**All Interactions with Tipranavir (Aptivus)**

| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Abacavir[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ABC)(Ziagen) | 300 mg BID x 43 doses | 250 mg BID with 200 mg ritonavir BID | Abacavir AUC: decreased 44%; Cmax: decreased 44% | - | - | - | No dose adjustment necessary |
| Abacavir[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ABC)(Ziagen) | 300 mg BID x 43 doses | 750 mg BID with 100 mg ritonavir BID | Abacavir AUC: decreased 36%; Cmax: decreased 46% | - | - | - | No dose adjustment necessary |
| Abacavir[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ABC)(Ziagen) | 300 mg BID x 43 doses | 1250 mg BID with 100 mg ritonavir BID x 42 doses | Abacavir AUC: decreased 35%; Cmax: decreased 52% | - | - | - | No dose adjustment necessary |
| Amiodarone[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154) | - | - | Not studied; may increase amiodarone levels | Not studied | Increased amiodarone effects (eg, cardiac arrhythmias, hypotension) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Monitor and adjust amiodarone as indicated |
| Amprenavir[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (APV)(Agenerase) | 600 mg BID with 100 mg ritonavir BID x 27 doses | 500 mg BID with 200 mg ritonavir BID x 28 doses | Amprenavir AUC: decreased 44%; Cmax: decreased 39%; Cmin: decreased 56% | - | Decreased amprenavir effects | Possible induction of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Antacids[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Maalox, Mylanta, Riopan, Milk of Magnesia, others) | 20 mL | 500 mg BID with 200 mg ritonavir BID | - | Tipranavir AUC: decreased 27%; Cmax: decreased 25% | Decreased tipranavir effects | - | Separate antacids from tipranavir by at least 2 hours |
| Astemizole[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Hismanal) | - | - | Not studied; may increase astemizole levels | - | Increased astemizole effects (eg, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister  *Alternative Agents*:  **Cetirizine Fexofenadine Loratadine** |
| Atazanavir[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ATV)(Reyataz) | 300 mg QD with 100 mg ritonavir QD | 500 mg with 100 mg ritonavir BID | Atazanavir AUC: decreased 68%; Cmax: decreased 57%; Cmin: decreased 81% | Tipranavir AUC: increased 20%; Cmin: increased 75% | Decreased atazanavir effects | Induction of CYP450 3A4 by tipranavir | Do not coadminister |
| Atorvastatin[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154) | 10 mg x 1 | 500 mg BID with 200 mg ritonavir BID x 7 days | Atorvastatin AUC: increased 836%; Cmax: increased 761%; Cmin: increased 419%Orthohydroxy-atorvastatin AUC: decreased 89%; Cmax: decreased 98%; Cmin: decreased 93%Parahydroxy-atorvastatin AUC: decreased 82%; Cmax: no significant change; Cmin: decreased 77% | No significant change | Increased atorvastatin effects | Possible inhibition of CYP450 3A4 by tipranavir/ritonavir | Dose adjustment not established  *Alternative Agents*:  **Pravastatin** |
| Bepridil | - | - | Not studied; may increase bepridil levels | - | Increased bepridil effects (hypotension, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Bupropion[168](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#168)  (Wellbutrin, Zyban)(Wellbutrin) | 150 mg BID | 500 mg BID with 200 mg BID | Bupropion AUC: decreased 46%; Cmax: decreased 42%; Cmin: decreased 55% | - | Decreased bupropion effects | Induction of CYP450 3A4 by tipranavir | Monitor for symptoms of depression and titrate bupropion to effect |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Carbamazepine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (others)(Tegretol) | 100 mg BID | 500 mg BID with 200 mg ritonavir BID | Carbamazepine Cmin: increased 17% | - | - | - | Dose adjustment not established |
| Carbamazepine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (others)(Tegretol) | 200 mg BID | 500 mg BID with 200 mg ritonavir BID x 1 dose | Carbamazepine Cmin: increased 16% | - | - | - | Dose adjustment not established |
