

Herpes Virus Drugs

Hep C Drugs

Hep B Drugs

1. Cytovir – used for Herpes viruses
MOA: Nucleoside analog → phosphorylated by **Viral Thymidine kinase** → Kills viral DNA replication
Acyclovir – HSV-1, HSV-2, VZV
Valacyclovir – prodrug of acyclovir– HSV-1, HSV-2, VZV
SE: Nephrotoxicity, Neurological effects
Penciclovir – HSV-2, VZV
Famciclovir – prodrug of penciclovir– VZV
SE: Nephrotoxicity, Neurological effects
Ganciclovir – virus UL97 kinase – CMV
Valganciclovir – prodrug of ganciclovir - CMV
SE: Leukopenia, Thrombocytopenia, liver damage, seizures
PK: renal elimination
Resistance – Mutations in thymidine kinase and UL97 kinase
DDI: Nephrotoxic drugs, Drugs that inhibit tubular secretion

2. Foscarnet - CMV
MOA: Inhibits viral DNA, RNA, transcriptase directly
SE: Nephrotoxicity, liver damage, Neurological effects
PK: Deposited in bones → prolonged half life
Resistance – Mutations DNA polymerase
DDI: Nephrotoxic drugs, Drugs that inhibit tubular secretion

3. Fovirs
MOA: Nucleoside/tide analog → Phosphorylated by **host cell** → inhibits viral DNA polymerase or reverse transcriptase
Cidofovir – CMV
SE: Neutropenia, proteinuria, metabolic acidosis, nephrotoxicity (TX probenecid & saline)
Adefovir – HBV – 3rd line
SE: Pancreatitis
Tenofovir – Nucleotide - HBV, HIV
SE: Nephrotoxicity, osteomalacia, GI effects, Preg Cat B

7. HCV protease inhibitors
MOA: Inhibition of hepatitis C viral protease
Telaprevir
Boceprevir
Simeprevir – sulfa allergy
PK: food increases absorption, CYP inhibitor, albumin binder
USE: 1st line for HCV
SE: photosensitivity

8. HVC Polymerase inhibitors
MOA: Inhibits Hep C viral RNA polymerase
Sofosbuvir - nucleotide analog
SE: P-glycoprotein inducer
Ribavirin – nucleoside analog - Phosphorylated by host
SE: hemolytic anemia, teratogenic (Preg Cat X)

4. Entacavir - **MOA: Nucleoside analog** → inhibits **HBV DNA polymerase**
USE: 1st line for HBV
DDI: Well tolerated, Preg. Cat C

5. Alfa Interferons
MOA: Activate host anti-viral immune response → increased MHC-I expression, increased CD8 T-cells
SE: Flu like syndrome, hepatitis, neurotoxicity, weight loss, cardiotoxicity, fatigue
PK: Pegylation → increased half life
CI: Hepatitis, autoimmune disorders, arrhythmia
DDI: Theophylline, methadone

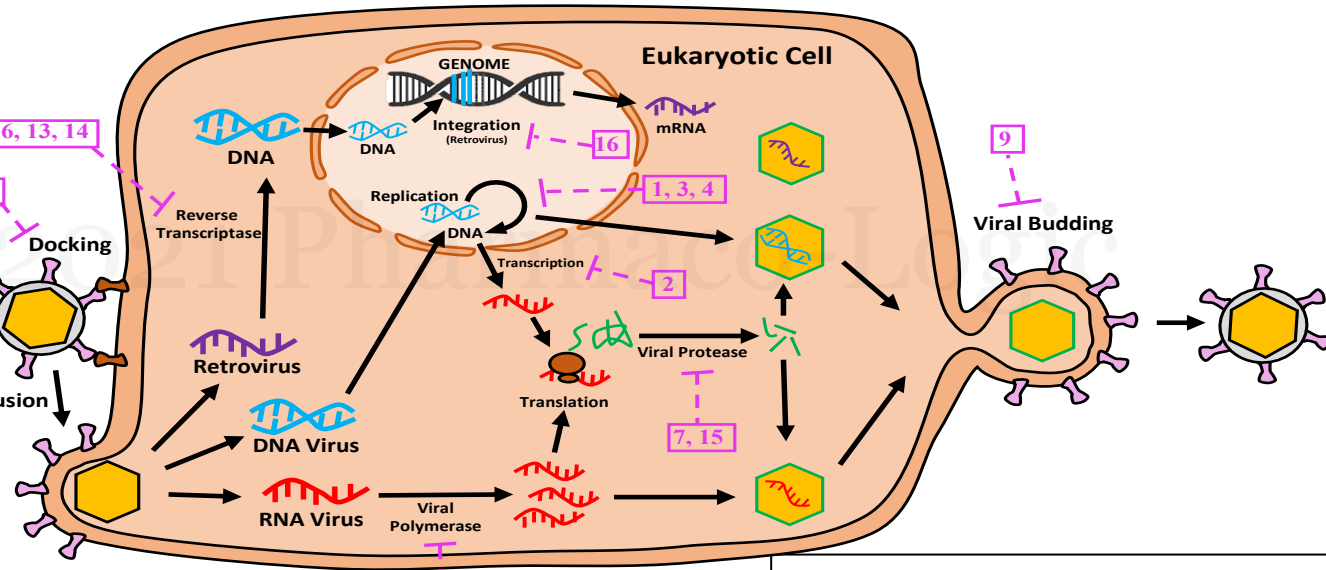
6. Vudines
MOA: NUKES - Nucleoside analogs → inhibits **Viral DNA polymerase/reverse transcriptase**
Telbivudine - HBV – myalgias, peripheral neuropathy
Lamivudine - HBV
Zidovudine - inhibits HIV reverse transcriptase
SE: Pancreatitis, rebound hepatitis
PK: Pegylation → increased half life
CI: Hepatitis, autoimmune disorders, arrhythmia
DDI: Theophylline, methadone

