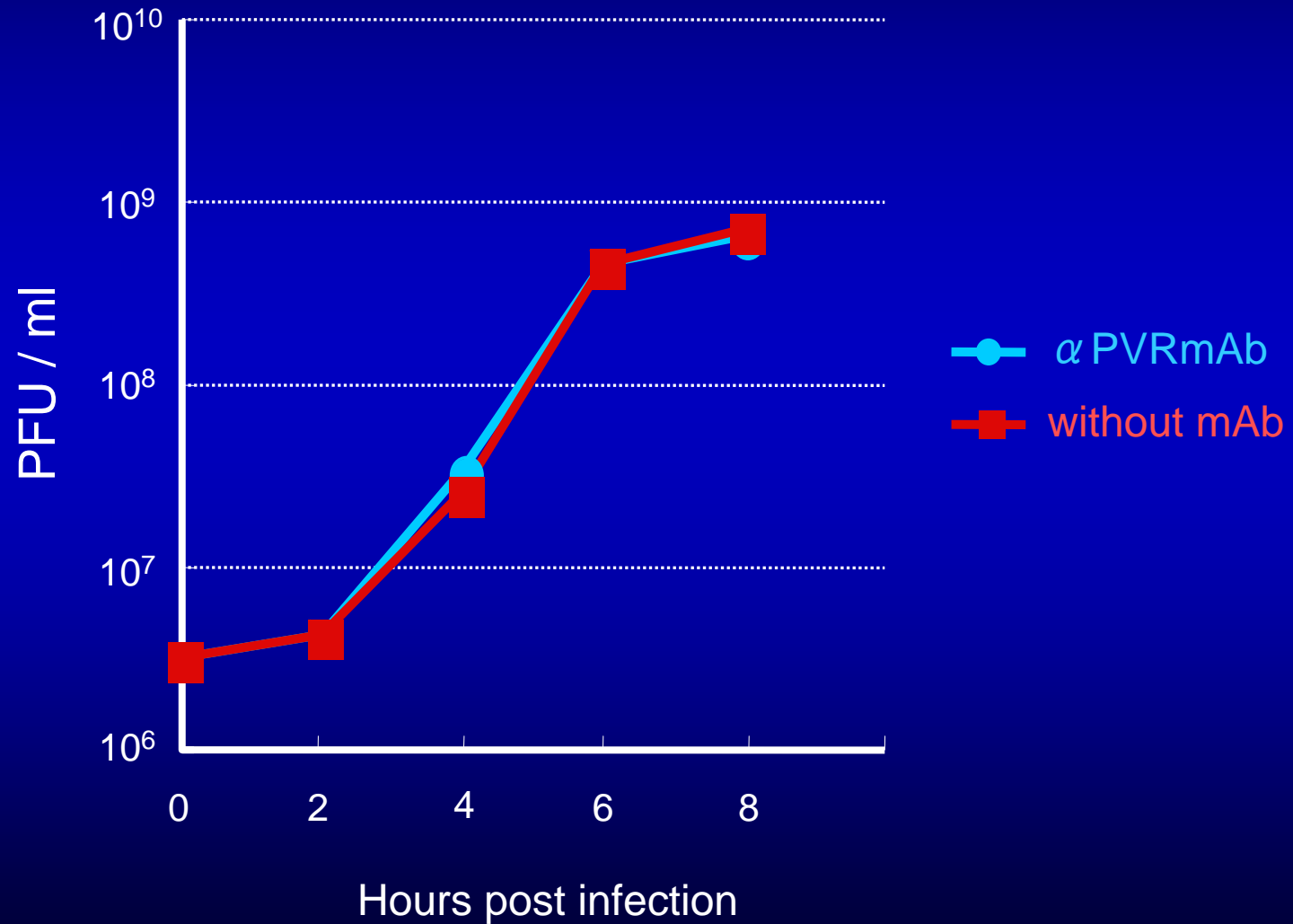
Neural cells



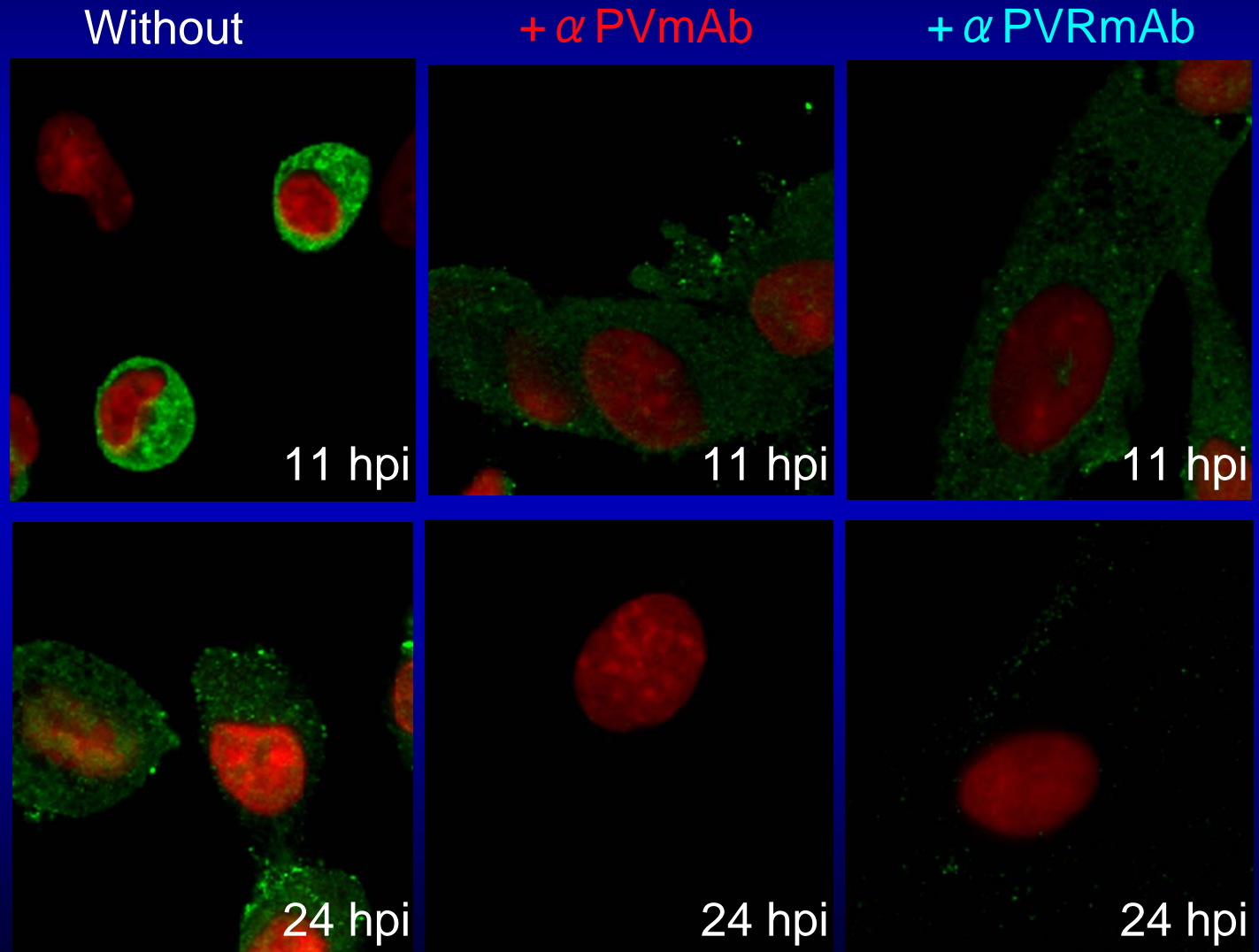