| Carbamazepine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (others)(Tegretol) | 200 mg BID | 500 mg BID with 200 mg ritonavir BID x 15 doses | Carbamazepine AUC: increased 26%; Cmin: increased 35%; Cmax: increased 22% | - | Increased carbamazepine effects | Inhibition of CYP450 by tipranavir/ritonavir | Dose adjustment not established |
| Cisapride[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Propulsid) | - | - | Not studied; may increase cisapride levels | - | Increased cisapride effects (eg, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister  *Alternative Agents*:  **Metoclopramide** |
| Clarithromycin[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Biaxin) | 500 mg BID x 25 doses | 500 mg BID with 200 mg ritonavir BID | Clarithromycin AUC: increased 19%; Cmax: no significant change; Cmin: increased 68%14-hydroxyclarithromycin AUC: decreased 97%; Cmax: decreased 97%; Cmin: decreased 95% | Tipranavir AUC: increased 66%; Cmax: increased 40%; Cmin: increased 100% | Increased tipranavir effects; possible decreased clarithromycin effects | Inhibition of CYP450 3A4 by clarithromycin; induction of CYP450 3A4 by tipranavir | No dose adjustment necessary |
| Colchicine[563](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#563)  (Colcrys) | - | - | - | - | Increased colchicine effects | Inhibition of P450 3A4 by tipranavir/ritonavir | For treatment of gout, reduce colchicine dosage to 0.6 mg x 1 then 0.3 mg one hour later. Dose not to be repeated no earlier than 3 days. For prophylaxis of gout, reduce colchicine dosage to 0.3 mg QD if on 0.6 mg BID prior to PI therapy or reduce colchicine dose to 0.3 mg QOD if on 0.6 mg QD prior to PI therapy. For treatment of familial Mediterranean fever: Do not exceed colchicine 0.6 mg once daily or 0.3 mg BID. Do not coadminister in patients with hepatic or renal impairment. |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Dasabuvir, Ombitasvir/Paritaprevir/Ritonavir[727](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#727)  (Viekira) | - | - | - | - | - | - | Do not coadminister |
| Didanosine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ddI)(Videx) | 125 mg BID x 43 doses | 1250 mg BID with 100 mg ritonavir BID x 42 doses | Didanosine AUC: no significant change; Cmax: decreased 23% | - | - | - | No dose adjustment necessary; separate didanosine formulations from tipranavir by 2 hours |
| Didanosine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ddI)(Videx) | 200 mg BID | 250 mg BID with 200 mg ritonavir BID | Didanosine AUC: decreased 33%; Cmax: decreased 43% | - | - | - | No dose adjustment necessary; separate didanosine formulations away from tipranavir by 2 hours |
| Didanosine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ddI)(Videx) | 200 mg BID | 750 mg BID with 100 mg ritonavir BID | Didanosine AUC: no significant change; Cmax: decreased 24% | - | - | - | No dose adjustment necessary; separate didanosine formulations from tipranavir by 2 hours |
| Didanosine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (ddI)(Videx) | 400 mg x 1 | 500 mg BID with 100 mg ritonavir BID x 27 doses | Didanosine AUC: no significant change; Cmax: decreased 20%; Cmin: no significant change | Tipranavir AUC: no significant change; Cmax: increased 32%; Cmin: decreased 34% | - | - | No dose adjustment necessary |
| Dolutegravir[641](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#641)  (Tivicay) | 50 mg QD | 500 mg BID with ritonavir 200 mg BID | Dolutegravir AUC: decreased 59%; Cmin: decreased 76% | - | Potentially reduced dolutegravir effectiveness | - | If no INSTI resistance, increase dolutegravir dosage to 50 mg BID. If known or clinically suspected INSTI resistance, use alternative combination |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Efavirenz[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (EFV)(Sustiva) | 600 mg QD | 500 mg BID with 100 mg ritonavir BID | No significant change | Tipranavir AUC: decreased 31%; Cmax: decreased 21%; Cmin: decreased 42% | Decreased tipranavir effects | Induction of CYP450 3A4 by efavirenz | - |
| Efavirenz[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (EFV)(Sustiva) | 600 mg QD x 8 doses | 750 mg BID with 200 mg ritonavir BID | No significant change | No significant change | - | - | No dose adjustment necessary |
