



Virology for 2nd Year MD Students

(04) Principles of Treatment & Prevention of Virus Infections

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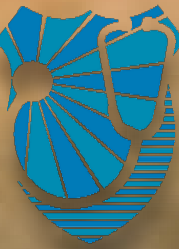
How to treat virus infections?

- Usually **supportive care** (treat the symptoms)
- Fever → antipyretic.
- Pain → analgesic.
- Dehydration → fluids.
- Cough → antitussive.
- Fluids
- Bed rest





How to treat virus infections?

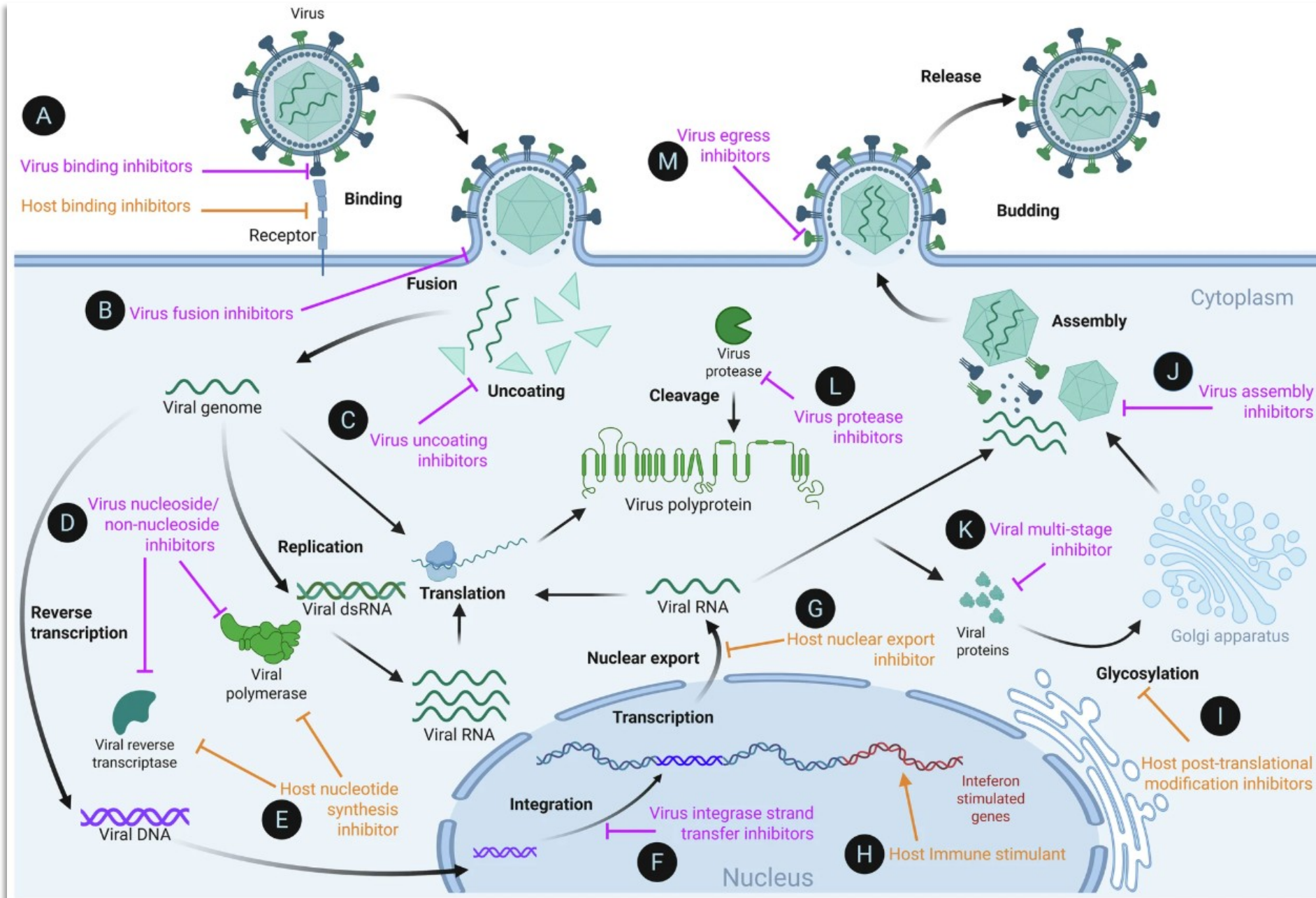


- Antiviral drugs can be used for several virus infections.
- Antiviral drugs can reduce the severity of infection.
- Antiviral drugs can reduce the duration of symptoms.
- Antiviral drugs can help to control a few chronic infections.





