```
AKT2_[PH]_i-_PI_[AKT2]
                           IRS_[pYMXM]_ppi-_PI3K_[SH2]
IR_p-_IRS_[(tyrosines)]
PDK1_[PH]_i-_PI_[PDK1]
                                 PHLPP1_p-_AKT2_[(S474)]
                                      PI4K3alpha_p+_PI_[(4)]
PIPK1alpha_p+_PI_[(5)]
                                  PP2A_p-_AKT2_[(Thr309)]
PP5_p-_TSC2_[(Ser1130)]
                          PP5_p-_TSU2_((Ser130))
PP5_p-_TSC2_((Ser939))
PP5_p-_TSC2_((Ser981))
PP5_p-_TSC2_((Thr1462))
PPM1G_p-_EIF4EBP1_((Ser65))
PPM1G_p-_EIF4EBP1_([Thr37))
                          PPM1G_p__EIF4EBP1_[(Thr46)]
PPM1G_p__EIF4EBP1_[(Thr70)]
                                                            PI_[(3)]
                                              PTEN_p-
              RHEB_[switch1]_ppi-_mTOR_[MheatFAT]
      RHEB_[switch2]_ppi-
                                     mTOR_[MheatNheatFAT]
            Raptor_[BindingMotif]_ppi+_PRAS40_[TOS]
                                         SAC1M1L_p-_PI_[(4)]
            SYNJ2_p-_PI_[(5)]
TSC1_[Cterminus]_ppi+_TSC2_[Nterminus]
                                       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_[SIN1]_ppi+_SIN1_[mTOR]
mTOR_[SIN1]_ppi-_SIN1_[mTOR]
protein1433_[PRAS40]_ppi-_PRAS40_[protein1433]
                            unk1_p-_PPM1G_[(PPP1R3G)]
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)]
                                     unk9\_p-\_SIN1\_[(Thr86)]
                                              AKT2_[(S474)]-{0}
                                           AKT2_[(Thr309)]-{0}
AKT2_[PH]--0
                                     EIF4EBP1_[(Ser65)]-{0}
EIF4EBP1_[(Thr37)]-{0}
EIF4EBP1_[(Thr46)]-{0}
                                      EIF4EBP1_[(Thr70)]-{0}
                                                            INPP4B
                                               IRS_[(hS307)]-{0}
                                           IRS_[(hS527)]-{0}
IRS_[(tyrosines)]-{0}
                                               IRS_[pYMXM]-
                                                   IR_[insulin]--0
                                                  PDK1_[PH]--0
                                                           PHLPP1
                                                  PI3K_[SH2]-
                                                       PI4K3alpha
                                                       PIPK1alpha
                                                                PIPP
                                                        PI_[(3)]-{0}
                                                        PI_[(4)]-{0}
                                                        PI[(4)]-\{p\}
                                                        PI_[(5)]-{0}
                                                        PI_[(5)]-{p}
                                                    PI_[AKT2]--0
                                                    PI_[PDK1]--0
                                                               PP2A
                                                                 PP5
                                    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]-
                                     RHEB_[switch2]--0
RICTOR_[(Thr1135)]-{0}
                                          RICTOR_[mTOR]-
                    RICTOR_[mTOR]--mTOR_[RICTOR]
                                            Raptor_[mTOR]--0
R]--mTOR_[Raptor]
                         Raptor_[mTOR]-
                                              S6K1_[(T389)]
                                                         SAC1M1L
                                              SIN1_[(Thr86)]-{0}
                                               SIN1_[mTOR]--0
                              SIN1_[mTOR]--mTOR_[SIN1]
                                                              SYN.I2
                 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]
                                mTOR_[MheatFAT]--0
mTOR_[MheatNheatFAT]--0
                                          mTOR_[RICTOR]-
mTOR_[Raptor]-
                                                                   --0
                                               mTOR_[SIN1]
                                                                    -0-
                                   protein1433_[PRAS40]--0
                                                                 unk1
                                                                unk2 ·
                                                                 unk3
                                                                unk4
                                                                 unk5
                                                                 unk6 -
                                                                unk7
                                                                 unk8
                                                                 unk9
                          AKT2_[PH]_i+_PI_[AKT2] =
AKT2_p+_PPM1G_[(PPP1R3G)] =
AKT2_p+_PRAS40_[(Thr246)] =
                                KKTZ_p+_PRAS40_[(Thr246)] -
AKTZ_p+_SIN1_[(Thr86)] -
AKTZ_p+_TSC2_[(Ser1130)] -
AKTZ_p+_TSC2_[(Ser939)] -
AKTZ_p+_TSC2_[(Ser939)] -
AKTZ_p+_TSC2_[(Thr1462)] -
GTP_gef_RHEB_[(G)] -
INPP4B_p-_PL_[(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]
                                \begin{array}{l} \text{insulin}\_[\text{IR}]\_\text{ppi+}\_\text{IR}\_[\text{insulin}] \text{--} \\ \text{mTOR}\_\text{p+}\_\text{AKT2}\_[(\text{S474})] \text{--} \end{array}
                            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} -
                                       AKT2_[(C+7-1)] {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]--0 -
PRAS40_[protein1433]--protein1433_[PRAS40] -
                                              RHEB_[(G)]-{gtp}
                    RHEB_[switch1]-
                                             -mTOR_[MheatFAT] -
            RHEB_[switch2] -- mTOR_[MheatNheatFAT] -
RICTOR_[(Thr1135)]-{p} -
                                     Raptor_[BindingMotif]--0 -
S6K1_[(T389)]-{p} -
SIN1_[(Thr86)]-{p} -
                                         TSC1_[Cterminus]--0 -
                                         TSC2_[(Ser1130)]-{p} -
                                           TSC2_[(Ser939)]-{p} -
TSC2_[(Ser981)]-{p} -
                                          TSC2_[(Thr1462)]-{p}
                                         TSC2_[Nterminus]--0 -
                                                      [activatedIR] -
                                                  [activatedPI3K]
                                                            [insulin] -
                                                                          t000 t001
```