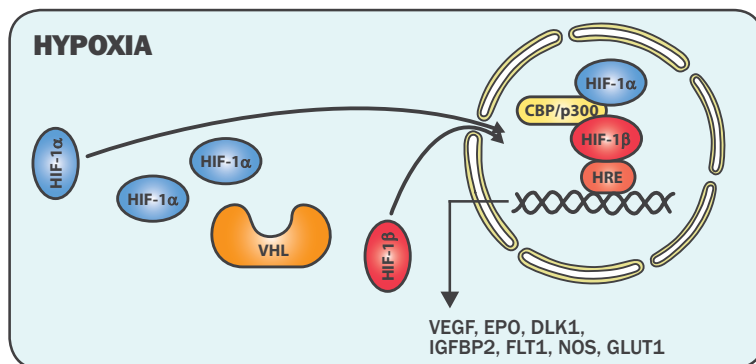
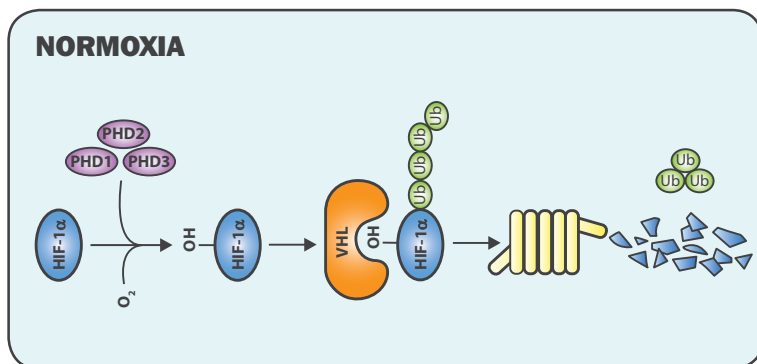


ANTIBODIES FOR HYPOXIA SIGNALING

Cellular response to hypoxia has become of great interest to researchers because of its involvement in several biological processes including angiogenesis, cellular survival/proliferation, energy metabolism, erythropoiesis, extra-cellular matrix functions, invasion/metastasis, iron metabolism, pH regulation, multidrug resistance, stem cell properties etc. In normoxia, HIF-1 alpha gets hydroxylated by PHDs which promotes its binding to the VHL protein E3 ligase complex, ubiquitination and proteasomal degradation. Hypoxia as well as hydroxylase inhibitors (DFO, CoCl₂, etc.) inhibit HIF-1 alpha degradation which follows its accumulation/nuclear translocation, binding with HIF-1 beta and CBP/p300 at HRE leading to modulation of the target genes expression.



Novus Biologicals, an established name in hypoxia research area, offers a wide range of monoclonal and polyclonal antibodies for hypoxia signaling. Some of our most popular hypoxia products are:

Antibody	Catalog#	Host/Clonality	Applications	Species	Publications
HIF-1 alpha	NB100-105	Mu/Mono	WB, ChIP, ELISA, Flow, GS, ICC/IF, IHC-Fr, IHC-P, IP	Hu, Mu, Rt, Po, Bv, Fe, Pm, Rb, Sh, Xp, Ye	573*
HIF-2 alpha	NB100-122	Rb/Poly	SW, WB, ChIP, ELISA, Flow, GS, ICC/IF, IHC-Fr, IHC-P, IP	Hu, Mu, Rt, Fi, Ha, Pm, Sh	399
HIF-1 beta	NB100-124	Mu/Mono	WB, ChIP, GS, ICC/IF, IHC-P, IP	Hu, Mu, Rt, Bv, Fe, Pm, Sh	80
VHL	NB100-485	Rb/Poly	WB, IP	Hu	3
PHD1	NB100-310	Rb/Poly	SW, WB, EM, ICC/IF, IHC-P, IP	Hu, Mu, Rt	35
PHD2	NB100-137	Rb/Poly	SW, WB, Flow, ICC/IF, IHC-P, IP	Hu, Mu, Rt, Pm	56
PHD3	NB100-139	Rb/Poly	WB, EM, ICC/IF, IHC-P, IP	Hu, Mu, Rt	29
Ubiquitin	NB300-130	Mu/Mono	WB, ELISA, ICC/IF, IHC-Fr, IHC-P	Hu, Mu, Rt, Bv, Ce Ch, Dr, PI	10
CREB [p Ser121]	NB100-410	Rb/Poly	WB, IP	Hu, Mu	6
CREB	NB100-56525	Mu/Mono	WB	Hu	-
KAT3B/p300	NB100-616	Mu/Mono	WB, ChIP, EM, ICC/IF, IP, In vitro	Hu, Mu, Rt, Pm, Md	7

*Most cited HIF1 alpha antibody among offerings from all antibody companies.

