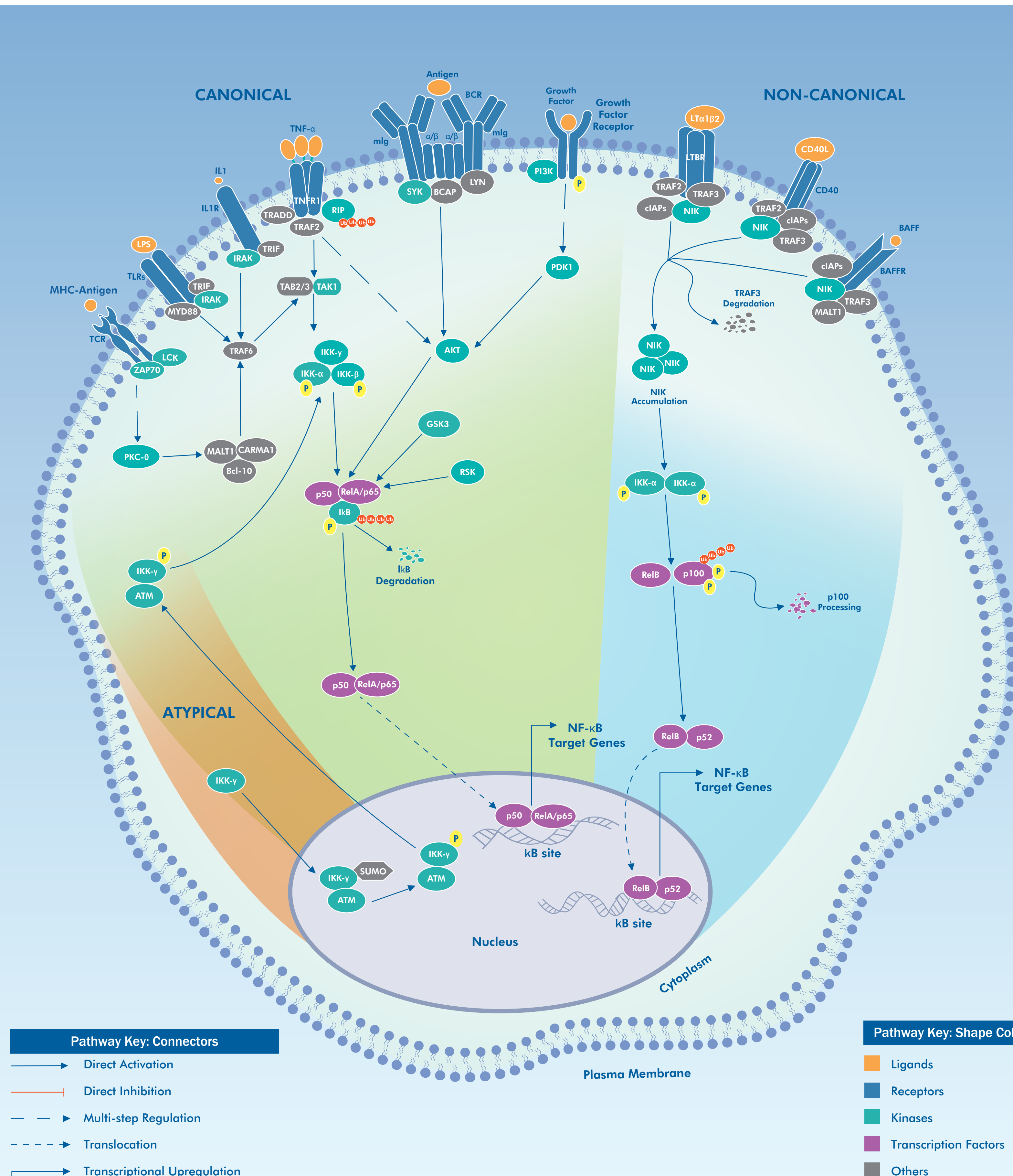
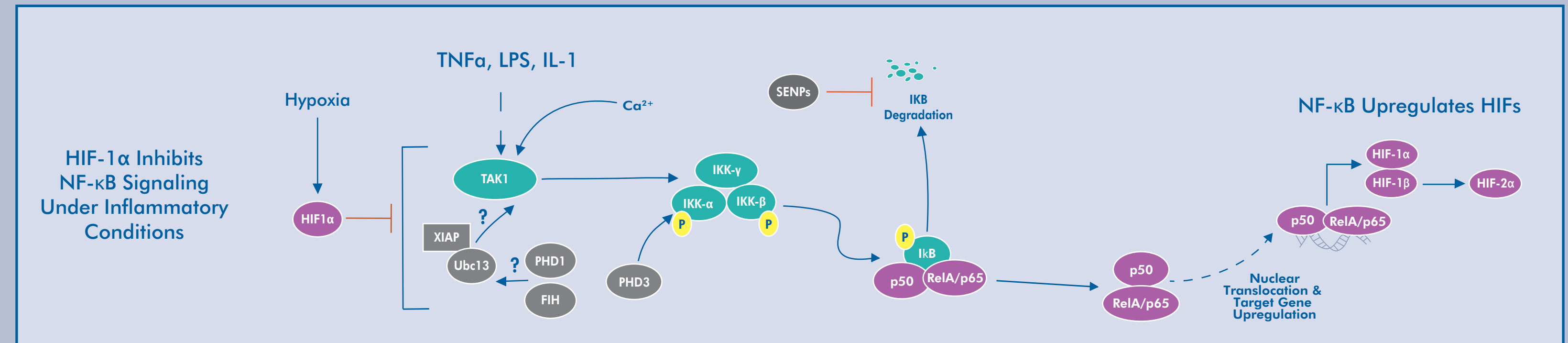


