```
AKT2_[PH]_i-_PI_[AKT2] -
                                                            IRS_[pYMXM]_ppi-_PI3K_[SH2]
IR_p-_IRS_[(tyrosines)]
                                                           MTM3_p-_phosphoinositide_[(3)] -
PDK1_[PH]_i-_PI_[PDK1] -
PHLPP1_p-_AKT2_[(S474)] -
                                                          PI4K3alpha_p+_PI_[(4)] = PI5P4K_p+_phosphoinositide_[(4)] =
                                                         PIKfyve_p+_phosphoinositide_[(5)] -
PIPK1alpha_p+_PI_[(5)] -
                                                                    PP2A_p-_AKT2_[(Thr309)] - PP5_p-_TSC2_[(Ser1130)] -
                                                           PP5_p__ISC2_((Ser130)) -
PP5_p__TSC2_((Ser939)] -
PP5_p__TSC2_((Ser93)) -
PP5_p__TSC2_((Ser93)) -
PPM1G_p__EIF4EBP1_((Ser65)) -
PPM1G_p__EIF4EBP1_((Thr37)) -
PPM1G_p__EIF4EBP1_((Thr46)] -
PPM1G_p__EIF4EBP1_((Thr70)) -
                                                                                 PTEN2_p-_PI_[(3)]
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] -
Raptor_[TOS]_ppi+_PRAS40_[TOS]
                                                       SAC1M1L_p-_PI_[(4)] -
SYNJ2_p-_PI_[(5)] -
TMEM55_p-_phosphonotitide_[(4)] -
                                           TSC1_[Cterminus]_ppi+_TSC2_[Nterminus] -
TSC2_gap_RHEB_[(G)] -
                                                          VPS34_p+_phosphoinositide_[(3)]
insulin_[IR]_ppi-_IR_[insulin]
                                              mTOR_[RICTOR]_ppi+_RICTOR_[mTOR]
mTOR_[RICTOR]_ppi-_RICTOR_[mTOR]
                                                   mTOR_[Raptor]_ppi+_Raptor_[mTOR] -
mTOR_[Raptor]_ppi-_Raptor_[mTOR] -
                                                         mTOR_[SIN1]_ppi+_SIN1_[mTOR] •
mTOR_[SIN1]_ppi-_SIN1_[mTOR] •
                                                  mTOR_[mLST8]_ppi+_mLST8_[mTOR] -
mTOR_[mLST8]_ppi-_mLST8_[mTOR] -
                            protein1433_[PRAS40]_ppi-_PRAS40_[protein1433]

unk10_p-_SIN1_[(Thr86)] -

unk10_p-_SIN1_[(Thr89)] -

unk11_p-_SIN1_[(Thr398)] -

unk1_p-_PPM16_[(PPP1R36)] -
                                                                          unk2_p-_S6K1_[(T389)]
                                                                          unk3_p-_IRS_[(hS307)]
unk4_p-_IRS_[(hS527)]
                                                               unk5_p__RICTOR_[(Thr1135)] -
unk6_p__PRAS40_[(Thr246)] -
                                                                 unk7_p-_PRAS40_[(Ser183)] -
unk8_p-_PRAS40_[(Ser221)] -
                                                                                  AKT2_[(S474)]-{0}
                                                                               AKT2_[(Thr309)]-{0} -
                                                                         AKT2_[PH]--0 =
EIF4EBP1_[(Ser65)]-{0} =
                                                                         EIF4EBP1_[(Thr37)]-{0} = EIF4EBP1_[(Thr46)]-{0} = EIF4EBP1_[(Thr70)]-{0} =
                                                                                                         GTP
                                                                                                   INPP4B -
                                                                                   IRS_[(hS307)]-{0} - IRS_[(hS527)]-{0} -
                                                                               IRS_[(tyrosines)]-{0} -
IRS_[pYMXM]--0 -
                                                                                        IR_[insulin]--0 -
                                                                                                     MTM3 -
                                                                                        PDK1_[PH]--0 =
                                                                                       PI3K_[SH2]--0 -
                                                                                             PI4K3alpha -
                                                                                                    PI5P4K -
                                                                                             PIKfyve -
PIPK1alpha -
                                                                                                       PIPP -
                                                                                              PI_[(3)]-{0} -
PI_[(4)]-{0} -
                                                                                              PI_{(4)}-\{p\}
                                                                                              PI_[(5)]-{0} -
