

## INFORMATION ON CRUSHING ANTIRETROVIRALS

DRUG NAME	OTHER INFO
<b>ABACAVIR</b> 300mg tab	With or without food 20mg/ml suspension strawberry-banana liquid. Store at room temperature
<b>DIDANOSINE</b> 125,200,250, 400mg capsule 4g powder for oral suspension (10mg/ml)	Videx EC: 1.5 hr before or 2 hrs after food  4g powder for 10mg/ml suspension – may be available through SAP (4g powder) Reconstitute powder with 200 ml sterile water, shake, then 200 ml antacid (Maalox Extra strength). Stable for 30 days in fridge.
<b>EMTRICITABINE</b> With Tenofovir	No food restrictions. Liquid available in U.S.
<b>LAMIVUDINE</b> 150, 300mg tab 10mg/ml soln	10mg/ml solution. Strawberry banana flavour. Stable room temperature. Solution contains 6% v/v alcohol and 3g sugar
<b>STAVUDINE</b> 15,20,30,40mg capsule 1mg/ml susp	Take with food if upset stomach. May open capsule & give in small portion of food or 5-10ml cool tap water. 1mg/ml suspension from SAP. Fruit-flavoured, stable 30 days in fridge.
<b>TENOFOVIR</b> 300mg tablet	Tablets may be split or chewed (bitter taste) May dissolve crushed tablet in 100 mL water, grape juice or grapefruit juice & take within 20 min. May split tab and insert in empty gelatin capsule to mask bitter taste.
<b>ZIDOVUDINE</b> 100mg capsule 10mg/ml soln	Solution strawberry flavoured. Stable at room temperature. May open capsules & give in small portion of food or 5-10ml cool tap water.
<b>KIVEXA®</b>	Abacavir 600mg & lamivudine 300mg daily Film coated immediate release tablet however no studies regarding stability of split or crushed tablets. (Email communication, GlaxoSmithKline, May 2008)
<b>TRIZIVIR®</b>	Abacavir 300mg, zidovudine 300mg & lamivudine 150mg BID Film coated immediate release tablet however no studies regarding stability of split or crushed tablets.
<b>TRUVADA®</b>	Emtricitabine 200mg & Tenofovir 300mg. No food restrictions. May split tablets. May crush and stir into water, grape juice or orange juice. The stability of the mixture is unknown. (Email communication, Gilead, July 2012)
<b>COMBIVIR®</b>	Zidovudine 300mg & lamivudine 150mg BID. Film coated immediate release tablet however no studies regarding stability of split or crushed tablets. (Email communication, GlaxoSmithKline, May 2008)
<b>ATRIPLA®</b>	Efavirenz 600mg, emtricitabine 200mg & tenofovir 300mg daily. Atripla FDC tablet crushed, dissolved in 5 mL of water and diluted to 20 mL with Ora-Sweet oral solution and used within 24 hours (JAIDS 2011; 56:e131-2) did not meet bioequivalence of Atripla whole tablet however clinical implications unknown. Efavirenz not soluble in water. (Email communication, Gilead, July 2012)

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<b>EFAVIRENZ</b> 50,100,200mg capsule 600mg tablet	Not in pregnancy Can take with food but high fat foods may increase absorption by 50% thus increasing SE. 30mg/ml suspension available via Sustiva Oral liquid expanded access program at 1-877-372-7097 (Massachusetts). Strawberry-mint flavour. Store at room temperature in original container. Stable for 30 days after opening. Can open capsules and mix powder with apple sauce (will result in hot “jalapeno” sensation). Grape jelly may mask taste. For NG admin, open capsules, grind and mix with either 5ml MCT oil or 15ml Ora-Sweet. Do not mix with polyethylene glycol (will decrease bioavailability). Insoluble in water.
<b>NEVIRAPINE</b> 200mg tablet 400 mg XR 10mg/ml syrup	Avoid in women with CD4>250, men with CD4>400 due to hepatotoxicity. Liquid 10mg/ml available through SAP. Sweet-flavoured syrup, stable at room temperature. Can crush immediate release tablets (200 mg), mix in water and give orally or by G-tube. Extended release (XR) formulation must be swallowed whole.
<b>ETRAVIRINE</b> 100mg tablet 200 mg tablet	May disperse tablet in 100mL cold water by stirring tablet until homogenous, white, cloudy suspension obtained. Drink immediately. Rinse glass with water several times and swallow each rinse to ensure entire dose consumed. (Data on file, Janssen, July 2012)
<b>RILPIVIRINE</b> 25 mg tablet	Film coated tablet. No data available on stability of splitting or crushing rilpivirine tablets. Rilpivirine is insoluble in water over wide pH range. (Email communication, Janssen July 2012).
<b>COMPLERA®</b>	Tenofovir 300mg & Emtricitabine 200 mg & Rilpivirine 25 mg. Splitting or crushing Complera tablets into a liquid medium has not been studied and is not recommended. Rilpivirine hydrochloride is insoluble in water over a wide pH range. (Email communication, Gilead July 2012).

