



# Antiretroviral Medications (ARVs)

## NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NRTIs)

[NRTIs](#) bind to and block reverse transcriptase (an HIV enzyme). HIV uses reverse transcriptase to convert its RNA into DNA (reverse transcription). Blocking reverse transcriptase and reverse transcription prevents HIV from replicating.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
1995	Epivir*	<a href="#">lamivudine</a>	3TC	<a href="#">ViiV Healthcare</a>
1998	Ziagen*	<a href="#">abacavir</a>	abacavir sulfate, ABC	<a href="#">ViiV Healthcare</a>
2001	Viread*	<a href="#">tenofovir disoproxil fumarate</a>	tenofovir DF, TDF	<a href="#">Gilead Sciences</a>
2003	Emtriva*	<a href="#">emtricitabine</a>	FTC	<a href="#">Gilead Sciences</a>
2015	<a href="#">Vemlidy**</a>	tenofovir alafenamide fumarate	tenofovir AF, TAF	<a href="#">Gilead Sciences</a>

## NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NNRTIs)

[NNRTIs](#) bind to and block HIV reverse transcriptase (an HIV enzyme). HIV uses reverse transcriptase to convert its RNA into DNA (reverse transcription). Blocking reverse transcriptase and reverse transcription prevents HIV from replicating.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
1998	Sustiva*	<a href="#">efavirenz</a>	EFV	<a href="#">Bristol-Myers Squibb</a>
2008	Intencele	<a href="#">etravirine</a>	ETR	<a href="#">Janssen Therapeutics</a>
2011	Edurant	<a href="#">rilpivirine</a>	rilpivirine hcl, RPV	<a href="#">Janssen Therapeutics</a>
2018	Pifeltro	<a href="#">doravirine</a>	DOR	<a href="#">Merck &amp; Co., Inc.</a>

## PROTEASE INHIBITORS (PIs)

[PIs](#) block protease (an HIV enzyme). By blocking protease, PIs prevent new (immature) HIV from becoming a mature virus that can infect other CD4+ cells.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
2003	Reyataz*	<a href="#">atazanavir</a>	atazanavir sulfate, ATV	<a href="#">Bristol-Myers Squibb</a>
2006	Prezista*	<a href="#">darunavir</a>	darunavir ethanolate, DRV	<a href="#">Janssen Therapeutics</a>

## ENTRY INHIBITORS

[Entry inhibitors](#) work by attaching themselves to proteins on the surface of [CD4 cells](#) or proteins on the surface of HIV. In order for HIV to bind to CD4 cells, the proteins on HIV's outer coat must bind to the proteins on the surface of CD4 cells. Entry inhibitors prevent this from happening.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
2007	Selzentry	<a href="#">maraviroc</a>	MVC	<a href="#">ViiV Healthcare</a>
2018	Trogarzo	<a href="#">ibalizumab-uiyk</a>	ibalizumab, IBA	<a href="#">Thera Technologies</a>
2020	Rukobia	<a href="#">fostemsavir</a>	fostemsavir tromethamine, FTR	<a href="#">ViiV Healthcare</a>

## INTEGRASE INHIBITORS

[Integrase inhibitors](#) block integrase (an HIV enzyme). HIV uses integrase to insert (integrate) its viral DNA into the DNA of the host CD4 cells. Blocking integrase prevents HIV from replicating.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
2007	Isentress, Isentress HD	<a href="#">raltegravir</a>	raltegravir potassium, RAL	<a href="#">Merck &amp; Co., Inc.</a>
2013	Tivicay, Tivicay PD	<a href="#">dolutegravir</a>	dolutegravir sodium, DTG	<a href="#">ViiV Healthcare</a>
2014	Vitekta**	<a href="#">elvitegravir</a>		<a href="#">Gilead Sciences</a>
2021	Vocabria	<a href="#">cabotegravir</a>	cabotegravir sodium, CAB	<a href="#">ViiV Healthcare</a>
2018	Biktarvy	bictegravir	BIC	<a href="#">Gilead Sciences</a>

## CAPSID INHIBITORS

Lenacapavir is a first-in-class HIV capsid inhibitor available as a subcutaneous injection given every six months, targeting the viral capsid to block HIV at multiple stages—nuclear entry, assembly, and release. Lenacapavir, in combination with other antiretroviral(s), is indicated for the treatment of human immunodeficiency virus type 1 (HIV-1) infection in heavily treatment-

experienced adults with multidrug resistant HIV-1 whose current antiretroviral regimen is failing due to resistance, intolerance, or safety considerations.

2022 Sunleca lenacapavir LEN [Gilead Sciences](#)

### PHARMACOKINETIC ENHANCERS (PK ENHANCERS)

PK enhancers are used to boost the effectiveness of another drug. When the two drugs are given together, the PK enhancer interferes with the breakdown of the other drug, which allows the drug to remain in the body longer at a higher concentration. PK enhancers are included in some HIV treatment regimens.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
1996	<a href="#">Norvir*</a>	ritonavir	RTV	<a href="#">AbbVie Inc.</a>
2014	<a href="#">Tybost</a>	cobicistat	COBI	<a href="#">Gilead Sciences</a>

### COMBINATION HIV MEDICATIONS

[Combination HIV medications](#) contain 2 or more HIV medicines from 1 or more drug classes.