HeLa cells



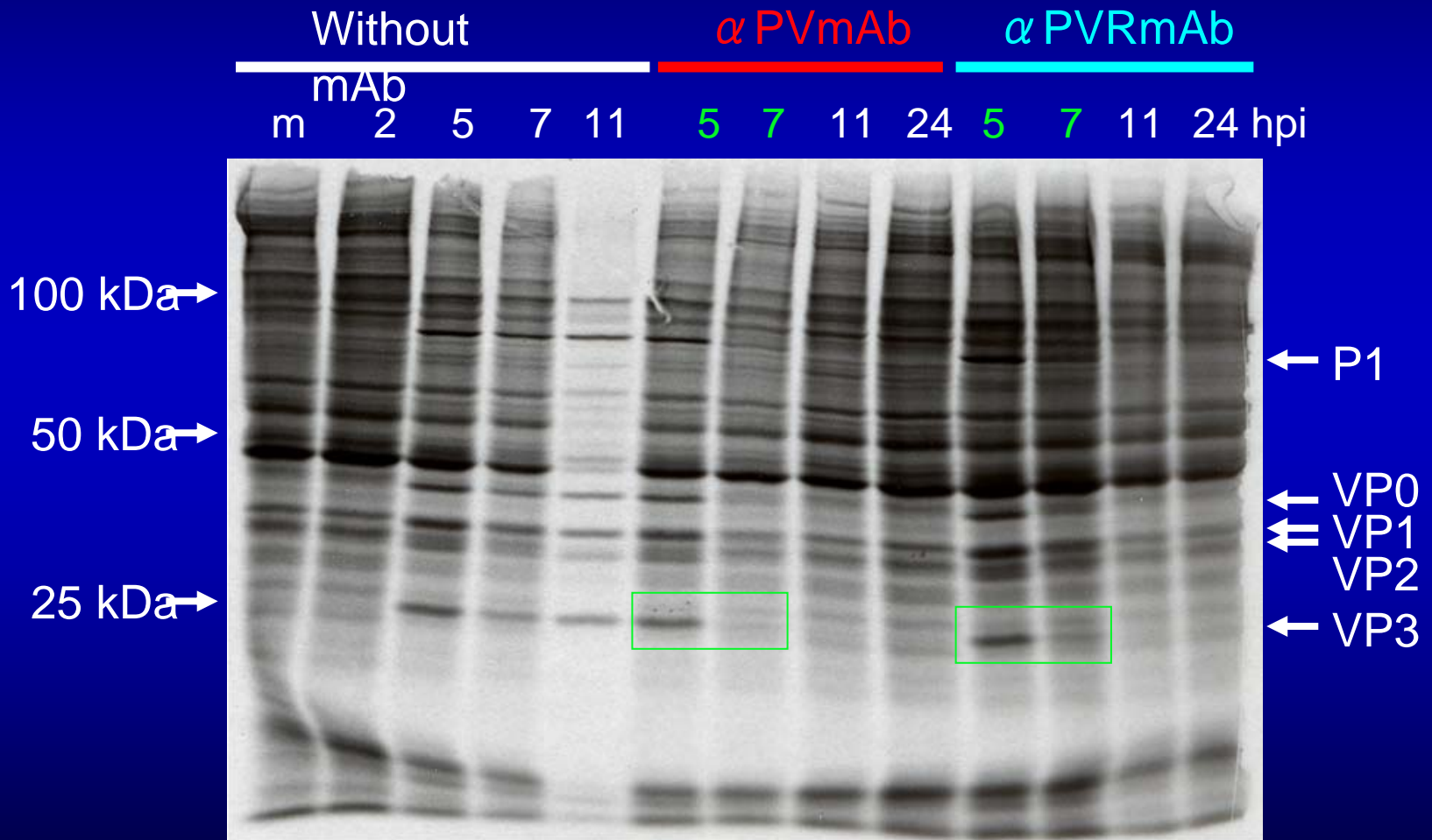
One Step Growth Kinetics of PV Replication in Neural Cells