| Elbasvir/grazoprevir[727](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#727)  (Zepatier) | - | - | - | - | May increase the risk of ALT elevations due to a significant increase in grazoprevir plasma concentrations caused by OATP1B1/3 inhibition | OATP1B1/3 inhibition by tipranavir/ritonavir | Do not coadminister |
| Elvitegravir/cobicistat[655](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#655),[639](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#639)  (Stribild) | Elvitegravir 200 mg QD | 500 mg BID with ritonavir 200 mg BID | No significant change | No significant change | Potentially decreased or increased elvitegravir, cobicistat and/or etravirine effects | - | Do not coadminister |
| Ergotamine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Cafergot, Ergot derivatives)(Cafergot, others) | - | - | Not studied; may increase ergotamine levels | - | Increased ergotamine effects (eg, ergotism) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister  *Alternative Agents*:  **5-HT agonists ("triptans")** |
| Ethinyl estradiol/norethindrone acetate[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (others)(Ortho-Novum) | 0.035 mg/1 mg x 1 dose on day 1 and day 15 | 750 mg BID with 200 mg ritonavir BID x 12 days | Ethinyl estradiol AUC: decreased 42%; Cmax: decreased 51%; Norethindrone AUC: increased 26% | Ritonavir Cmin: decreased 20%; | Decreased ethinyl estradiol/norethindrone effects | Possible induction of CYP450 3A4 by tipranavir | Dose adjustment not established; backup contraceptive method recommended |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Ethinyl estradiol/norethindrone acetate[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (others)(Ortho-Novum) | 0.035 mg/1 mg x 1 dose on day 1 and day 15 | 500 mg BID with 100 mg ritonavir BID x 12 days | Ethinyl estradiol AUC: decreased 48%; Cmax: decreased 48% | Tipranavir Cmin: decreased 26%; Ritonavir AUC: decreased 22%; Cmax: decreased 26%; Cmin: decreased 41% | Decreased ethinyl estradiol/norethindrone effects | Possible induction of CYP450 3A4 by tipranavir | Dose adjustment not established; backup contraceptive method recommended |
| Etravirine[405](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#405)  (ETR)(Intelence) | - | 500 mg BID with 200 mg ritonavir BID | Etravirine AUC: decreased 76%; Cmax: decreased 71%; Cmin: decreased 82% | Tipranavir AUC: increased 18%; Cmin: increased 24% | Decreased etravirine effects | Induction of CYP450 3A4 by tipranavir | Do not coadminister |
| Flecainide[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Tambocor)(Tambocor) | - | - | Not studied; may increase flecainide levels | - | Increased flecainide effects (eg, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Fluconazole[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Diflucan)(Diflucan) | 100 mg QD x 12 days | 500 mg BID with 200 mg ritonavir BID | No significant change | Tipranavir AUC: increased 50%; Cmax: increased 32%; Cmin: increased 69% | Increased tipranavir effects | Inhibition of CYP450 3A4 by fluconazole | Dose adjustment not necessary. Fluconazole doses greater than 200 mg/day not recommended |
| Lamivudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (3TC)(Epivir) | 150 mg BID x 43 doses | 250 mg BID with 200 mg ritonavir BID | No significant change | - | - | - | No dose adjustment necessary |
| Lamivudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (3TC)(Epivir) | 150 mg BID x 43 doses | 750 mg BID with 100 mg ritonavir BID x 42 doses | No significant change | - | - | - | No dose adjustment necessary |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Lamivudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (3TC)(Epivir) | 150 mg BID x 43 doses | 1250 mg BID with 100 mg ritonavir BID x 42 doses | Lamivudine Cmax: decreased 29% | - | - | - | No dose adjustment necessary |
| Ledipasvir/sofosbuvir[727](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#727) | - | - | Decreased ledipasvir and sofosbuvir levels expected | - | - | - | Do not co-administer |
| Loperamide[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Imodium, Imodium A-D)(Imodium) | 16 mg x 1 dose | 750 mg BID with 200 mg ritonavir BID x 21 doses | Loperamide AUC: decreased 51%; Cmax: decreased 61% | Tipranavir Cmin: decreased 26% | - | - | Dose adjustment not established |
