```
AKT2_[PH]_i-_PI_[AKT2] -

IRS_[pYMXM]_ppi-_PI3K_[SH2] -

IR_p-_IRS_[(tyrosines)] -

PDK1_[PH]_i-_PL_[PDK1] -
                                                           PHLPP1_p-_AKT2_[(S474)] -
                                                                     PI4K3alpha_p+_PI_[(4)] = PIPK1alpha_p+_PI_[(5)] =
                                                             PP2A_p-_AKT2_[(Thr309)] - PP5_p-_TSC2_[(Ser1130)] -
                        PP5_p__TSC2_((Ser1130)] -
PP5_p__TSC2_((Ser939)] -
PP5_p__TSC2_((Ser931)] -
PP5_p__TSC2_((Ser931)] -
PP5_p__TSC2_((Thr1462)] -
PPM1G_p__EIF4EBP1_((Thr46)] -
PPM1G_p__EIF4EBP1_((Thr37)] -
PPM1G_p__EIF4EBP1_((Thr70)] -
PPM1G_p__EIF4EBP1_((Thr70)] -
PTEN_p__PL_((3)] -
RHEB_[switch1]_ppi__mTOR_[MheatFAT] -
B_[switch2]_ppi__mTOR_[MheatFAT] -
B_[switch2]_ppi_mTOR_[MheatFAT] -
           RHEB_[switch2]_ppi-_mTOR_[MheatNheatFAT] =
Raptor_[BindingMotif]_ppi+_PRAS40_[TOS] =
                      TSC2_gap_RHEB_[(G)] insulin_[IR]_ppi-_IR_[insulin]
                      mTOR_[LBE]_ppi+_mLST8_[WD40repeats] = mTOR_[LBE]_ppi-_mLST8_[WD40repeats] =
                          mTOR_[RICTOR]_ppi+_RICTOR_[mTOR]
                          mTOR_[RICTOR]_ppi-_RICTOR_[mTOR] -
mTOR_[Raptor]_ppi+_Raptor_[mTOR] -
mTOR_[Raptor]_ppi-_Raptor_[mTOR] -
mTOR_[Raptor]_ppi-_Raptor_[mTOR] -
mTOR_[SIN1]_ppi+_SIN1_[mTOR] -
mTOR_[SIN1]_ppi-_SIN1_[mTOR] -
protein1433_[PRAS40]_ppi-_PRAS40_[protein1433] -
                                                  unk1_p-_PPM1G_[(PPP1R3G)] -
                                                     unk2_p__S6K1_[(T389)] -
unk2_p__S6K1_[(T389)] -
unk3_p__IRS_[(hS507)] -
unk4_p__IRS_[(hS527)] -
unk5_p__RICTOR_[(Thr1135)] -
                                                       unk6_p-_PRAS40_[(Thr246)] -
unk7_p-_PRAS40_[(Ser183)] -
unk8_p-_PRAS40_[(Ser221)] -
                                                                    unk9_p-_SIN1_[(Thr86)] -
AKT2_[(S474)]-{0} -
                                                                              AKT2_[(Thr309)]-{0} -
                                                                    AK12_[(1hr309)]-(0) -
AKT2_[PH]--0 -
EIF4EBP1_[(Ser65)]-(0) -
EIF4EBP1_[(Thr37)]-(0) -
EIF4EBP1_[(Thr46)]-(0) -
GTP -
                                                                                                           INPP4B -
                                                                             IRS_[(hS307)]-{0} -
IRS_[(hS527)]-{0} -
IRS_[(tyrosines)]-{0} -
                                                                                   IRS_[pYMXM]--0 -
IR_[insulin]--0 -
                                                                                          PDK1_[PH]--0 -
PHLPP1 -
                                                                                          PI3K_[SH2]--0 -
PI4K3alpha -
                                                                                                   PIPK1alpha -
                                                                                                    PI_[(3)]-{0} -
                                                                                                   PI_[(4)]-{0} -
PI_[(4)]-{p} -
                                                                                                   PI_[(5)]-{0} -
PI_[(5)]-{p} -
                                                                                             PI_[AKT2]--0 -
                                                                                            PI_[PDK1]--0 -
                                                                                                                 PP2A -
                                                                PPM1G [(PPP1R3G)]_{0} -
                                                                      PRAS40_[(Ser183)]-{0} -
PRAS40_[(Ser221)]-{0} -
PRAS40_[(Thr246)]-{0} -
                               PRAS40_[TOS]—Raptor_[BindingMotif] -
PRAS40_[protein1433]—0 -
                                                                                                                PTEN -