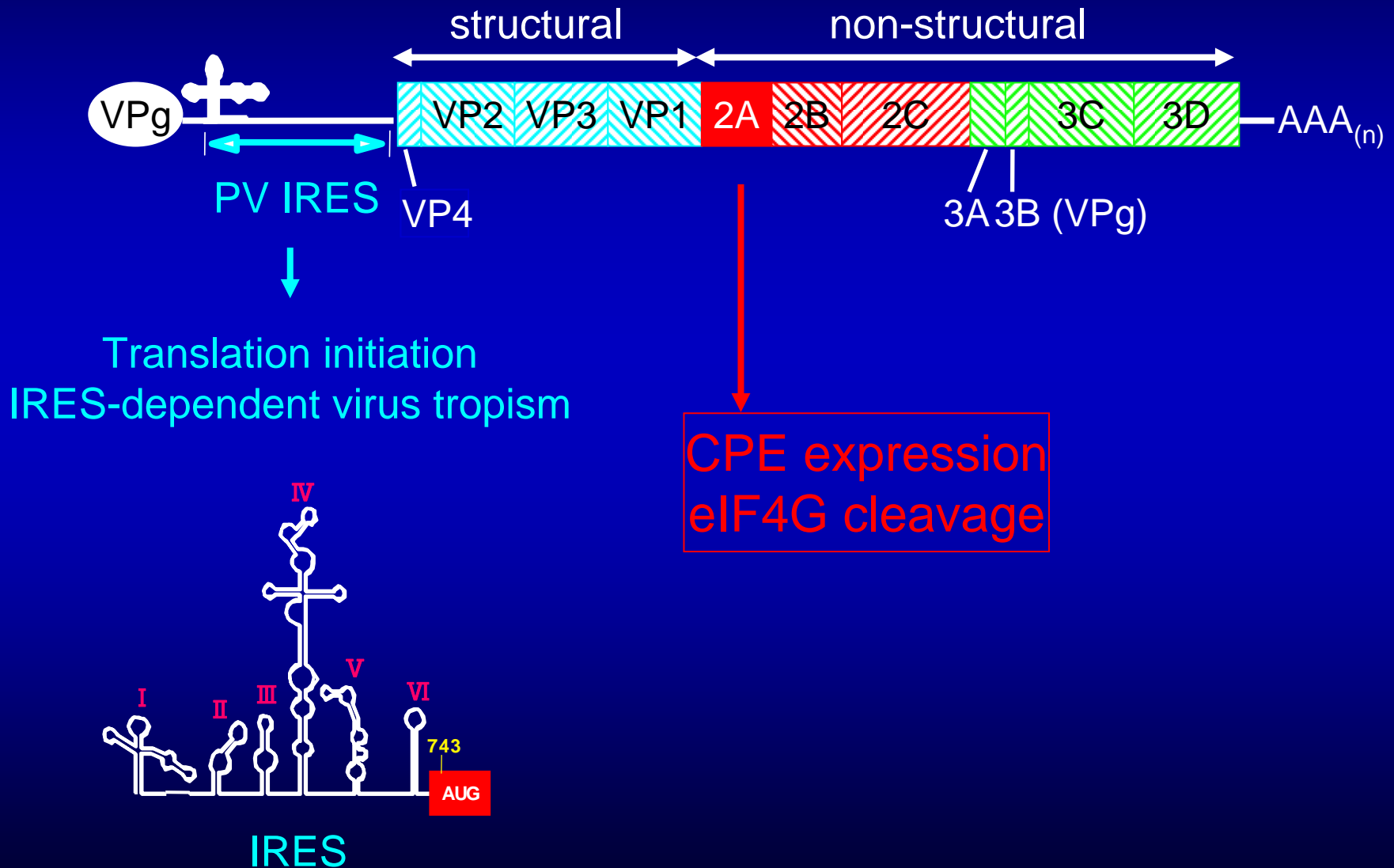
PV Replication in Neural Cells Treated by mAbs 2 hpi



