

Antiviral agents

Presented By:-

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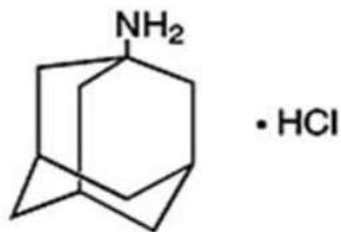
Specialization - Pharmaceutical Chemistry

Classification of Antiviral Drugs: Mode of Action and Uses

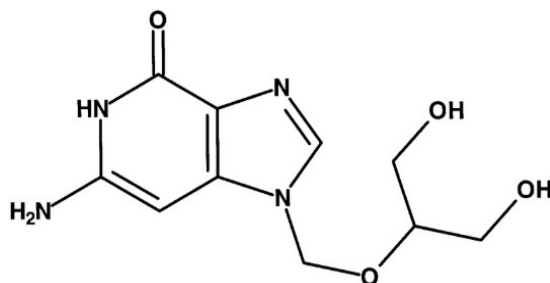
Drug	Mode of Action	Uses
Amantadine hydrochloride	Inhibits viral uncoating (M2 proton channel blocker)	Influenza A virus infections
Rimantadine hydrochloride	Inhibits viral uncoating (similar to Amantadine; more active, fewer side effects)	Influenza A virus infections
Idoxuridine trifluoride	Thymidine analog → incorporates into viral DNA → faulty DNA replication	Herpes simplex virus (HSV) infections (topical use)
Acyclovir	Guanine analog → inhibits viral DNA polymerase after phosphorylation by viral thymidine kinase	HSV-1, HSV-2, Varicella-zoster virus (VZV)
Ganciclovir	Similar to Acyclovir but more active against CMV → inhibits viral DNA polymerase	Cytomegalovirus (CMV) infections
Zidovudine (AZT)	Nucleoside Reverse Transcriptase Inhibitor (NRTI) → inhibits reverse transcriptase	HIV infection

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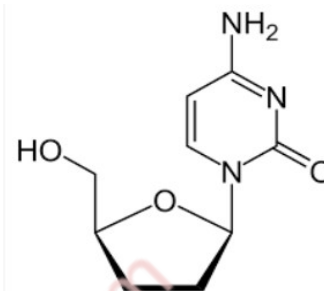
Drug	Mode of Action	Uses
Didanosine (ddI)	NRTI → inhibits reverse transcriptase	HIV infection
Zalcitabine (ddC)	NRTI → inhibits reverse transcriptase	HIV infection
Lamivudine (3TC)	NRTI → inhibits reverse transcriptase	HIV infection, Hepatitis B virus (HBV)
Loviride	Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI) → binds directly to reverse transcriptase	HIV infection
Delavirdine	NNRTI → binds non-competitively to reverse transcriptase	HIV infection
Ribavirin	Guanine analog → inhibits viral RNA synthesis and mRNA capping	RSV infection, Hepatitis C virus (HCV) (with interferon)
Saquinavir	HIV protease inhibitor → prevents viral polyprotein cleavage	HIV infection
Indinavir	HIV protease inhibitor → prevents viral polyprotein cleavage	HIV infection
Ritonavir	HIV protease inhibitor → prevents viral polyprotein cleavage; also boosts other protease inhibitors	HIV infection