How to treat virus infections? Antivirals



Source: Aw, D.Z.H., Zhang, D.X. & Vignuzzi, M. Strategies and efforts in circumventing the emergence of antiviral resistance against conventional antivirals. npj Antimicrob Resist 3, 54 (2025). <https://doi.org/10.1038/s44259-025-00125-z>



How to treat virus infections?

Antiviral drugs can help to cure hepatitis C chronic infection.

Antiviral drugs can help to manage HIV infection.

Development of resistance, high cost and side effects are the major problems of antiviral drugs.

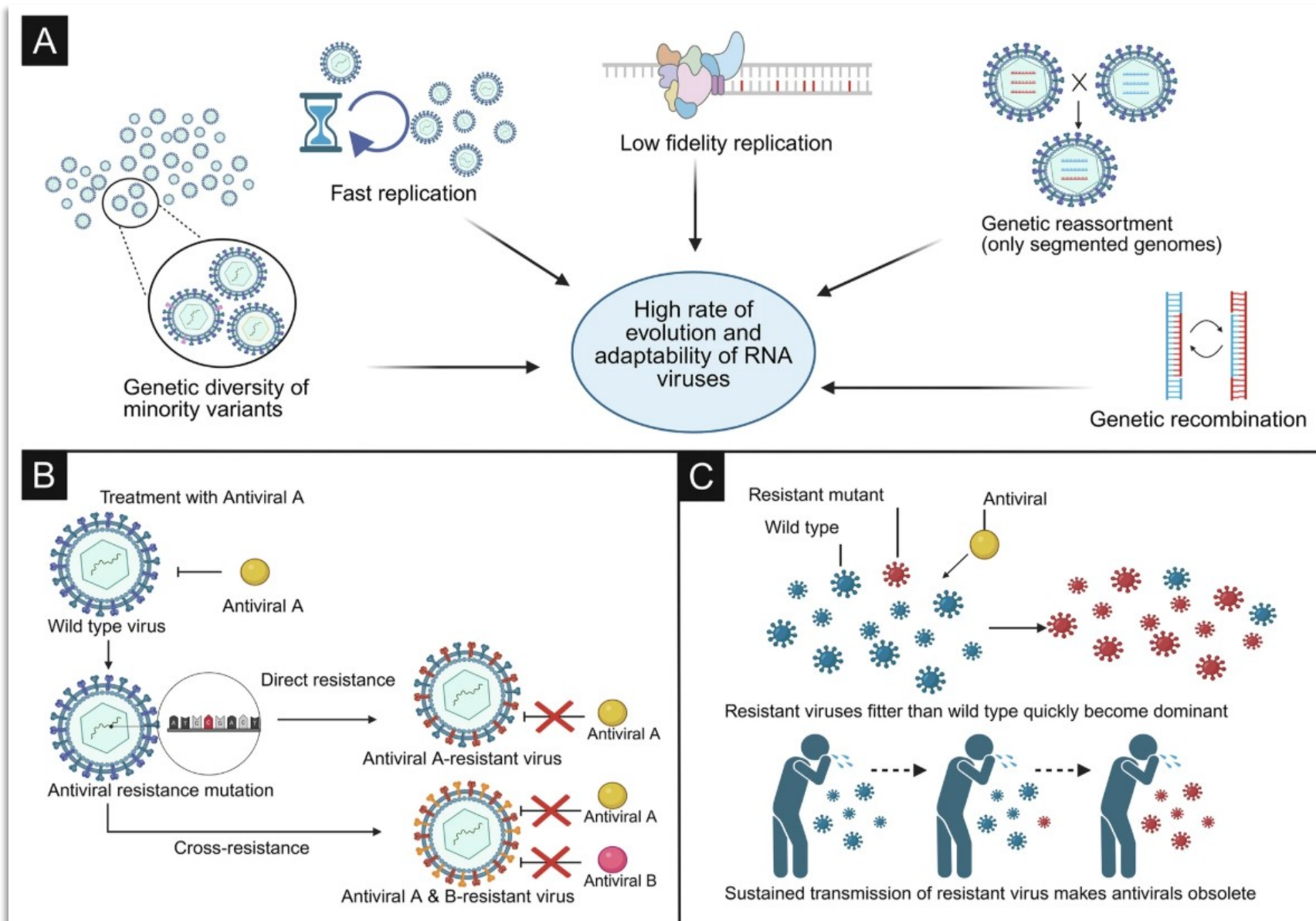
Interferons have non-specific broad-spectrum antiviral activity and can be used. Adverse effects (flu-like symptoms, hematological toxicity, elevated transaminases, nausea, fatigue, and psychiatric sequelae).