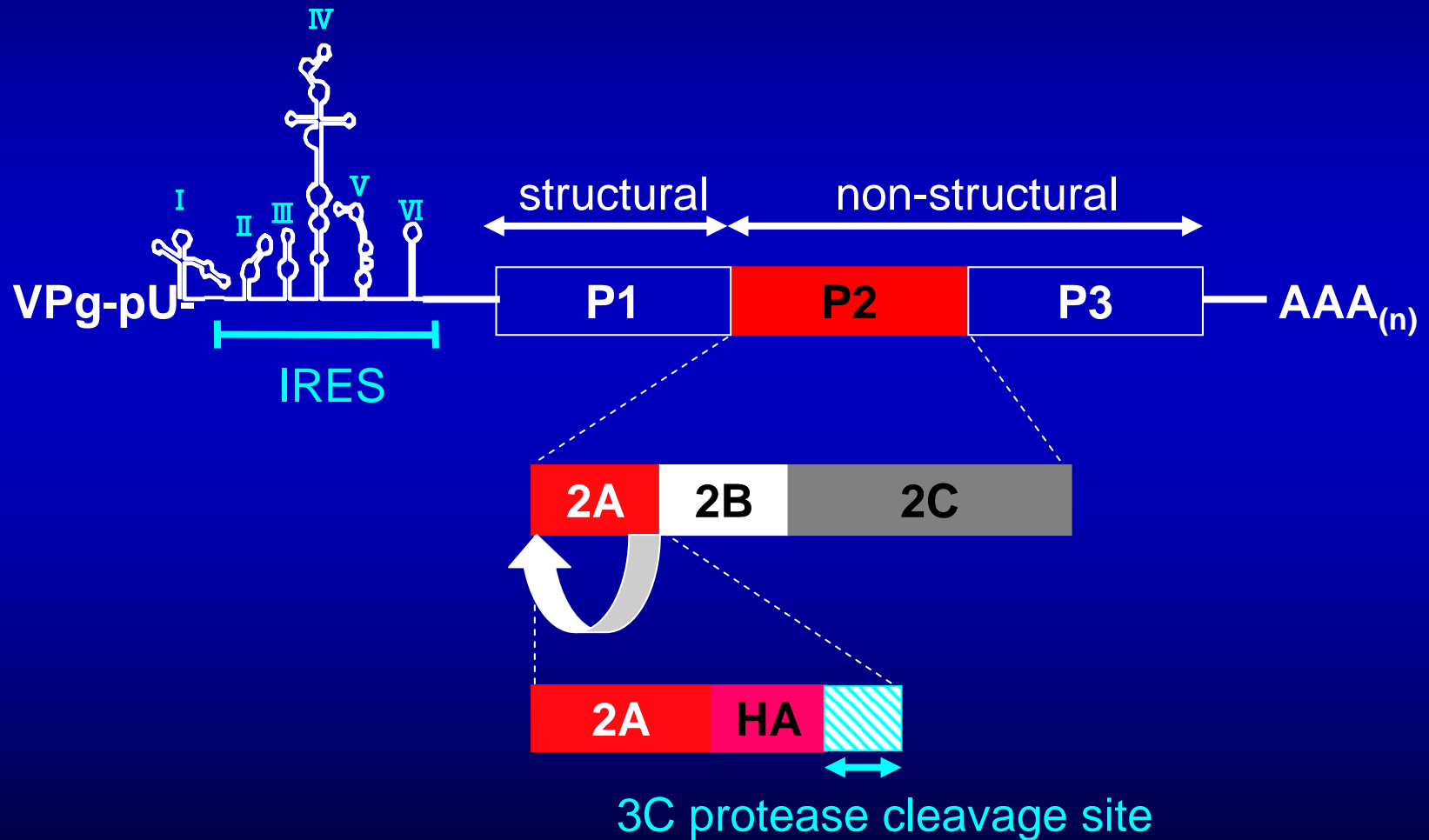
Protein Synthesis in PV-infected Neural Cells