                                                                                              PI_[(5)]-{p} -
                                                                                         PI_[AKT2]--0 =
PI_[PDK1]--0 =
                                                                                                         PP5 -
                                                                      PPM1G_[(PPP1R3G)]-{0} -
                                                             PRAS40_[(Ser183)]-{0} -
PRAS40_[(Ser221)]-{0} -
PRAS40_[(Thr246)]-{0} -
PRAS40_[TOS]--Raptor_[TOS] -
                                                                      PRAS40_[protein1433]--0 -
PTEN -
                                                                                                    PTEN2 -
                                                                                      \mathsf{RHEB}\_[(\mathsf{G})] – \{0\}
                                                            RHEB_[switch1DSYDPTIEN]-
                                                                                RHEB [switch1]--0 -
                                           RHEB_[switch2GQDEYSIFPQTYSIDIN]--0 -
                                                                         RICTOR_[(Thr1135)]-{0}
                                                                              RICTOR_[mTOR]-
                                                    RICTOR_[mTOR]--mTOR_[RICTOR] -
Raptor_[mTOR]--0 -
                                                          Raptor_[mTOR]--mTOR_[Raptor] - S6K1_[(T389)]-{0} -
                                                                                                SAC1M1L -
SAC3 -
                                                                                SIN1_[(Thr398)]-{0} -
                                                                                  SIN1_[(Thr86)]-{0} -
SIN1_[mTOR]--0 -
                                                               SIN1 [mTOR]--mTOR [SIN1] -
                                                                                                 TMEM55 -
                                                  TSC1_[Cterminus]—TSC2_[Nterminus]
                                                                             TSC2_[(Ser1130)]-{0}
                                                                             TSC2_[(Ser1130)]={0} =
TSC2_[(Ser939)]={0} =
TSC2_[(Ser981)]={0} =
TSC2_[(Thr1462)]={0} =
                                                                                                    VPS34 -
                                                                                        insulin_[IR]--0 -
                                                                                mLST8_[mTOR]--0 -
                                                         mLST8 [mTOR]--mTOR [mLST8]
                                                                            mTOR_[FATf..2f..3]--0
                                                             mTOR_[Mheatm..2m..3m..4]--0 -
mTOR_[Nheatn..3ton..7]--0 -
                                                                              mTOR_[RICTOR]--0 -
mTOR_[Raptor]--0 -
                                                                                mTOR_[SIN1]--0 =
mTOR_[mLST8]--0 =
                                                                      phosphoinositide_[(3)]-{0} - phosphoinositide_[(3)]-{p} -
                                                                      phosphoinositide_[(4)]-{0} -
phosphoinositide_[(4)]-{p} -
                                                                     phosphoinositide_[(5)]-{p} -
protein1433_[PRAS40]--0 -
                                                                                                      unk10 -
                                                                                                        unk2 -
                                                                                                        unk4 ·
                                                                                                        unk5 -
                                                                                                        unk6 -
                                                                                                        unk7
                                                                                                         unk8 -
                                                                       AKT2_[PH]_i+_PI_[AKT2] -
                                                            AKT2_p+_PPM1G_[(PPP1R3G)] = AKT2_p+_PRAS40_[(Thr246)] =