Antibiotics can NOT help to treat virus infections.

Antibodies CAN help to treat virus infections.



Antiviral resistance

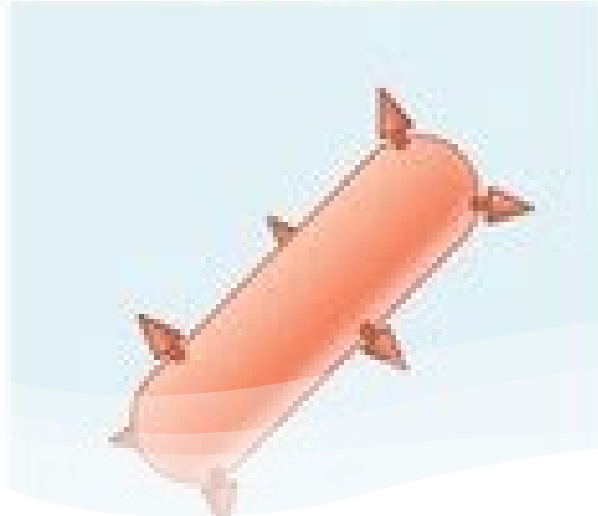


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ACTIVE IMMUNITY

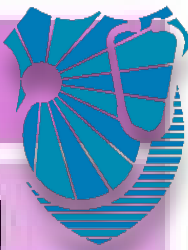
Natural



Artificial



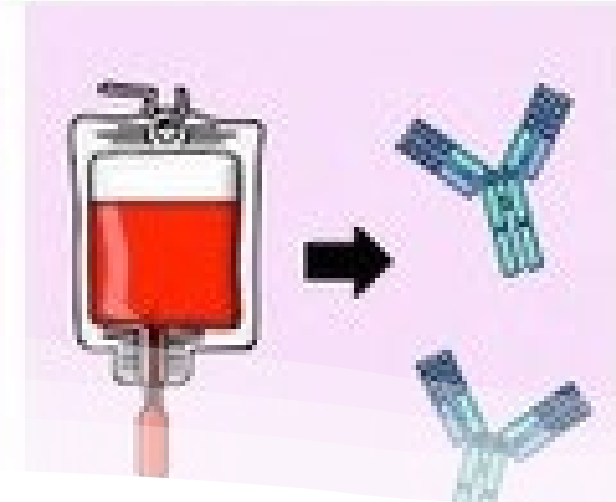
PASSIVE IMMUNITY



Natural



Artificial



How to prevent virus infections?

1. Passive immunization

Mother to child through the placenta.

Mother to child through breast milk.

Specific antibodies taken from persons immune to the disease and given to a person at risk of infection.



How to prevent virus infections?

2. Active immunization (Vaccination)

The gold standard prevention method.

- Several types:
 - A. Inactivated vaccines
 - B. Live-attenuated vaccines
 - C. Messenger RNA (mRNA) vaccines
 - D. Subunit, recombinant, polysaccharide, and conjugate vaccines
 - E. Viral vector vaccines

Vaccine safety? Vaccine efficacy?

Unvaccinated % – Vaccinated % ÷ Unvaccinated %



How to prevent virus infections?

Sharing injection equipment with others carries with certain risks.



Use sterile syringes.
Get them at the health department.

COUGH ETIQUETTE



3. Behavioral and non-pharmaceutical interventions (NPIs).

- Examples:
 - Hand hygiene
 - Clean needles/syringes
 - Face masks
 - Respiratory etiquette
 - Infection control measures in hospitals
 - Quarantine



Thank You...
Wishing you all the
best!