Structure of Polio Virus (PV) RNA



Structure of HA-tagged 2A Virus

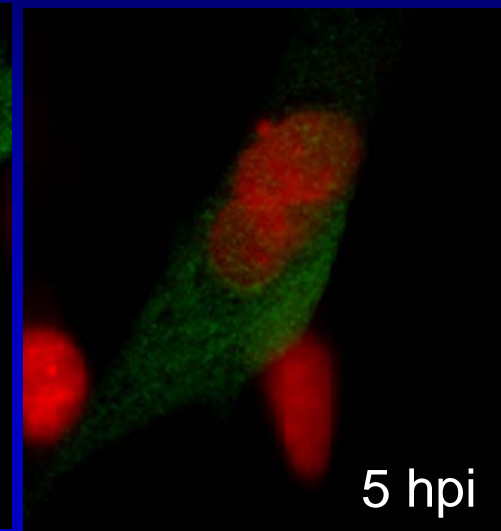
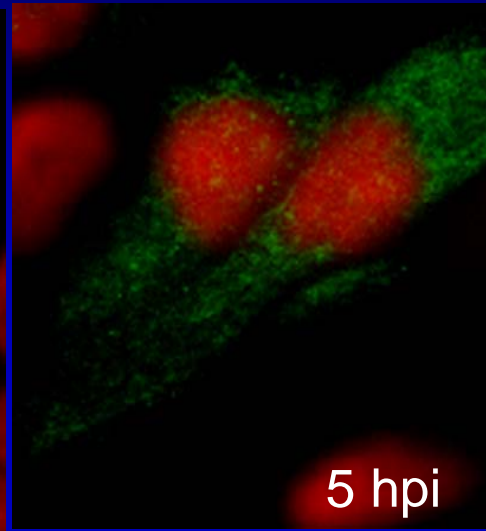
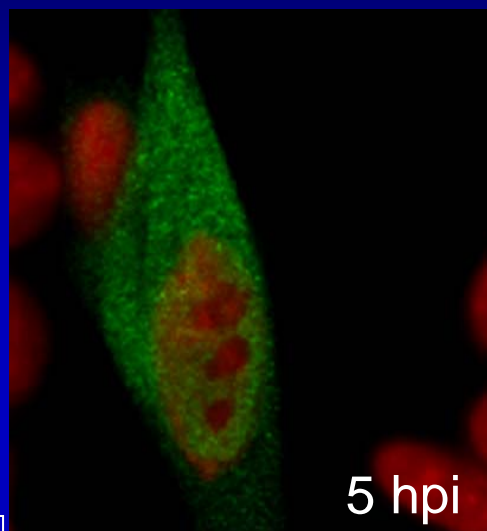