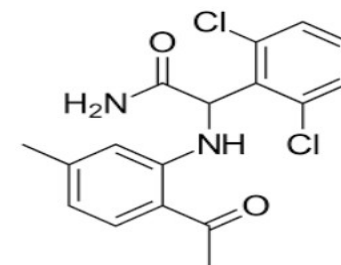
Amantadine hydrochloride



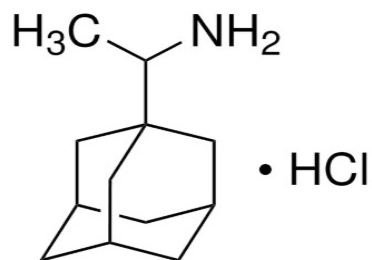
Gancyclovir



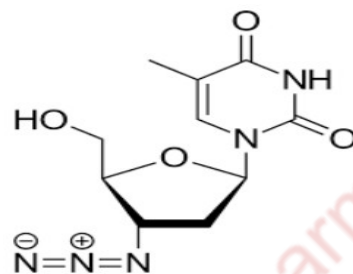
Zalcitabine



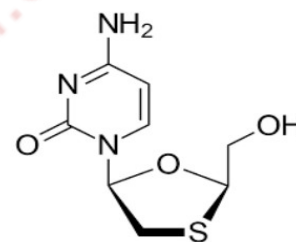
Loviride



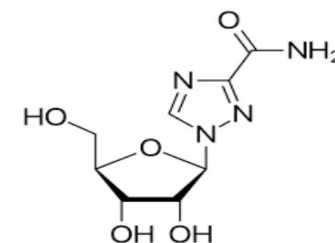
Rimantadine hydrochloride



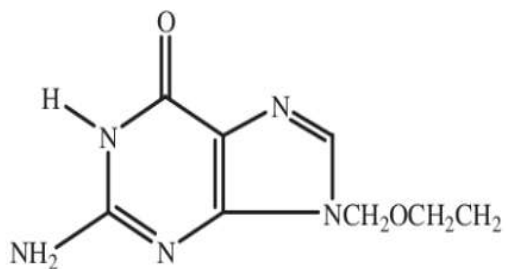
Zidovudine



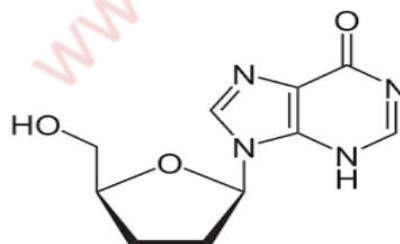
Lamivudine



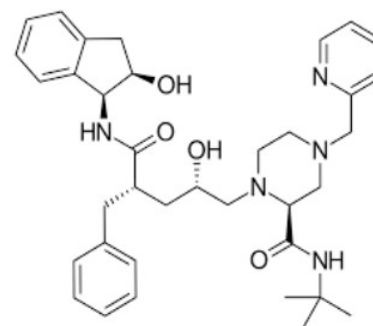
Ribavirin



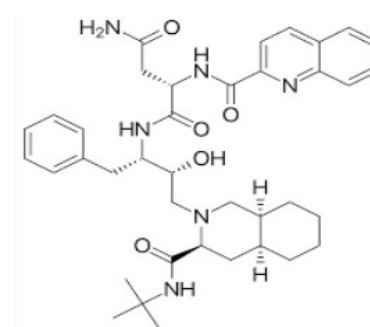
Acyclovir



Didanosine

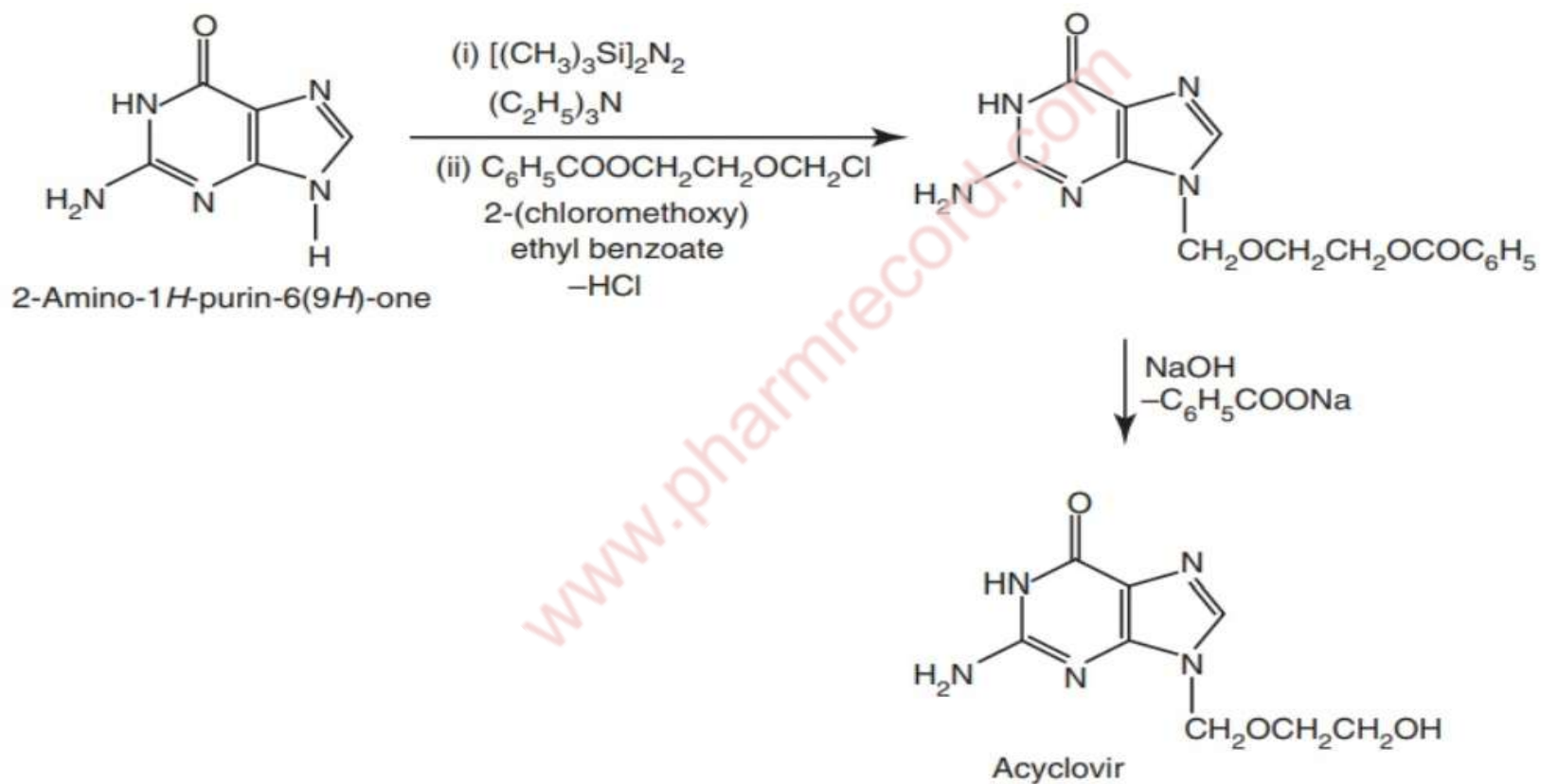


Indinavir



Saquinavir

Synthesis of Acyclovir



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Thank You