1,000+ Novus antibodies are Simple Western Certified

Learn more:
novusbio.com/proteinsimple



Over 21 color options through our pre- & custom-conjugation offerings on most primary antibodies

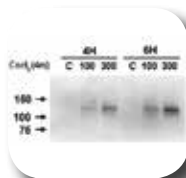
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Popular Antibodies for Various Hypoxia Inducible Factors (HIFs)

HIF-1 alpha Antibody (H1alpha67) NB100-105 (573 publications)

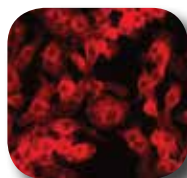
Species: Hu, Mu, Rt, Po, Bv, Fe, Pm, Rb, Sh, Xp, Ye
Applications: WB, ChIP, ELISA, Flow, GS, ICC/IF, IHC-Fr, IHC-P, IP



WB analysis of CoCl₂ induced Caki-1 cells lysate with HIF1 alpha antibody clone H1alpha67.

HIF-1 alpha Antibody (ESEE122) NB100-131 (50 publications)

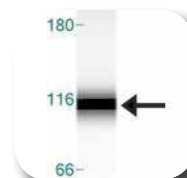
Species: Hu, Mu, Rt, Bv, Ca
Applications: SW, WB, ICC/IF, IHC-Fr, IHC-P, IP



ICC-IF analysis of RAW264.7 cells using HIF-1 alpha antibody clone ESEE122.

HIF-1 alpha Antibody NB100-134 (99 publications)

Species: Hu, Mu, Rt, Ca, Gp, SW, Pm, Xp
Applications: SW, WB, ChIP, GS, ICC/IF, IHC-Fr, IHC-P, IP



Simple Western (SW) analysis of hypoxic HeLa cells lysate with HIF-1 alpha antibody.

HIF-2 alpha Antibody NB100-122 (399 publications)

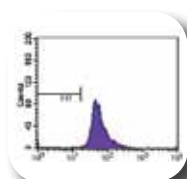
Species: Hu, Mu, Rt, Fi, Ha, Pm, Sh
Applications: SW, WB, ChIP, ELISA, Flow, GS, ICC/IF, IHC-Fr, IHC-P, IP



WB analysis of WT and VHL - KO 786-O cells lysate using HIF-2 alpha antibody.

HIF-2 alpha Antibody (ep190b) NB100-132 (133 publications)

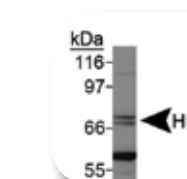
Species: Hu, Mu, Rt, Ha
Applications: SW, WB, ChIP, ELISA, Flow, ICC/IF, IHC-Fr, IHC-P, IP, GS



FLOW analysis of HepG2 cells using HIF-2 alpha antibody clone ep190b.

HIF-3 alpha Antibody NB100-2287 (2 publications)

Species: Hu, Mu
Applications: WB



WB analysis of Jurkat cells lysate using HIF-3 alpha antibody.

HIF-3 alpha Antibody NB100-2529 (5 publications)

Species: Hu, Mu
Applications: WB, ICC/IF, IP



ICC-IF analysis of HeLa cells using HIF3 alpha antibody.

HIF-1 beta Antibody NB100-110 (28 publications)

Species: Hu, Mu, Rt, Bv, Fe, Sh
Applications: SW, WB, ChIP, ICC/IF, IHC-P, IP, GS



WB analysis of MCF7 cells lysate using HIF-1 beta antibody.

HIF-1 beta Antibody (H1beta234) NB100-124 (80 publications)

Species: Hu, Mu, Rt, Bv, Fe, Pm, Sh
Applications: WB, ChIP, GS, ICC/IF, IHC-P, IP



IHC-P analysis of human glioblastoma section using HIF-1 beta antibody clone H1beta234.

Control Lysates for Hypoxia Experiments

Novus offers ready to use true hypoxic/normoxic and hypoxia mimetic (CoCl₂ induced) control lysates for WB assays.