                                                                               RHEB_[(G)]-{0} -
RHEB_[switch1]--0 -
                                                                    RHEB_[switch2]--0 -
RICTOR_[(Thr1135)]-{0} -
                                     RICTOR_[mTOR]--0 -
RICTOR_[mTOR]--mTOR_[RICTOR] -
                                                                                Raptor_[mTOR]--0 -
                                             Raptor_[mTOR]--mTOR_[Raptor] -
S6K1_[(T389)]-{0} -
SAC1M1L -
                                                                                  SIN1_[(Thr86)]-{0}
                                                     SIN1_[mTOR]--0 -
SIN1_[mTOR]--mTOR_[SIN1] -
                                                                                                              SYNJ2 -
                                TSC1_[Cterminus]--TSC2_[Nterminus] -
                                                                          TSC2_[(Ser1130)]-{0} -
TSC2_[(Ser939)]-{0} -
TSC2_[(Ser981)]-{0} -
                                                                          TSC2_[(Thr1462)]-{0} -
                                                                                           insulin_[IR]--0 -
                                mLST8_[WD40repeats]--0 -
mLST8_[WD40repeats]--mTOR_[LBE] -
                                                         mTOR_[LBE]--0 -
mTOR_[MheatFAT]--0 -
mTOR_[MheatFAT]--0 -
                                                                            mTOR_[RICTOR]--0 -
mTOR_[Raptor]--0 -
                                                              mTOR_[SIN1]--0 -
protein1433_[PRAS40]--0 -
                                                                                                                   unk1 -
unk2 -
                                                                                                                   unk4 -
                                                                                                                   unk6 -
                                                                                                                   unk7
                                                                                                                    unk8 -
                                                                                                                   unk9 -
                                                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_[(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_[switch1]_ppi+_mTOR_[MheatFAT] -
           RHEB_[switch2]_ppi+_mTOR_[MheatNheatFAT] -
Raptor_[BindingMotif]_ppi-_PRAS40_[TOS] -
                                                                    S6K1_p+_IRS_[(hS307)] -
S6K1_p+_IRS_[(hS527)] -
                                                   S6K1_p+_RICTOR_[(Thr1135)] -
                      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+_PRAS40_[(Ser183)] -
                                                   mTOR_p+_PRAS40_[(Ser221)] -
mTOR_p+_S6K1_[(T389)] -
protein1433_[PRAS40]_ppi+_PRAS40_[protein1433] -
AKT2_[(S474)]-{p} -
                                                                    AK12_[(S474)]-{B} -
AKT2_[(Thr309)]-{B} -
AKT2_[PH]--PL[AKT2] -
EIF4EBP1_[(Ser65)]-{B} -
EIF4EBP1_[(Thr37)]-{B} -
EIF4EBP1_[(Thr46)]-{B} -
EIF4EBP1_[(Thr46)]-(Thr46)-(Thr46)-(Thr46)-(Thr46)-(Thr46)-(Thr46)-(Thr46)-(Thr46)
                                                                     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]--0 -
           PRAS40_[protein1433]--protein1433_[PRAS40] -
                                                                                   RHEB_[(G)]-{gtp} -
                                     RHEB_[switch1]—mTOR_[MheatFAT] -
                      RHEB_[switch2] -- mTOR_[MheatNheatFAT] -
RICTOR_[(Thr1135)]-{p} -
                                                                  Raptor_[BindingMotif]-
                                                                                  S6K1_[(T389)]-{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] - [insulin] -