Localization of HA-tagged PV 2A^{pro} in Neural cells

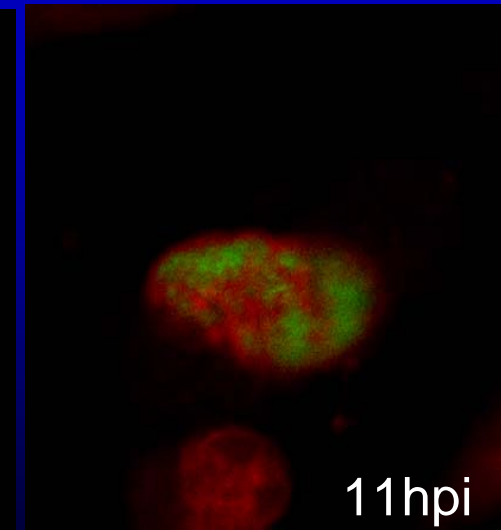
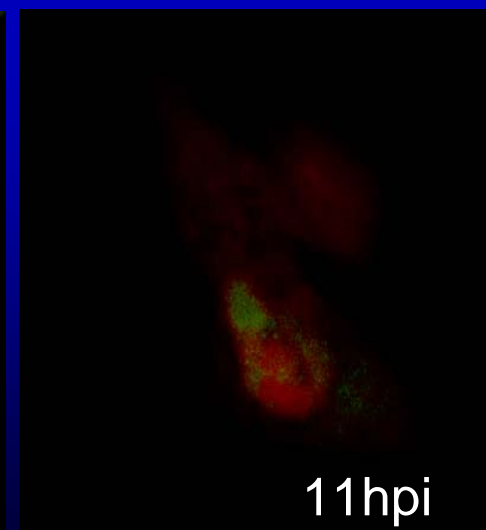
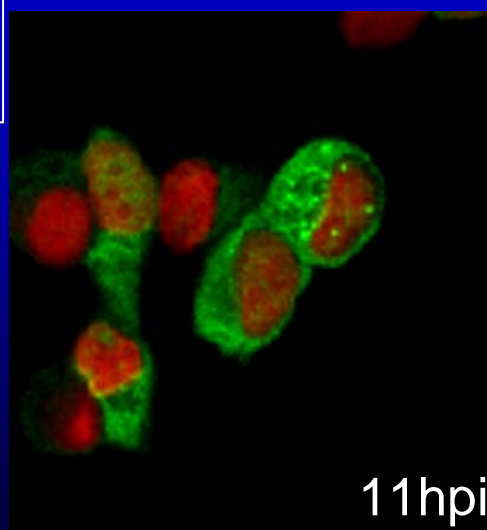
Without mAb