| Lopinavir/ritonavir[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (LPV/r)(Kaletra) | 400 mg/100 mg BID | 500 mg BID with 200 mg ritonavir BID | Lopinavir AUC: decreased 55%; Cmax: decreased 47%; Cmin: decreased 70% | - | Decreased lopinavir effects | Induction of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Maraviroc[2](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#2)  (MVC)(Selzentry) | 150 mg BID | 500 mg BID with 200 mg ritonavir BID | Maraviroc Cmin: increased 80%; | - | - | - | Increase maraviroc dose to 300 mg BID |
| Methadone[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Dolophine)(Dolophine) | 5 mg x 1 | 500 mg BID with 200 mg ritonavir BID | Methadone AUC: decreased 53%; Cmax: decreased 55%; Cmin: decreased 50%; R-methadone AUC: decreased 48%; Cmax: decreased 46%; S-methadone AUC: decreased 63%; Cmax: decreased 62% | - | Decreased methadone effects (eg, withdrawal) | Induction of CYP450 by tipranavir/ritonavir | Monitor for signs and symptoms of methadone withdrawal; some patients may need an increase in the methadone dose |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Midazolam[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Versed) | - | - | Not studied; may increase midazolam levels | - | Increased midazolam effects (eg, increased sedation, confusion, respiratory depression) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Parenteral midazolam can be used with caution when given as a single dose in a monitored situation for procedural sedation; chronic midazolam administration (oral or intravenous) should be avoided  *Alternative Agents*:  **Lorazepam** |
| Nevirapine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (NVP)(Viramune) | 200 mg BID x 43 doses | 250 mg BID with 200 mg ritonavir BID | No significant change | - | - | - | No dose adjustment necessary |
| Nevirapine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (NVP)(Viramune) | 200 mg BID x 43 doses | 750 mg BID with 100 mg ritonavir BID | No significant change | - | - | - | No dose adjustment necessary |
| Nevirapine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (NVP)(Viramune) | 200 mg BID x 43 doses | 1250 mg BID with 100 mg ritonavir BID x 42 doses | Nevirapine AUC: decreased 24%; Cmax: decreased 29%; Cmin: decreased 23% | - | Possible decreased nevirapine effects | Possible induction of CYP450 3A4 by tipranavir/ritonavir | Dose adjustment not established |
| Norethindrone[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Micronor)(Micronor) | 1 mg x 1 dose | 750 mg BID with 200 mg ritonavir BID x 21 doses | Norethindrone AUC: increased 27% | - | - | - | No dose adjustment necessary |
| Norethindrone[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Micronor)(Micronor) | 1 mg x 1 dose | 500 mg BID with 100 mg ritonavir BID | No significant change | - | - | - | No dose adjustment necessary |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Pimozide[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Orap)(Orap) | - | - | Not studied; may increase pimozide levels | - | Increased pimozide effects (eg, hypotension, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Propafenone[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Rythmol) | - | - | Not studied; may increase propafenone levels | - | Increased propafenone effects (eg, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Quinidine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Quindex, others)(Quindex) | - | - | Not studied; may increase quinidine levels | - | Increased quinidine effects (eg, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Raltegravir[3](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#3)  (RAL)(Isentress) | 400 mg BID | 500 mg BID with 200 mg ritonavir BID | Raltegravir AUC: decreased 24%; Cmax: decreased 18%; Cmin: decreased 55% | - | Possibly decreased raltegravir effects | - | Dose adjustment not established |
| Raltegravir[439](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#439)  (RAL)(Isentress) | 400 mg BID | 500/200 mg BID | Raltegravir AUC: decreased 24%; Cmin: decreased 55% | - | Induction of UGT1A1 by tipranavir/ritonavir | - | No dose adjustment necessary |
