Unit step function: H(x); W > 0

H(WATM/ATR\_2 \* XATM/ATR\_2 - WRB1 \* XRB1 - WPIK3CA \* XPIK3CA + bABL1) = XABL1

H(WlowNutrition \* XlowNutrition - WATP \* XATP +bADP/ATP) = XADP/ATP

H(WPDK1 \* XPDK1 – WPPARGC1A \* XPPARGC1A + bAKT1) = XAKT1

H(WlowNutrition \* XlowNutrition - WATP \* XATP + bAMP/ATP) = XAMP/ATP

H(WADP/ATP \* XADP/ATP + WAMP/ATP \* XAMP/ATP + WlowNutrition \* XlowNutrition + WTP53 \* XTP53 + bAMPK) = XAMPK

H(WULK1 \* XULK1 + bATG13)= XATG13

H(WULK1 \* XULK1 + bATG5) = XATG5

H(WDNAdamage \* XDNAdamage + WFOXO3 \* XFOXO3 +bATM/ATR) = XATM/ATR

H(WDNAdamage\_high \* XDNAdamage\_high +bATM/ATR\_2) = XATM/ATR\_2

H(WGlycolysis \* XGlycolysis + WTCA cycle \* XTCA cycle + bATP) = XATP

H(WTP53 \* XTP53 + WTP53\_s46 \* XTP53\_s46 - WSIRT1 \* XSIRT1 - WBCL2 \* XBCL2 – WAKT1 \* XAKT1 + bBAX) = XBAX

H(WMAPK1 \* XMAPK1 + WNFKB1 \* XNFKB1 – WTP53 \* XTP53 – WFOXO3 \* XFOXO3 + WAKT1 \* XAKT1 + bBCL2) = XBCL2

H(WBAX \* XBAX + WCASP9 \* XCASP9 + bCASP3) = XCASP3

H(WABL1 \* XABL1 + WBAX \* XBAX – WAKT1 \* XAKT1 – WMAPK1 \* XMAPK1 + bCASP9) = XCASP9

H(-WCDKN1A \* XCDKN1A – WCDKN2A \* XCDKN2A + bCDK4) = XCDK4

H(WTP53 \* XTP53 + WFOXO3 \* XFOXO3 – WAKT1 \* XAKT1 + bCDKN1A) = XCDKN1A

H(WMAPK14 \* XMAPK14 – WAKT1 \* XAKT1 + bCDKN2A) = XCDKN2A

H(WROS \* XROS + bDNAdamage) = XDNAdamage

H(bDNAdamage\_high) = XDNAdamage\_high

H(WATM/ATR \* XATM/ATR – WRB1 \* XRB1 + bE2F1) = XE2F1

H(-WMAPK1 \* XMAPK1 – WMTOR \* XMTOR + bEIF4EBP1) = XEIF4EBP1

H(WMAPK14 \* XMAPK14 + WAMPK \* XAMPK + WSIRT1 \* XSIRT1 – WMAPK1 \* XMAPK1 – WSGK1 \* XSGK1 – WMDM2 \* XMDM2 – WAKT1 \* XAKT1 + bFOXO3) = XFOXO3

H(WFOXO3 \* XFOXO3 + bG6PC) = XG6PC

H(WSLC2A4 \* XSLC2A4 + bGlucose) = XGlucose

H(WG6PC \* XG6PC + WGlucose \* XGlucose – WNFKB1 \* XNFKB1 + bGlycolysis) = XGlycolysis