α PV mAb

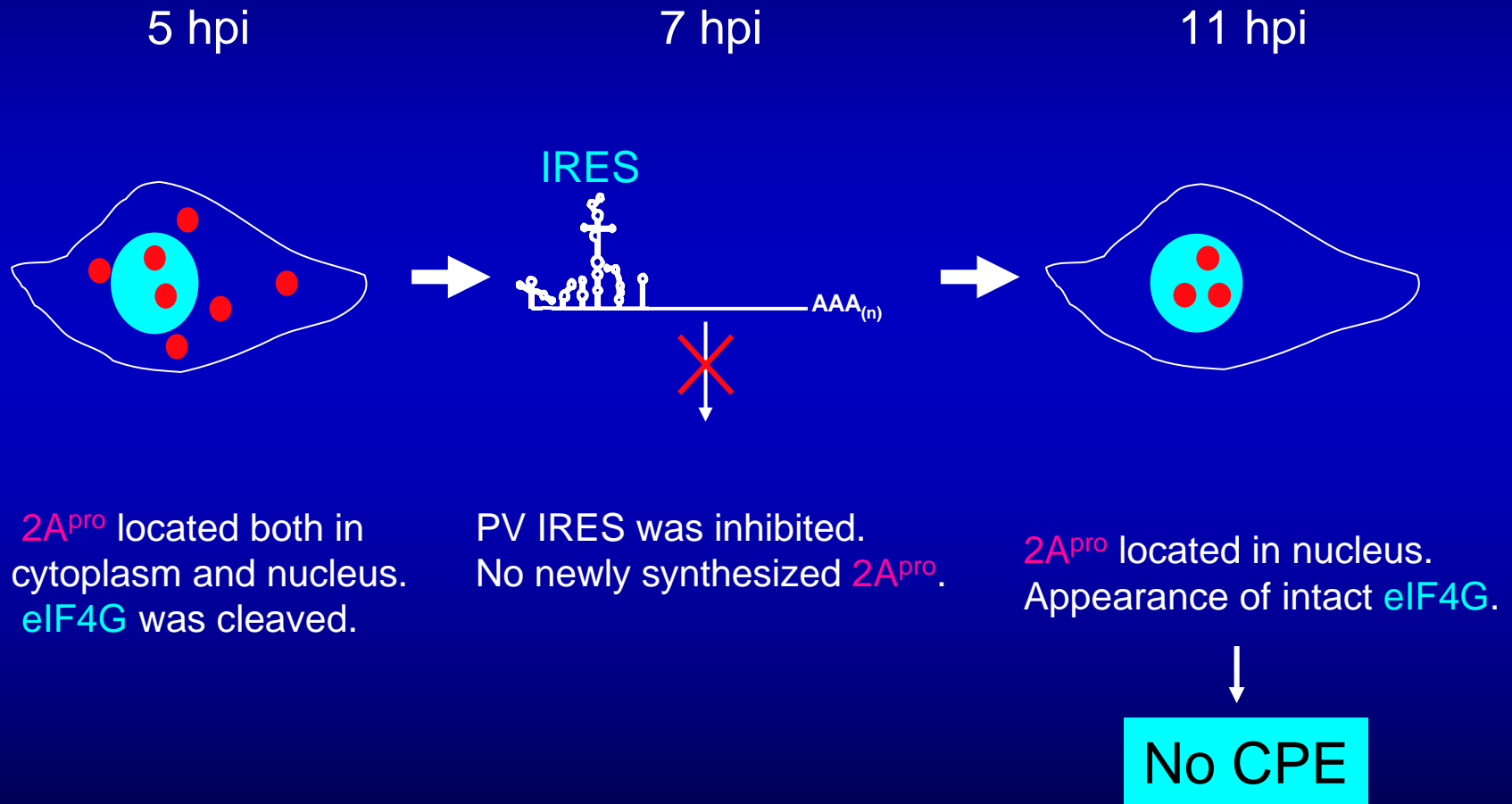
α PVRmAb



Nuclei : Red
2A^{pro} : Green

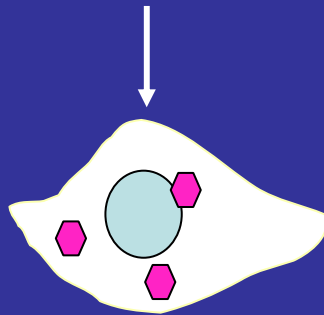
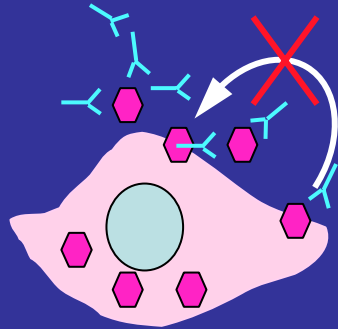


Neural Cells in the Presence of mAb

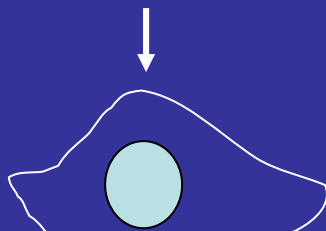


Hypothesis on CPE expression mechanism in SK-N-SH cells

with antibody

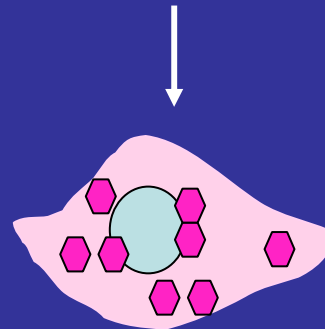
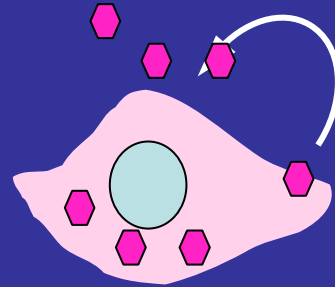


viral proteins decrease

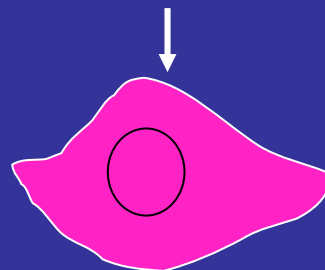


CPE
suppression

without antibody

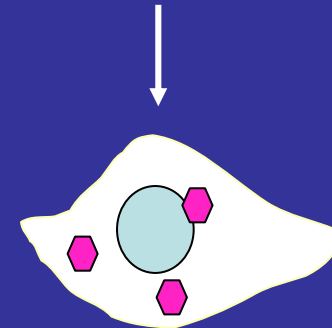
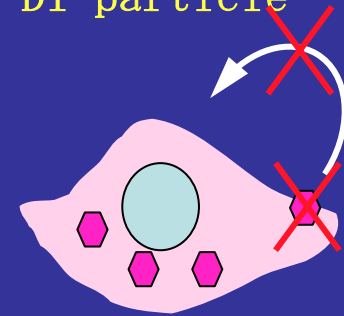


Expression of viral
proteins is maintained.

