```
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]
\label{eq:rheb}  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)] - eIF4E_[A001]_ppi+_EIF4EBP1_[A001] -
                                        elF4E_[A001]_ppi-_elF4G_[A002] -
mTOR_[Raptor]_ppi+_Raptor_[mTOR] -
mitogen_[EGFR]_ppi-_EGFR_[mitogen] -
                                                           nk_p-_TSC2_[(Ser939)] -
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]
                                                                                  INPP4B -
                                                                        IRS_[(RTK)]-{0} -
                                                                            IRS_[pY]-
                                                                                     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] -
                                                                               SAC1M1L
                                                                                    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
                                                                                          nk -
                                                                                         nn
                                                                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)] -
                                                                  INPP4B_p-_PI_[(4)] =
                                                         IRS_[pY]_ppi+_PI3K_[SH2] -
PDK1_p+_AKT2_[(T309)] -
                                                                     PI3K_p+_PI_[(3)] -
PIPP_p-_PI_[(5)] -
                     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)] -
                                    {\sf TSC1\_[Cterminus]\_ppi-\_TSC2\_[Nterminus]} \; \textbf{-} \\
                                                                                  [Output] -
                                                eIF4E_[A001]_ppi+_eIF4G_[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] -
                                                                   Raptor_[mTOR]--0 -
                                                                TSC1_[Cterminus]--0 -
                                                                TSC2_[(Ser1130)]-{p} -
                                                                 TSC2_[(Ser939)]-{p} -
                                                                 TSC2_[(Ser981)]-{p} -
                                                                TSC2_[(Thr1462)]-{p} -
                                                               TSC2_[Nterminus]--0 -
                                                                        [activatedEGFR] -
                                                                         [activatedPI3K] -
                                                                                [mitogen] -
```

eIF4E_[A001]--eIF4G_[A002] -