NF-κB Signaling



Bi-directional Cross-talk Between HIF1-alpha and NF kappa B



Select NF-κB Target Genes

Functions	Gene Names
Cytokines/Chemokines & Their Modulators	BAFF/TNFSF13B, BLIMP1/PRDM1, CCL1, CCL11, CCL15, CCL17, CCL19, CCL2/MCP1, CCL20, CCL22, CCL23, CCL28, CCL3, CCL4, CCL5/RANTES, CINC-1, CX3CL1/Fractalkine, CXCL1, CXCL2, CXCL3, CXCL5, CXCL9, IFNB1, IL10, IL11, IL12A(p35), IL12B(p40), IL13, IL17, IL1A, IL1B, IL1RN/IL1RA, IL2, IL23A(p19), IL27(p28), IL27B, IL6, IL8, IL9, INFAs, KC, LTA/TNFβ, LTβ/TNFSF3, TNF/TNFα, TNFSF10/TRAIL, VEGF
Immunoreceptors & Antigen Presentation Related Proteins	B2M, B7-1/CD80, BDKRB1, C3, CCR5, CCR7, CD23/FCER2, CD38, CD3G, CD3G, CR2/CD21, CD40, CD40LG/CD154, CD48, CD83, CD86, CFB, CR2, CXCR5/BLR1, FcRn/FCGR2, HLA-B, HLA-G, IL2RA, IL8RA, IL8RB, NOD2, PGLYRP1, PSMB9, SLC3A2, TAP1, TAPBP, TCRB, TLR2, TLR9, TNFRII/TNFRSF1B, TNFRSF4/CD134, TNFRSF9/CD137, TREM1
Cell Adhesion Molecules	CD209/DC-SIGN, CD44, ENG, FN1, ICAM-1/CD54, MADCAM1, NCAM, SELE/CD62E, SELP, TNC, VCAM1
Acute Phase Proteins	AGT, C4A, C4BPA, CFB, CRP, DEF2B, F3, HAMP, LBP, PLA2 PTX3, SAA1, SAA2, SAA3
Cellular Stress Response Related Proteins	ALOX12, ALOX5, CYP2C11, CYP7B1, FTH1, GCLC, GCLM, HSP90AA1, NOS2A, NQO1, PLA2, PTGS2/COX-2, SELS, SENP2, SOD1, SOD2
Cell Surface Receptors	ABCA1, ABCB1, ABCB4, ABCC6, ADORA1, ADORA2A, AGER, BDKRB1, C69, EGFR, GRM2, KISS1, KLRA1, NPY1R, OLR1, OPRD1, OPRM1, OXTR, PTAFR, SCN11A
Apoptotic Cell Death Modulators	ASC/PYCARD, BAX, BCL2, BCL2A1, BCL2L1, BCL2L11, BNIP3, CASP4, CD274, CFLAR, CIDEA, FAS, FASLG, IER3, TRAF1, TRAF2, XIAP
Growth Factors, Ligands, & Related Modulators	ANGPT1, BDNF, BLNK, BMP2, BMP4, CALCB, CSF1, CSF2, CSF3, EPO, FGF8, FSTL3, HGF, IGFBP1, IGFBP2, INHBA, KITLG, MDK, NGFB, NK4, NRG1, PDGFB, PENK, PI3KAP1, PIGF, PRL, SPP1, TACR1, TNFSF13B, VEGFC
Transcription Factors & Related Modulators	AR, BCL3, BMI1, CDX1, CEBPD, CREB3, DMP1, E2F3, ELF3, FOS, GATA3, HIF1A, HOXA9, IRF1, IRF2, IRF4, IRF7, JMJD3, JUNB, LEF1, MYB, MYC, NF-κB1, NF-κB2, NF-κBIE, NF-κBIZ, NLRP2, NR3C1, NR4A2, Osterix, PGR, REL, RELB, SNAI1, SOX9, SPI1, STAT5A, TFEC, TNFAIP3, TNIP3, TP53, TWIST1, WT1, YY1
Enzymes	ADH1A, AICDA, AMACR, ARFRP1, ART1, ASS1, BACE1, BTK, CDK6, CHI3L1, CTSB, CYP19A1, DIO2, DNASE1L2, G6PC, GCLC, GNB2L1, GNRH2, GSTP1, GZMB, HAS1, HMOX1, HSD11B2, LIPG, LYZ, MMP1, MMP3, MMP9, MMP9, MTHFR, MYLK, NOS1, NOS2A, NOX1, NUAQ2/SNARK, PAFAH2, PIK3CA, PIM1, PLCD1, PLK3, PRKACA, PRKCD, PTGDS, PTHLH, PTPN1, SAT1/SSAT, SERPINA2, SERPINA3, Sirt2, ST6GAL1, ST8SIA1, TERT, TGM1, TGM2, UPP1
Others	ABCG8, AMH, APOBEC2, APOC3, APOD, APOE, AQP4, ASPH, BRCA2, CCND1, CCND2, CGM3, COL1A2, CXCL1, CYP27B1, EDN1, EPHA1, ERVWE1, F8, FABP6, FAM148A, FTH1, GADD45B, GBP1, GNAI2, HBE1, HBZ, HMGNI1, IER3, IGFBP2, KCNK5, KCNN2, KLK3, KRT15, KRT3, KRT5, KRT6B, LAMB2, LCN2, LCN2, LGALS3, MBP, MUC2, MYOZ1, OPN1SW, ORM1, PDYN, POMC, PPARGC1B, PRF1, PSME1, PSME2, PTEN, RAG1, RAG2, RBBP4, S100A4, S100A6, SDC4, SERPINA1, SERPINB1, SERPINE1/PAI-1, SERPINE2, SH3BGR1, SKALP/PI3, SKP2, SLC11A2, SLC16A1, SLC6A6, TICAM1, TNIP1, TRPC1, VIM
Viruses	Adenovirus (E3 region), Avian Leukosis Virus (AVL), Bovine Leukemia Virus (BLV), Cytomegalovirus (CMV), Epstein-Barr Virus (EBV; Wp promoter), Hepatitis B Virus (pregenomic promoter), Human Immunodeficiency Virus (HIV-1), Herpes Simplex Virus (HSV; ICP90, ICP0), JC Virus (JCV), Human Papillomavirus (HPV) type 16, Simian Immunodeficiency Viruses (SIV), Simian Virus 40 (SV-40)