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<b>ATAZANAVIR</b> 150,200, 300mg capsule	50g/1.5g dispersible oral powder, 180g bottle is investigational only. Powder may be mixed with small amount of water, applesauce, milk or yogurt (consume within 3 hours of mixing). Do not mix with juices or foods with high pH. Capsules may be opened and contents mixed with applesauce for immediate ingestion with a light meal. (Bristol Myers Squibb, Personal Communication, May 22, 2008).
<b>DARUNAVIR</b> 75 mg, 150 mg, 400mg, 600 mg tablet 100mg/mL oral susp (licensed in US)	No data available on chewing or crushing. No problems anticipated if film coated tablets chewed or crushed for administration through a nasogastric (NG) tube (Data on file, Janssen, July 2012)
<b>FOSAMPRENAVIR</b> 700mg tablet 50mg/mL susp	50mg/mL oral suspension; 0.6% propylene glycol Grape, bubblegum, peppermint flavour Take suspension on an empty stomach Store between 2-30°C. Shake well. Do not freeze. Discard suspension 28 days after opening. No data available regarding stability of crushed or dissolved tablet.
<b>INDINAVIR</b> 200, 400mg capsule	Unboosted: on empty stomach with plenty of water (>1.5l/day) Boosted with ritonavir: with or without food. Still need 1.5L/day of fluids Liquid being formulated. 10mg/ml indinavir syrup complex compounding formulation. Stable for 14 days in refrigerator, store in glass bottle. See Am J Health Syst Pharm 2000; 57(14):1332-9.
<b>LOPINA VIR/ RITONAVIR</b> 200/50mg tablet 100/25 mg tablet 80/20mg/ml liquid	? peanut allergy with pediatric preparation. 80mg LPV/20mg RTV per mL; 160ml bottle. Cotton-candy flavoured yellow-orange oral solution Stable at room temp for 42 days. 42.4% alcohol
<b>NELFINAVIR</b> 250, 625mg tablet	Take with meal to increase absorption. Powder 50mg/g oral powder (1g=1 level scoop) available through facilitated access. Can also dissolve tablets (250mg) in 5ml sterile water. Tablet or powder may be mixed with food or liquid up to 6 hours (refrigerated) before dose is taken.

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<b>RITONAVIR</b> 100mg tablet 80mg/mL oral liquid	80mg/mL orange-coloured oral solution. Peppermint and caramel flavoured. Shake well before use. Store at room temperature in original container. Do not refrigerate. 43% v/v alcohol. Liquid is unpalatable, bad aftertaste. Tips: - Mix oral solution with milk/chocolate milk or pudding - Give after popsicle/frozen juice to dull taste buds - Give after grape jelly, maple syrup, or peanut butter which coats mouth -Give strong flavour after dose: syrup, cheese, chewing gum
<b>SAQUINAVIR</b> 200 mg capsule 500mg tablet	Hard gel caps may be opened and powder sprinkled on food, simple syrup or water (unpleasant taste). No liquid formulation due to unpalatability. Take within 2 hrs of a meal or substantial snack, even when boosted. Photosensitivity
<b>TIPRANAVIR</b> 250mg capsule	Soft gelatin capsules – cannot be split or crushed (Verbal communication, Boehringer Ingelheim, May 2008).

DRUG NAME	OTHER INFO
<b>RALTEGRAVIR</b> 400mg tablet	Crushing tablets not recommended. Granules (sub-units of the tablet) dissolve faster than intact tablets and may result in faster release of drug which could affect in-vivo performance. (Data on file, Merck Frosst, May 2008) Drug has a bitter taste which is masked by the film coating
<b>MARAVIROC</b> 150, 300mg tablet	Film coated immediate release tablet however no studies regarding stability of split or crushed tablets. (Verbal communication, Pfizer, May 2008).

Oral liquid information taken directly from chart on [www.hivclinic.ca](http://www.hivclinic.ca) July 2012

Adapted with permission from the Oak Tree Clinic (Gloria Tsang). Revised May 15, 2008 by Adriana Chubaty BScPharm, Christine Hughes PharmD, Cara Hills-Nieminen Bsc(Pharm), Edmonton, AB. Updated July 13, 2012 by Christine Hughes PharmD.