Table 261.1. Protease, polymerase, and assembly inhibitors that have been approved for the treatment of HCV infection.

Compound (generic name) and class	Trade name	Development stage, year of FDA approval	Formulation	HCV genotype	Molecular formula	Molecular weight	Mechanism of action
NS3/4A protease inhibitors							
First generation, first wave							
Boceprevir	Victrelis	Approved, 2011	Oral	1	$C_{27}H_{45}N_5O_5$	519.68	Inhibitor of HCV NS3/4A protease
Telaprevir	Incivek	Approved, 2011	Oral	1	$C_{36}H_{53}N_7O_6$	679.85	Inhibitor of HCV NS3/4A protease
First generation, second wave							
Simeprevir	Olysio	Approved, 2013	Oral	1	$C_{38}H_{47}N_5O_7S_2$	749.94	Inhibitor of HCV NS3/4A protease
Asunaprevir	Sunvepra	Approved, 2014[a]	Oral	1	$C_{35}H_{46}ClN_5O_9S$	748.29	Inhibitor of HCV NS3/4A protease
Paritaprevir	Viekira Pak[b]	Approved, 2014	Oral	1, 4	$C_{40}H_{43}N_7O_7S{\cdot}2H_2O$ (dihydrate)	801.91 (dihydrate)	Inhibitor of HCV NS3/4A protease
Vaniprevir		Approved[c]	Oral	1	$C_{38}H_{55}N_5O_9S$	757.94	Inhibitor of HCV NS3/4A protease
Second generation							
Grazoprevir	Zepatier[d]	Approved, 2016	Oral	1, 4	$C_{38}H_{52}N_6O_{10}S$	784.92	Inhibitor of HCV NS3/4A protease
NS5B RNA-dependent RNA polymerase inhibitors							
Nucleotide							
Sofosbuvir	Sovaldi	Approved, 2013	Oral	1–6	$C_{22}H_{29}FN_3O_9P$	529.45	Inhibitor of HCV NS5B RNA-dependent RNA polymerase
Nonnucleoside							
Dasabuvir	Viekira Pak[b]	Approved, 2014	Oral	1	$C_{26}H_{26}N_3O_5S{\cdot}Na{\cdot}H_2O$ (salt, hydrate)	533.57 (salt, hydrate)	Inhibitor of HCV NS5B RNA-dependent RNA polymerase
NS5A Inhibitors							
First generation, first wave							
Daclatasvir	Daklinza	Approved, 2015	Oral	1–6	$C_{40}H_{50}N_8O_6$	738.88	Inhibitor of HCV NS5A protein
Ledipasvir	Harvoni[e]	Approved, 2014	Oral	1	$C_{49}H_{54}F_2N_8O_6$	889.00	Inhibitor of HCV NS5A protein
Ombitasvir	Viekira Pak[b]	Approved, 2014	Oral	1, 4	$C_{50}H_{67}N_7O_8{\cdot}4.5H_2O$ (hydrate)	975.20 (hydrate)	Inhibitor of HCV NS5A protein
First generation, second wave							
Elbasvir	Zepatier[d]	Approved, 2016	Oral	1, 4	$C_{49}H_{55}N_9O_7$	882.02	Inhibitor of HCV NS5A protein
Velpatasvir	Epclusa[f]	Approved, 2016	Oral	1–6	$C_{49}H_{54}N_8O_8$	883.01	Inhibitor of HCV NS5A protein

[a]Approved in Asia and Middle East.

[b]Co-packaged ombitasvir–paritaprevir–ritonavir co-formulated fixed-dose combination and dasabuvir. Ritonavir is not active against HCV. Ritonavir is a potent CYP3A inhibitor that increases peak and trough plasma drug concentrations of paritaprevir and overall drug exposure (i.e. area under the curve).

[c]Approved in Japan.

[d]Grazoprevir–elbasvir 100 mg/50 mg co-formulated fixed-dose combination.

[e]Sofosbuvir–ledipasvir 400 mg/90 mg co-formulated fixed-dose combination.

[f]Sofosbuvir-velpatasvir 400 mg/100 mg co-formulated fixed-dose combination.