H(WATM/ATR\_2 \* XATM/ATR\_2 + bHIPK2) = XHIPK2

H(-WTP53 \* XTP53 + bIGF1) = XIGF1

H(WIGF1 \* XIGF1 – WTP53 \* XTP53 – WTP53\_s46 \* XTP53\_s46 + bIGF1R) = XIGF1R

H(WPDK1 \* XPDK1 + WAKT1 \* XAKT1 – WNFKBIE \* XNFKBIE + bIKBKB) = XIKBKB

H(WNFKB1 \* XNFKB1 + bIL1B) = XIL1B

H(WNFKB1 \* XNFKB1 + bIL6) = XIL6

H(-WlowNutrition \* XlowNutrition + bINSR) = XINSR

H(WINSR \* XINSR + WIGF1R \* XIGF1R – WS6K1 \* XS6K1 – WIKBKB \* XIKBKB + bIRS1) = XIRS1

H(WINSR \* XINSR + WIGF1R \* XIGF1R + bKRAS) = XKRAS

H(WDNAdamage \* XDNAdamage + WROS \* XROS + bMAP2K3/MAP2K6) = XMAP2K3/MAP2K6

H(WKRAS \* XKRAS + WNFKB1 \* XNFKB1 + bMAPK1) = XMAPK1

H(WMAP2K3/MAP2K6 \* XMAP2K3/MAP2K6 + bMAPK14) = XMAPK14

H(WAKT1 \* XAKT1 + WTP53 \* XTP53 + WTP53\_s46 \* XTP53\_s46 – WABL1 \* XABL1 – WCDKN2A \* XCDKN2A – WS6K1 \* XS6K1 + bMDM2) = XMDM2

H(WAKT1 \* XATK1 + WROS \* XROS + WRHEB \* XRHEB – WABL1 \* XABL1 – WAMPK \* XAMPK + bMTOR) = XMTOR

H(WAMPK \* XAMPK + bNAD+) = XNAD+

H(-WSIRT1 \* XSIRT1 – WNFKBIE \* XNFKBIE + bNFKB1) = XNFKB1

H(WNFKB1 \* XNFKB1 – WIKBKB \* XIKBKB + bNFKBIE) = XNFKBIE

H(WPIK3CA \* XPIK3CA – WPTEN \* XPTEN + bPDK1) = XPDK1

H(WKRAS \* XKRAS + WIRS1 \* XIRS1 + bPIK3CA) = XPIK3CA

H(WE2F1 \* XE2F1 + WAMPK \* XAMPK + WSIRT1 \* XSIRT1 + WMTOR \* XMTOR + bPPARGC1A) = XPPARGC1A

H(WTP53 \* XTP53 + WTP53\_s46 \* XTP53\_s46 – WAKT1 \* XAKT1 – WIKBKB \* XIKBKB + bPTEN) = XPTEN

H(-WCDK4 \* XCDK4 – WMDM2 \* XMDM2 + bRB1) = XRB1

H(-WTSC2 \* XTSC2 + bRHEB) = XRHEB

H(WDNAdamage \* XDNAdamage + WTCA cycle \* XTCA cycle – WSOD2 \* XSOD2 + bROS) = XROS

H(WMTOR \* XMTOR + bS6K1) = XS6K1

H(WPDK1 \* XPDK1 + WTP53 \* XTP53 +bSGK1) = XSGK1

H(WFOXO3 \* XFOXO3 + WNAD+ \* XNAD+ - WE2F1 \* XE2F1 – WTP53 \* XTP53 +bSIRT1) = XSIRT1

H(WAMPK \* XAMPK + WAKT1 \* XAKT1 + WPPARGC1A \* XPPARGC1A + bSLC2A4) = XSLC2A4

H(WFOXO3 \* XFOXO3 + bSOD2) = XSOD2

H(WGlycolysis \* XGlycolysis + bTCA cycle) = XTCA cycle

H(WNFKB1 \* XNFKB1 + bTNF) = XTNF

H(WAMPK \* XAMPK + WATM/ATR \* XATM/ATR + WMAPK14 \* XMAPK14 – WSIRT1 \* XSIRT1 – WMDM2 \* XMDM2 + bTP53) = XTP53

H(WHIPK2 \* XHIPK2 + WMAPK14 \* XMAPK14 – WSIRT1 \* XSIRT1 – WMDM2 \* XMDM2 +bTP53\_s46) = XTP53\_s46

H(WAMPK \* XAMPK + WSIRT1 \* XSIRT1 – WAKT1 \* XAKT1 – WMAPK1 \* XMAPK1 + bTSC2) = XTSC2

H(-WAMPK \* XAMPK – WMTOR \* XMTOR + bULK1) = XULK1

H(blowNutrition) = XlowNutrition