```
AKT2_[PI]_i-_PI_[PH] -
IRS_[pY]_ppi-_PI3K_[SH2] -
                                                                                                                                PI4K3alpha_p+_PI_[(4)]
                                                                                                     PIPK1alpha_p+_PI_[(5)] = PPM1G_p-_EIF4EBP1_[(Ser65)] =
                                                                                                      PPM1G_p-_EIF4EBP1_[(Thr37)] -
PPM1G_p-_EIF4EBP1_[(Thr46)] -
PPM1G_p-_EIF4EBP1_[(Thr70)] -
                                           PTEN_p-_PI_[(3)] =

RHEB_[switch1DSYDPTIEN]_ppi-_mTOR_[FATf..2f..3] =
                                                     RHEB_[switch1]_ppi-_mTOR_[Mheatm..2m..3m..4]
RHEB_[switch2GQDEYSIFPQTYSIDIN]_ppi-_mTOR_[Nheatn..3ton..7] - RTK_p-_IRS_[(RTK)] -
                                                                                                                                  SAC1M1L_p-_PI_[(4)] =
SYNJ2_p-_PI_[(5)] =
                                                                          TSC1_[Cterminus]_ppi+_TSC2_[Nterminus] -
                                                                                                                                TSC2_gap_RHEB_[(G)] -
                                                                                       elF4E_[A001]_ppi+_ElF4EBP1_[A001] -
elF4E_[A001]_ppi-_elF4G_[A002] -
                                                                                   mTOR_[Raptor]_ppi+_Raptor_[mTOR] -
mitogen_[EGFR]_ppi-_EGFR_[mitogen] -
nk_p-_TSC2_[(Ser1130)] -
                                                                                                                             nk_p-_TSC2_[(Ser939)]
                                                                                                                             nk_p-_TSC2_[(Ser981)] -
                                                                                                                          nk_p-_TSC2_[(Thr1462)] -
                                                                                                                                   nn_p-_AKT2_[(S474)] -
nn_p-_AKT2_[(T309)] -
                                                                                                                             un_p-_PPM1G_[(AKT2)] •
                                                                                                                                            AKT2_[(S474)]-{0} -
AKT2_[(T309)]-{0} -
                                                                                                                                                          AKT2_[PI]--0
                                                                                                                             EGFR_[mitogen]--0 =
EIF4EBP1_[(Ser65)]-{0} =
                                                                                                                              EIF4EBP1_[(Thr37)]-{0} -
                                                                                                                             EIF4EBP1_[(Thr46)]-{0} = EIF4EBP1_[(Thr70)]-{0} =
                                                                                                  EIF4EBP1_[A001]--eIF4E_[A001] -
                                                                                                                                                                                  GTP ·
                                                                                                                                                    IRS_[(RTK)]-{0} -
                                                                                                                                                            IRS_[pY]--0 =
PDK1 =
                                                                                                                                                      PI3K_[SH2]--0
                                                                                                                                                                PI4K3alpha -
                                                                                                                                                                PIPK1alpha -
                                                                                                                                                                  PI_[(3)]-{0} -
                                                                                                                                                                 PI_{(4)}-\{0\}
                                                                                                                                                                 PI_{(4)}-\{p\}
                                                                                                                                                                  PI_[(5)]-{0} -
                                                                                                                                                                PI_[(5)]-{p} -
PI_[PH]--0 -
                                                                                                                                     PPM1G_[(AKT2)]-{0} -
PTEN -
                                                                                                                                                    RHEB_[(G)]-{0} -
                                                                                                       RHEB_[switch1DSYDPTIEN]--0 -
                                                                                                                                         RHEB [switch1]--0 -
                                                                          RHEB_[switch2GQDEYSIFPQTYSIDIN]--0
                                                                                                                                                                                    RTK ·
                                                                                                    Raptor_[mTOR]--mTOR_[Raptor]
                                                                                                                                                                            SYNJ2
                                                                                     TSC1_[Cterminus]—TSC2_[Nterminus]
                                                                                                                                    TSC2_[(Ser1130)]-{0}
                                                                                                                                      TSC2_[(Ser939)]-{0} -
TSC2_[(Ser981)]-{0} -
                                                                                                                                    TSC2_[(Thr1462)]-{0}
                                                                                                                                                               [EIF4EBP1] -
                                                                                                                                                                          [Raptor] -
                                                                                                                                                                            [eIF4E] -
                                                                                                                                                                            [eIF4G] -