Lysate	Catalog#	Preparation Notes
HeLa (hypoxic/normoxic pair)	NBP2-36452	Whole cell lysate of HeLa cells grown under true hypoxic conditions wherein the oxygen level in the incubator was reduced to 2% for 4 hours
HeLa (CoCl ₂ treated/untreated pair)	NBP2-36450	Whole cell lysate of HeLa cells that were cultured using standard conditions and then exposed or not to 100 μM CoCl ₂ for 4 hours
HepG2 (hypoxic/normoxic pair)	NBP2-36453	Whole cell lysate of HepG2 cells grown under true hypoxic conditions wherein the oxygen level in the incubator was reduced to 2% for 4 hours
HepG2 (CoCl ₂ treated/untreated pair)	NBP2-36451	Whole cell lysate of HepG2 cells that were cultured using standard conditions and then exposed or not to 100 μM CoCl ₂ for 4 hours
Cos7 (CoCl ₂ treated/untreated pair)	NB800-PC26	Nuclear lysate of COS-7 cells that were exposed or not to 16-hour incubation with 150 μM of CoCl ₂

These lysates are provided in Laemmli sample buffer with added beta-mercaptoethanol.

Popular Antibodies for Hypoxia Signaling Targets

Significance	Target	Catalog#	Host/Clonality	Applications	Species	Publications
Angiogenesis	VEGF	NB100-664	Mu/Mono	WB, ELISA, ICC/IF, IHC-Fr, IHC-P	Hu, Mu, Rt, Ca	24
Angiogenesis	VEGF	NB100-648	Mu/Mono	WB, ELISA, ICC/IF, IHC-P, IP, RIA	Hu, Po, Bv, Sh	10
Angiogenesis	VEGFR1	NB100-527	Rb/Poly	WB, ICC-IF, IHC-P	Hu	2
Angiogenesis	VEGFR2	NB100-627	Rb/Poly	WB, IHC-P, IP	Hu, Mu	6
Angiogenesis	TIE2	NBP1-69753	Rb/Poly	SW, WB, IHC-P	Hu, Mu	-
Cellular Survival	BNIP3	NBP1-77683	Rb/Poly	ICC/IF, IHC-P	Hu, Mu	1
Cellular Survival	WT1	NB110-60011	Mu/Mono	SW, WB, IHC-Fr, IHC-P, IP	Hu, Mu	4
Cellular Proliferation	IGFBP-2	NBP1-28891	Mu/Mono	WB, ELISA, IHC-Fr, IHC-P	Hu	1
Cellular Proliferation	CDKN1A	NBP2-29463	Mu/Mono	WB, ELISA, Flow, ICC/IF, IHC-Fr, IHC-P, IP	Hu, Mu, Rt, Pm	8
Cellular Proliferation	Cyclin D1	NBP2-24695	Rb/Poly	WB, IHC-P	Hu	1
Cellular Proliferation	IGF-II	NBP2-37462	Mu/Mono	WB, ELISA, Flow, ICC/IF, IHC-P	Hu	-
Energy Metabolism	Glut1	NB110-39113	Rb/Poly	WB, ChIP, Flow, ICC/IF, IHC-Fr	Hu, Mu	10
Energy Metabolism	Glut3	NBP1-89762	Rb/Poly	WB, IHC-P	Hu	2
Energy Metabolism	LDHA	NBP1-48336	Rb/Poly	WB, SW, ICC/IF, IHC-Fr, IHC-P	Hu, Mu	1
Energy Metabolism	GAPDH	NBP2-27103	Mu/Mono	SW, WB, ICC/IF, IHC-P	Hu, Mu, Rt, Dr, Pm	7
Energy Metabolism	PKM1	NBP2-14833	Rb/Poly	SW, WB, ICC/IF, IHC-P	Hu, Mu	6
Energy Metabolism	PKM2	NBP1-48308	Rb/Poly	SW, WB, ICC/IF, IHC-P	Hu, Mu, Rt	6
Energy Metabolism	PDK1	NB100-2383	Rb/Poly	WB, ICC/IF	Hu	3
Erythropoiesis	EPO	NBP1-51648	Mu/Mono	WB, ELISA, ICC/IF	Hu	-
Extra-cellular Matrix	COL5A1	NBP1-19633	Rb/Poly	WB, ICC/IF, IHC-P	Hu, Mu, Rt	4
Extra-cellular Matrix	FN1	NBP1-91258	Rb/Poly	SW, WB, ICC/IF, IHC-P	Hu, Mu	4
Invasion & Metastasis	MMP2	NB200-193	Rb/Poly	WB, Flow, ICC/IF, IHC-Fr, IHC-P	Hu, Mu, Rt, Ch	19
Invasion & Metastasis	VIM	NB300-223	Ch/Poly	WB, ICC/IF, IHC-Fr, IHC-P	Hu, Mu, Rt	12
Invasion & Metastasis	CDH1	NBP2-19051	Mu/Mono	WB, ELISA, Flow, ICC/IF, IHC-P	Hu, Mu, Rt, Pm	1
Iron Metabolism	TF	NBP1-87221	Rb/Poly	WB, ICC/IF, IHC-P	Hu	1
Iron Metabolism	TFRC	NB100-92243	Rb/Poly	WB, ICC/IF, IHC-P	Hu, Mu, Rt	4
Multidrug Resistance	MDR1	NB600-1036	Mu/Mono	WB, B/N, ICC/IF, IHC-P, IP	Hu, Mu, Rt, Ca, Pm	10
pH Regulation	CA-IX	NB100-417	Rb/Poly	SW, WB, ELISA, GS, ICC/IF, IHC-Fr, IHC-P, ChIP	Hu, Mu, Rt, Ca, PI	98
Stem Cell Properties	DLK1	NBP2-37548	Mu/Mono	WB, ELISA, Flow, ICC/IF	Hu	-
Stem Cell Properties	KDM5B	NBP1-97310	Rb/Poly	WB, Flow, ICC/IF, IHC-P	Hu	2
Stem Cell Properties	OCT4	NB100-2379	Rb/Poly	WB, Flow, ICC/IF	Hu, Mu, Rt, Pm	5
Transcription Factor	DEC1	NB100-1800	Rb/Poly	SW, WB, ICC/IF, IHC-P	Hu	7
Transcription Factor	DEC2	NBP1-19613	Rb/Poly	SW, WB, IHC-P	Hu, Mu, Rt	2
Transcription Factor	CITED2	NB100-136	Mu/Mono	WB, ICC/IF, IHC-P	Hu, Mu	12
Transcription Factor	ETS1	NB100-56620	Rb/Poly	WB	Hu	-
Vasomotor Control	iNOS	NBP2-22119	Mu/Mono	WB, ELISA, Flow, IHC-P	Hu, Mu	2
Vasomotor Control	EDN1	NB300-526	Mu/Mono	WB, Flow, ICC/IF, IHC-Fr, IHC-P, RIA	Hu, Mu, Rt, Sh	2
Vasomotor Control	eNOS	NB300-500	Rb/Poly	WB, IHC-P, IHC-Fr	Hu, Mu, Rt, Po, Bv, Ca	6