Virus	Drug
HSV-1	Acyclovir, Valacyclovir
HSV-2	Acyclovir, Valacyclovir, Penciclovir
VZV	Valacyclovir, Penciclovir, Famciclovir
CMV	Ganciclovir, Valganciclovir, Foscarnet, Cidofovir
HBV	Entacavir, Adefovir, Tenofovir, Alpha interferons, Telbivudine, Lamivudine
HCV	Ribavirin, Sofosbuvir, Telaprevir, Boceprevir, Simeprevir
Flu Virus	Oseltamavir, Zanamavir, Peramivir
RSV	Palivizumab, Ribavirin

15. Protease inhibitors
MOA: Prevent processing of viral polypeptide
Ritonavir – CYP3A4 inhibitor - "booster" for other drugs
Atazanavir – peripheral neuropathy, rash
Darunavir
Lopinavir
SE: Hyperlipidemia, hyperglycemia, insulin resistance, fat maldistribution, breast enlargement

16. Integrase inhibitors
MOA: Prevent integration of viral DNA into host genome
Raltegravir
Etravirine
Dolutegravir - resistance HIV
SE: myopathy, rhabdomyolysis

17. HIV entry inhibitors
Maraviroc – inhibits CCR5 (on host) → prevents viral entry
SE: Rash, hepatotoxicity, orthostatic hypotension, abd. Pain
Enfuvirtide – blocks viral glycoprotein mediated entry into host cell
SE: hypersensitivity



9. Neuraminidase inhibitors
MOA: Inhibition of viral neuraminidase → prevent budding of viral particles
Oseltamavir – oral, renal eliminated
Zanamavir – inhaled
Peramivir – IV administered
SE: Headache, N/V, bronchospasm (zana)

10. Misc Drugs for Flu
Baloxavir – Polymerase acidic endonuclease inhibitor
SE: Polyvalent cations decreased efficacy

11. Palivizumab
MOA: Block viral fusion to host cell – monoclonal antibody
SE: Allergic reaction, URTI, N/V, fever

12. Viral Polymerase inhibitors
MOA: Inhibits RSV viral RNA polymerase
Ribavirin – nucleoside analog – Phosphorylated by host
SE: hemolytic anemia, teratogenic (Preg Cat X)

13. Nucleotide reverse transcriptase inhibitors - NUKES
MOA: nucleoside analog → inhibit HIV reverse transcriptase enzymes /inhibit DNA synthesis (PDE bond)
Emtricitabine – hyperpigmentation
Zidovudine - Anemia
Abacavir – Hypersensitivity reaction in pts with HLA-B57
Lamivudine - HBV
SE: Lactic acidosis, Hepatic steatosis

14. Non-Nucleoside reverse transcriptase inhibitors
MOA: Directly inhibit HIV reverse transcriptase
Efavirenz – RASH, dyslipidemia, preg cat. D
Rilpivirine nevirapine
Etravirine – inhibits CYP3A4, induces CYP2C9
SE: Rash, hepatitis

Influenza Virus Drugs

Respiratory Syncytial Virus Drugs

HIV Drugs