                                                                                                                                                                          [mTOR] -
                                                                                                                                                 eIF4E_[A001]--0
                                                                                                                                                eIF4G_[A002]--0 -
                                                                                                                                                                      mTORC1 -
                                                                                                                                                                      mTORC2 -
                                                                                                                                 mTOR_[FATf..2f..3]--0 -
                                                                                                         mTOR_[Mheatm..2m..3m..4]--0
                                                                                                                   mTOR_[Nheatn..3ton..7] -- 0
                                                                                                                                       mitogen_[EGFR]--0 -
                                                                                                                                                                                        nn
                                                                                                                                                                                        un ·
                                                                                                                                    AKT2_[PI]_i+_PI_[PH] -
                                                                                                                 AKT2_p+_PPM1G_[(AKT2)] - AKT2_p+_TSC2_[(Ser1130)] -
                                                                                                                  AKT2_p+_TSC2_[(Ser939)] -
AKT2_p+_TSC2_[(Ser981)] -
AKT2_p+_TSC2_[(Thr1462)] -
                                           GTP_gef_RHEB_[(G)] -

IRS_[pY]_ppi+_p13K_[SH2] -

PDK1_p+_AKT2_[(T309)] -

P13K_p+_P1_[(3)] -

RHEB_[switch1DSYDPTIEN]_ppi+_mTOR_[FAT1.2f..3] -
                                                     RHEB_[switch1]_ppi+_mTOR_[Mheatm..2m..3m..4] -
\label{eq:RHEB_switch2GQDEYSIFPQTYSIDIN]_ppi+_mTOR_[Nheatn..3ton..7] - RTK_p+_IRS_[(RTK)] -
                                                                          TSC1_[Cterminus]_ppi-_TSC2_[Nterminus] -
                                                                                                                                                                         [Output] -
                                                                                                   elF4E_[A001]_ppi+_elF4G_[A002] -
                                                                                       eIF4E_[A001]_ppi-_EIF4EBP1_[A001] -
mTORC1_p+_EIF4EBP1_[(Ser65)] -
mTORC1_p+_EIF4EBP1_[(Thr37)] -
                                                                                                 mTORC1_p+_EIF4EBP1_[(Thr46)] =
mTORC1_p+_EIF4EBP1_[(Thr70)] =
mTORC2_p+_AKT2_[(S474)] =
                                                                                   mitogen_[EGFR]_ppi+_EGFR_[mitogen] = 
AKT2_[(S474)]-{p} =
                                                                                                                                             AKT2_[(T309)]-{p} -
                                                                                                                                        AKT2_[PI]--PI_[PH] -
                                                                                              EGFR_[mitogen]--mitogen_[EGFR] -
                                                                                                                              EIF4EBP1_[(Ser65)]-{p} -
                                                                                                                             EIF4EBP1_[(Thr37)]-{p} = EIF4EBP1_[(Thr46)]-{p} =
                                                                                                                              EIF4EBP1_[(Thr70)]-{p} =
EIF4EBP1_[A001]--0 =
                                                                                                                                                   IRS_[(RTK)]-{p} -
                                                                                                                                 IRS_[pY]--PI3K_[SH2] -
                                                                                                                                                                PI_[(3)]-\{p\}
                                                                                                                                      PPM1G_[(AKT2)]-{p} -
                                                                                                                                               RHEB_{(G)}-\{gtp\}
                                                       RHEB_[switch1DSYDPTIEN]--mTOR_[FATf..2f..3] -
                                                                 RHEB_[switch1]--mTOR_[Mheatm..2m..3m..4] -
            RHEB\_[switch2GQDEYSIFPQTYSIDIN] -- mTOR\_[Nheatn..3ton..7] -- mTOR\_[Nheatn..7] --
                                                                                                                                          Raptor_[mTOR]--0 -
                                                                                                                                    TSC1_[Cterminus]--0 -
                                                                                                                                    TSC2_[(Ser1130)]-{p} -
                                                                                                                                      TSC2_[(Ser939)]-{p} -
                                                                                                                                       TSC2_[(Ser981)]-{p} -
                                                                                                                                    TSC2_[(Thr1462)]-{p} -
                                                                                                                                    TSC2_[Nterminus]--0 -
                                                                                                                                                                         [EGFR] -
                                                                                                                                                   [activatedEGFR] -
                                                                                                                                                      [activatedPI3K] -
                                                                                                                                                                     [mitogen] -
                                                                                                             elF4E_[A001]--elF4G_[A002] -
                                                                                                                                          mTOR_[Raptor]--0 -
```

t000 t001