Frequently Purchased with Hypoxia Related Antibodies

Significance	Target	Catalog#	Host/Clonality	Applications	Species	Publications
Angiogenesis	CD31	NB600-562	Mu/Mono	WB, ELISA, IHC-Fr, IHC-P	Hu, Rb	12
Angiogenesis	CD31	NB100-1642	Rt/Mono	Flow, ICC/IF, IHC-Fr, IP	Mu	14
Autophagy	LC3B	NB100-2220	Rb/Poly	SW, WB, ICC/IF, IHC-P & more	Hu, Mu, Rt, Ze & more	368
Oxygen Sensing	NOX4	NB110-58849	Rb/Poly	WB, ICC/IF, IHC-Fr, IHC-P	Hu, Mu, Rt & more	30
UPR	ERN1 [pSer724]	NB100-2323	Rb/Poly	WB, ELISA, IHC-Fr, IHC-P, IP	Hu, Mu, Rt, Rb	80

Species Key: Hu (Human), Mu (Mouse), Rt (Rat), Bv (Bovine), Ba (Bacteria), Ca (Canine), Ch (Chicken), Dr (Drosophila), Fi (Fish), Po (Porcine), Pm (Non-human Primates), Rb (Rabbit), Xp (Xenopus), Ze (Zebrafish), Ce (C. elegans), Md (Mustelid), Pl (Plant), Ye (Yeast)

Applications Key: B/N (Blocking/Neutralization), ChIP (Chromatin Immunoprecipitation), ELISA (ELISA Capture and/or Detection), FLOW (Flow Cytometry), ICC-IF (Immunocytochemistry/Immunofluorescence), IHC-P (Immunohistochemistry-Paraffin), IHC-Fr (Immunohistochemistry-Frozen), IP (Immunoprecipitation), GS (Gel Supershift), SW (Simple Western), WB (Western blot), RIA (Radioimmunoassay), EM (Electron Microscopy)

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