                                                                  AKT2_p+_SIN1_[(Thr86)] -

AKT2_p+_TSC2_[(Ser1130)] -

AKT2_p+_TSC2_[(Ser939)] -
                                                            AKT2_p+_TSC2_[(Ser981)] -

AKT2_p+_TSC2_[(Ser981)] -

AKT2_p+_TSC2_[(Thr1462)] -

GTP_gef_RHEB_[(G)] -

INPP4B_p-_PI_[(4)] -

IRS_[pYMXM]_ppi+_PI3K_[SH2] -

IR_p+_IRS_[(tyrosines)] -
                                                                    PDK1_[PH]_i+_PI_[PDK1] -
PDK1_p+_AKT2_[(Thr309)] -
                                                                                    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] -
                                                       Raptor_[TOS]_ppi-_PRAS40_[TOS] -
S6K1_p+_IRS_[(hS307)] -
                                                               S6K1_p+_IRS_[(hS527)] -
S6K1_p+_RICTOR_[(Thr1135)] -
                                                                      S6K1_p+_SIN1_[(Thr398)] -
SAC3_p-_PI_[(5)] -
                                           TSC1_[Cterminus]_ppi-_TSC2_[Nterminus] -
                                                                                                   [Output] -
                                                                  insulin_[IR]_ppi+_IR_[insulin] =
mTOR_p+_AKT2_[(S474)] =
                                                             mTOR_p+_EIF4EBP1_[(Ser65)] -
mTOR_p+_EIF4EBP1_[(Thr37)] -
mTOR_p+_EIF4EBP1_[(Thr46)] -
mTOR_p+_EIF4EBP1_[(Thr70)] -
mTOR_p+_PRA$40_[(Ser183)] -
                                                               mTOR_p+_PRAS40_[(Ser221)] -
mTOR_p+_S6K1_[(T389)] -
                             protein1433_[PRAS40]_ppi+_PRAS40_[protein1433] -
AKT2_[(S474)]-{p} -
                                                                          AKT2_[(Thr309)]-{p} -
AKT2_[PH]--PI_[AKT2] -
                                                                         EIF4EBP1_[(Ser65)]-{p} = 
EIF4EBP1_[(Thr37)]-{p} =
                                                                         EIF4EBP1_[(Thr46)]-{p} = EIF4EBP1_[(Thr70)]-{p} =
                                                                                   IRS_[(hS307)]-{p} -
                                                                                   IRS_[(hS527)]-{p} -
                                                                  IRS_[(tyrosines)]-{p} - IRS_[pYMXM]--PI3K_[SH2] -
                                                                         IR_[insulin]--insulin_[IR] -
                                                                         PDK1_[PH]--PI_[PDK1] =
PI_[(3)]-{p} =
                                                                      PPM1G_[(PPP1R3G)]-{p} -
                                                                          PRAS40_[(Ser183)]-{p} -
                                                                          PRAS40_[(Ser221)]-{p} -
PRAS40_[(Thr246)]-{p} -
                                                                                 PRAS40_[TOS]-
                                    PRAS40_[protein1433]--protein1433_[PRAS40] -
                                                                                    RHEB_[(G)]-{gtp} -
      RHEB_[switch1DSYDPTIEN]—mTOR_[FATf..2f..3] -
RHEB_[switch1]—mTOR_[Mheatm..2m..3m..4] -
RHEB_[switch2GQDEYSIFPQTYSIDIN]—mTOR_[Nheatn..3ton..7] -
RICTOR_[(Thr1135)]-{p} -
                                                                                   Raptor_[TOS]--0 -
S6K1_[(T389)]-{p} -
                                                                                SIN1_[(Thr398)]-{p} -
                                                                                  SIN1_[(Thr86)]-{p} -
                                                                             TSC1_[Cterminus]--0 -
TSC2_[(Ser1130)]-{p} -
                                                                               TSC2_[(Ser939)]-{p} -
                                                                               TSC2 [(Ser981)]-{p} -
                                                                             TSC2_[(Thr1462)]-{p} -
                                                                             TSC2_[Nterminus]--0 -
                                                                                            [IR] -
[activatedIR]
                                                                                        [activatedPI3K] -
                                                                                                    finsulin1 -
                                                                       phosphoinositide_[(5)]-{0} -
```

t000 t001