NF-κB Signaling Inhibitors

Small Molecules	Activity in NF-κB Signaling
SP 100030	NF-κB and AP-1 dual inhibitor
IT 901	NF-κB c-Rel subunit inhibitor
Bay 11-7085	Irreversible inhibitor of TNF-α-induced IκBα phosphorylation
Ro 106-9920	Inhibitor of NF-κB activation
IKK 16	Selective IKK inhibitor
TPCA-1	Potent, selective inhibitor of IKK-β
IMD 0354	IKK-β Inhibitor
Celastrol	Inhibits TNF-α-induced NF-κB activation
PF 184	Potent and selective IKK-β inhibitor
ACHP	Selective IKKα and IKK-β inhibitor
BMS 345541	Selective allosteric inhibitor of IKK; anti-inflammatory
Amlexanox	Inhibitor of TBK1 and IKKε; anti-allergic agent
ML 120B	Novel selective IKK-β inhibitor
GSK 319347A	Potent and selective IKK-ε inhibitor
C-DIM 12	Nurr1 activator; inhibits NF-κB-dependent gene expression

Peptides	Biological Activity
NF-κB p50 NLS Inhibitory Peptide (DRQIKIWFQNRRMKWKKVQRKQKLM)	Inhibits nuclear translocation of p50 by blocking intracellular nuclear localization sequence (NLS) VQRKQKLM on NF-κB p50 protein.
NF-κB p65 (Ser276) Inhibitory Peptide (DRQIKIWFQNRRMKWKKQLRRPSDRELSE)	Decoy peptide with Ser276 site which exerts blocking effect by competing for phosphorylation of Ser276 with the endogenous NF-κB p65.
IKK-γ/NEMO Binding Domain (NBD) Inhibitory Peptide (DRQIKIWFQNRRMKWKKALDWSWLQTE)	Peptide binds IKKα and IKKβ's consensus sequence NBD and inhibits their binding to IKK-γ.
NF-κB p65 [pSer529, pSer536] Inhibitory Peptide (DRQIKIWFQNRRMKWKKNGLLSGDEDFSS)	Decoy peptide with Ser529 and Ser536 sites which exert blocking effects through competing for phosphorylation of Ser529 and Ser536 with the endogenous NF-κB p65.

NF-κB Signaling: Diseases

AIDS, Alzheimer's disease, Asthma, Atherosclerosis, Cancer, Diabetes, Osteoporosis, Parkinson's disease, and Rheumatoid arthritis.

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