| Ranolazine[709](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#709)  (Ranexa) | - | - | Not studied; may increase ranolazine levels | - | Potential increased ranolazine adverse effects (e.g. prolonged QT, cardiac arrythmias). | - | Do not coadminister |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Rifabutin[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Mycobutin) | 150 mg x 1 dose | 500 mg BID with 200 mg ritonavir BID x 15 doses | Rifabutin AUC: increased 190%; Cmax: increased 70%; Cmin: increased 114%; 25-O-desacetyl-rifabutin AUC: increased 1971%; Cmax: increased 220%; Cmin: increased 683% | No significant change | Increased rifabutin effects (eg, uveitis) | Inhibition of CYP450 3A4 by tripranavir/ritonavir | Reduce rifabutin dose to 150 mg daily or 300 mg 3x/week. Monitor for antimicrobial activity and/or consider therapeutic drug monitoring. |
| Rosuvastatin[166](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#166)  (Crestor) | 10 mg | 500 mg BID with 200 mg ritonavir BID | Rosuvastatin AUC: increased 37%; Cmax: increased 123%; Cmin: decreased 12% | Tipranavir Cmin: increased 23%; Ritonavir AUC: increased 15%; Cmax: increased 25%; Cmin: increased 23% | Increased rosuvastatin effects | - | Avoid coadministration if possible; if used, use caution and start at 5 mg daily |
| Saquinavir[75](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#75),[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (SQV)(Fortovase, Invirase) | 600 mg BID with 100 mg ritonavir BID x 27 doses | 500 mg BID with 200 mg ritonavir BID x 28 doses | Saquinavir AUC: decreased 76%; Cmax: decreased 70%; Cmin: decreased 82% | - | Decreased saquinavir effects | Induction of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister |
| Simeprevir[727](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#727)  (Olysio) | - | - | - | - | - | Inhibition of CYP3A4 potentiating simeprevir effects | Do not coadminister |
| Sofosbuvir[727](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#727)  (Sovaldi) | - | - | Decreased sofosbuvir levels expected | - | Potential decreased anti-HCV efficacy | - | Do not coadminister |
| Sofosbuvir/velpatasvir[751](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#751)  (Epclusa) | - | - | Expected decreased sofosbuvir and velpatasvir | - | Potential decreased anti-HCV efficacy | - | Do not coadminister |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Stavudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (d4T)(Zerit) | 30 mg BID x 43 doses | 1250 mg BID with 200 mg ritonavir BID x 23 doses | Stavudine Cmax: decreased 26% | - | - | - | No dose adjustment necessary |
| Stavudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (d4T)(Zerit) | 40 mg BID | 250 mg BID with 200 mg ritonavir BID | No significant change | - | - | - | No dose adjustment necessary |
| Stavudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (d4T)(Zerit) | 40 mg BID | 750 mg BID with 100 mg ritonavir BID | Stavudine Cmax: decreased 24% | - | - | - | No dose adjustment necessary |
| Tadalafil[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154) | 10 mg x 1 | 500 mg BID with 200 mg ritonavir BID x 17 doses | Tadalafil Cmax: decreased 30% | Tipranavir AUC: decreased 15%; Cmax: decreased 19% | - | Induction of CYP450 by tipranavir/ritonavir | Titrate tadalafil to effect |
| Tadalafil[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154) | 10 mg x 1 | 500 mg BID with 200 mg ritonavir BID x 1 | Tadalafil AUC: increased 183%; Cmax decreased 22% | - | - | Inhibition of CYP450 by tipranavir/ritonavir (initial phase) | Titrate tadalafil to effect |
| Tenofovir disoproxil fumarate[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (TDF)(Viread) | 300 mg x 1 dose | 500 mg BID with 100 mg ritonavir BID | Tenofovir Cmax: decreased 23% | Tipranavir Cmin: decreased 21% | - | - | No dose adjustment necessary |
| **Coadministered Drug** | **Dose of Drug** | **Dose of Tipranavir** | **Effect on Drug Levels** | **Effect on Tipranavir Levels** | **Potential Clinical Effects** | **Mechanism of Interaction** | **Management** |
| Tenofovir disoproxil fumarate[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (TDF)(Viread) | 300 mg x 1 dose | 750 mg BID with 200 mg ritonavir BID x 23 doses | Tenofovir Cmax: decreased 38% | No significant change | - | - | No dose adjustment necessary |