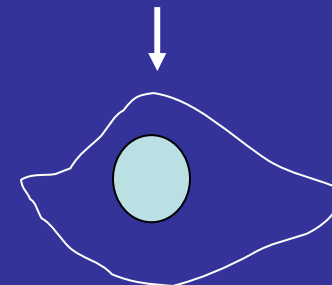


CPE expression

infection of
DI particle

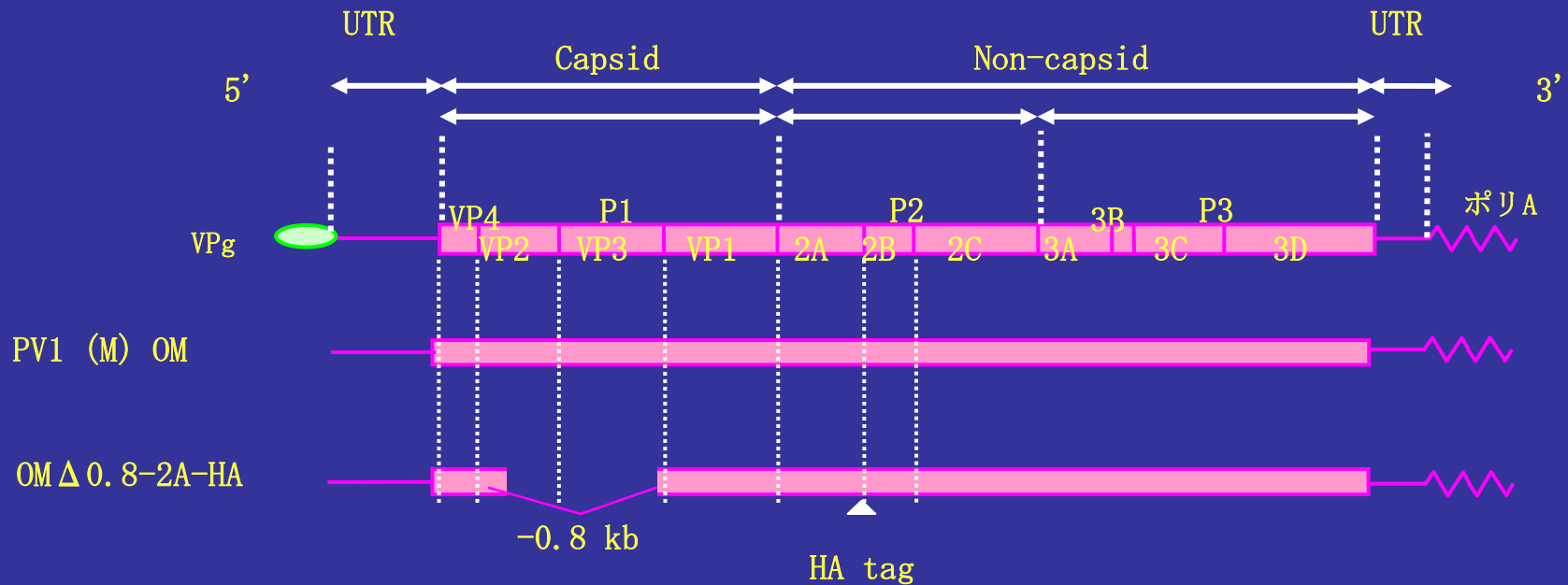


viral proteins decrease



CPE
suppression

Genome structure of a DI particle



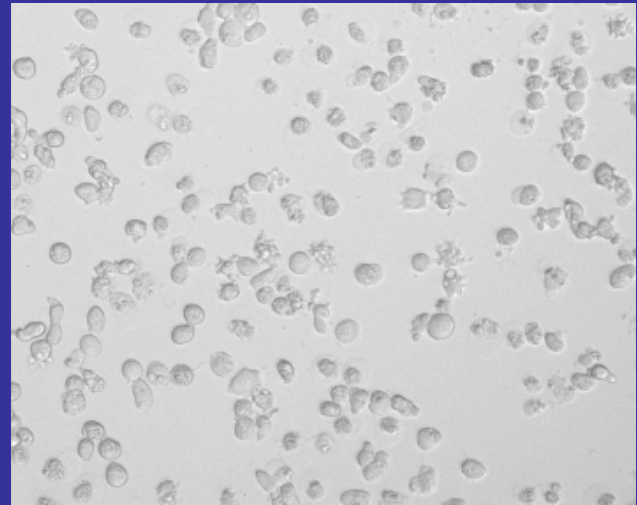
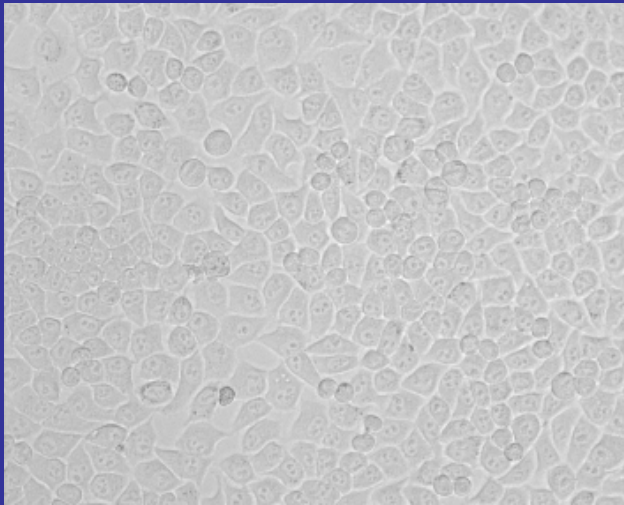
Progeny virion is not generated.

CPE expression by single infection of a DI particle

Mock

+DI

HeLa
cell



SK-N-SH
cell