YEAR APPROVED	BRAND NAME	INDIVIDUAL COMPONENTS	ALSO KNOWN AS	MANUFACTURER
2000	<a href="#">Kaletra*</a>	lopinavir – PI ritonavir – PI	LPV / RTV	<a href="#">AbbVie Inc.</a>
2004	<a href="#">Epzicom*</a>	abacavir sulfate – NRTI lamivudine – NRTI	ABC / 3TC	<a href="#">ViiV Healthcare</a>
2004	<a href="#">Truvada*</a>	emtricitabine – NRTI tenofovir DF – NRTI	FTC / TDF	<a href="#">Gilead Sciences</a>
2006	<a href="#">Atripla*</a>	efavirenz – NNRTI emtricitabine – NRTI tenofovir DF – NRTI	EFV / FTC / TDF	<a href="#">Gilead Sciences</a>
2011	<a href="#">Complera</a>	emtricitabine – NRTI rilpivirine -- NNRTI tenofovir DF – NRTI	FTC / RPV / TDF	<a href="#">Gilead Sciences</a>

2012	<a href="#">Stribild</a>	elvitegravir - Integrase Inhibitor cobicistat - PK Enhancer emtricitabine -- NRTI tenofovir DF - NRTI	QUAD EVG / COBI / FTC / TDF	<a href="#">Gilead Sciences</a>
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2014	<a href="#">Triumeq</a>	abacavir sulfate - NRTI dolutegravir - Integrase Inhibitor lamivudine - NRTI	ABC / DTG / 3TC	<a href="#">ViiV Healthcare</a>
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2015	<a href="#">Prezcobix</a>	darunavir - PI cobicistat - PK Enhancer	DRV / COBI	<a href="#">Janssen Therapeutics</a>
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2015	<a href="#">Evataz</a>	atazanavir - PI cobicistat - PK Enhancer	ATV / COBI	
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2015	<a href="#">Genvoya</a>	elvitegravir - Integrase Inhibitor cobicistat - PK Enhancer emtricitabine - NRTI tenofovir AF - NRTI	EVG / COBI / FTC / TAF	<a href="#">Gilead Sciences</a>
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2016	<a href="#">Odefsey</a>	emtricitabine - NRTI rilpivirine - NNRTI tenofovir AF - NRTI	FTC / RPV / TAF	<a href="#">Gilead Sciences</a>
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2016	<a href="#">Descovy</a>	emtricitabine -- NRTI tenofovir AF - NRTI	FTC/TAF	<a href="#">Gilead Sciences</a>
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2017	<a href="#">Juluca</a>	dolutegravir - Integrase Inhibitor rilpivirine - NNRTI	DTG / RPV	<a href="#">ViiV Healthcare</a>
2018	<a href="#">Biktarvy</a>	bictegravir - Integrase Inhibitor emtricitabine - NRTI tenofovir AF - NRTI	BIC / FTC / TAF	<a href="#">Gilead Sciences</a>
2018	<a href="#">Symfi*</a> <a href="#">Symfi Lo*</a>	efavirenz - NNRTI lamivudine - NRTI tenofovir DF - NRTI	EFV / 3TC / TDF	<a href="#">Viatris</a>
2018	<a href="#">Cimduo</a>	lamivudine - NRTI tenofovir DF - NRTI	Temixys 3TC / TDF	<a href="#">Viatris</a>
2018	<a href="#">Delstrigo</a>	doravirine - NNRTI lamivudine - NRTI tenofovir DF - NRTI	DOR / 3TC / TDF	<a href="#">Merck &amp; Co., Inc.</a>
2018	<a href="#">Symtuza</a>	darunavir - PI cobicistat - PK Enhancer emtricitabine - NRTI tenofovir AF - NRTI	DRV / COBI / FTC / TAF	<a href="#">Janssen Therapeutics</a>
2019	<a href="#">Dovato</a>	dolutegravir - Integrase Inhibitor lamivudine - NRTI	DTG / 3TC	<a href="#">ViiV Healthcare</a>

\*Generic versions have been approved under the [President's Emergency Plan for AIDS Relief \(PEPFAR\)](#).

\*\*Not available or not used as an individual ARV. Only available or used as a component of combination medications.

### ***SIDE EFFECTS***

ARVs can have adverse effects. Newer drugs have fewer side effects. These treatments can help people live long, healthy lives with reduced risks of HIV-related complications and transmission. The potential side effects vary depending on the types of medication a person uses. Also, the same medication can have different side effects in different people. [Read more about side effects of ARVs.](#)

### ***INTERACTIONS WITH OTHER SUBSTANCES***

ARVs can interact with other medications, supplements, and herbal products.

To avoid interactions, discuss all your current medications and supplements with your healthcare provider, as these can influence how HIV medications work. [Read more about drug interactions of ARVs.](#)

### ***THE BOTTOM LINE***

Antiretroviral medications (ARVs) are effective treatments for HIV. Organizations around the world recommend that all people with HIV begin antiretroviral therapy (ART) as soon as possible after receiving their diagnosis. ARVs can reduce the risk of HIV-related complications, stop the virus from progressing, and prevent transmission to others. In addition, ARVs increase a person's quality of life and life expectancy.

Some people may experience side effects. However, these may go away after a few weeks of treatment. There are several classes of ARVs, and if one causes side effects another may not.

Your healthcare provider can offer information and guidance about treatment options for HIV.

### ***MORE INFORMATION***

HIVInfo.NIH.gov: [FDA-Approved HIV Medicines](#)

U.S. Food & Drug Administration (FDA): [HIV and AIDS: Medicines to Help You](#)

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