| Terfenadine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Seldane)(Seldane) | - | - | Not studied; may increase terfenadine levels | - | Increased terfenadine effects (eg, cardiac arrhythmias) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister  *Alternative Agents*:  **Cetirizine Fexofenadine Loratadine** |
| Triazolam[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (Halcion) | - | - | Not studied; may increase triazolam levels | - | Increased triazolam effects (eg, increased sedation, confusion, respiratory depression) | Inhibition of CYP450 3A4 by tipranavir/ritonavir | Do not coadminister; consider alternative agents  *Alternative Agents*:  **Lorazepam Oxazepam Temazepam Trazodone** |
| Zidovudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (AZT, ZDV)(Retrovir) | 300 mg BID | 250 mg BID with 200 mg ritonavir BID | Zidovudine AUC: decreased 42%; Cmax: decreased 46% | - | - | - | No dose adjustment necessary |
| Zidovudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (AZT, ZDV)(Retrovir) | 300 mg BID | 750 mg BID with 100 mg ritonavir BID | Zidovudine AUC: decreased 36%; Cmax: decreased 49% | - | - | - | No dose adjustment necessary |
| Zidovudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (AZT, ZDV)(Retrovir) | 300 mg BID x 43 doses | 1250 mg BID with 100 mg ritonavir BID x 42 doses | Zidovudine AUC: decreased 31%; Cmax: decreased 51% | - | - | - | No dose adjustment necessary |
| Zidovudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (AZT, ZDV)(Retrovir) | 300 mg x 1 dose | 500 mg BID with 100 mg ritonavir BID | Zidovudine AUC: 43%; Cmax: decreased 61%; Zidovudine glucuronide Cmin: increased 52% | Tipranavir Cmin: decreased 23% | - | - | No dose adjustment necessary |
| Zidovudine[154](http://arv.ucsf.edu/insite?page=ar-00-02&param=6&post=4#154)  (AZT, ZDV)(Retrovir) | 300 mg x 1 dose | 750 mg BID with 200 mg ritonavir BID x 23 doses | Zidovudine AUC: decreased 33%; Cmax: decreased 56%; Cmin: increased 25%; Zidovudine glucuronide Cmin: increased 94% | No significant change | - | - | No dose adjustment necessary |
| "-" indicates that there are no data available | | | | | | | |

|  |  |
| --- | --- |
| 2: | Selzentry [package insert]. New York, NY: Pfizer, Inc.; August 2012. |
| 3: | Isentress [package insert]. Whitehouse Station, NJ: Merck & Co., Inc.; October 2007. |
| 75: | Invirase [package insert]. Roche Laboratories Inc, Nutley, NJ, 2007. |
| 154: | Aptivus [package insert]. Ridgefield, CT: Boehringer Ingelheim Pharmaceuticals, Inc.; Nov 2005. |
| 166: | Pham PA, Lee L, Fuchs E, et al. Pharmacokinetic interaction between tipranavir/ritonavir and rosuvastatin [poster #767]. 13th Conference on Retroviruses and Opportunistic Infections; 2008 February 3-6; Boston, Massachusetts. |
| 168: | Lavrut T, Garraffo R, Ferrando S, et al. Effect of tipranavir/ritonavir treatment on the steady-state pharmacokinetics of bupropion in healthy volunteers [abstract P4.3/03]. 11th European AIDS Conference; 2007 October 24-27; Madrid, Spain. |
| 405: | Intelence [package insert]. Raritan, NJ: Tibotec Therapeutics; 2010. |
| 439: | Hanley WD, Wenning LA, Moreau A, et al. Effect of tipranavir-ritonavir on pharmacokinetics of raltegravir. Antimicrob Agents Chemother 2009; 53: 2752-55. |
| 563: | Colcrys [package insert]. Philadelphia, PA: URL Pharma, Inc., May 2010. |
| 639: | DHHS. Guidelines for the use of antiretroviral agents in HIV-1 infected adults and adolescents. Feb 12, 2013. |
| 641: | Tivicay [package insert]. Research Triangle Park, NC: Viiv Healthcare; Sept 2013. |
| 655: | Mathias A, Shen G, Enejosa J, et al. Lack of pharmacokinetic interaction between ritonavir-boosted GS-9137 (elvitegravir) and tipranavir/r [abstract TUPDB06]. 4th IAS Conference on HIV Pathogenesis and Treatment and Prevention. Sydney, Australia. |
| 709: | Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. Available at http://aidsinfo.nih.gov/contentfiles/lvguidelines/AdultandAdolescentGL.pdf. |
| 727: | Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. Available at http://aidsinfo.nih.gov/contentfiles/lvguidelines/AdultandAdolescentGL.pdf. |
| 751: | Epclusa [package insert]. Foster City, CA: Gilead Sciences, 2016. |