

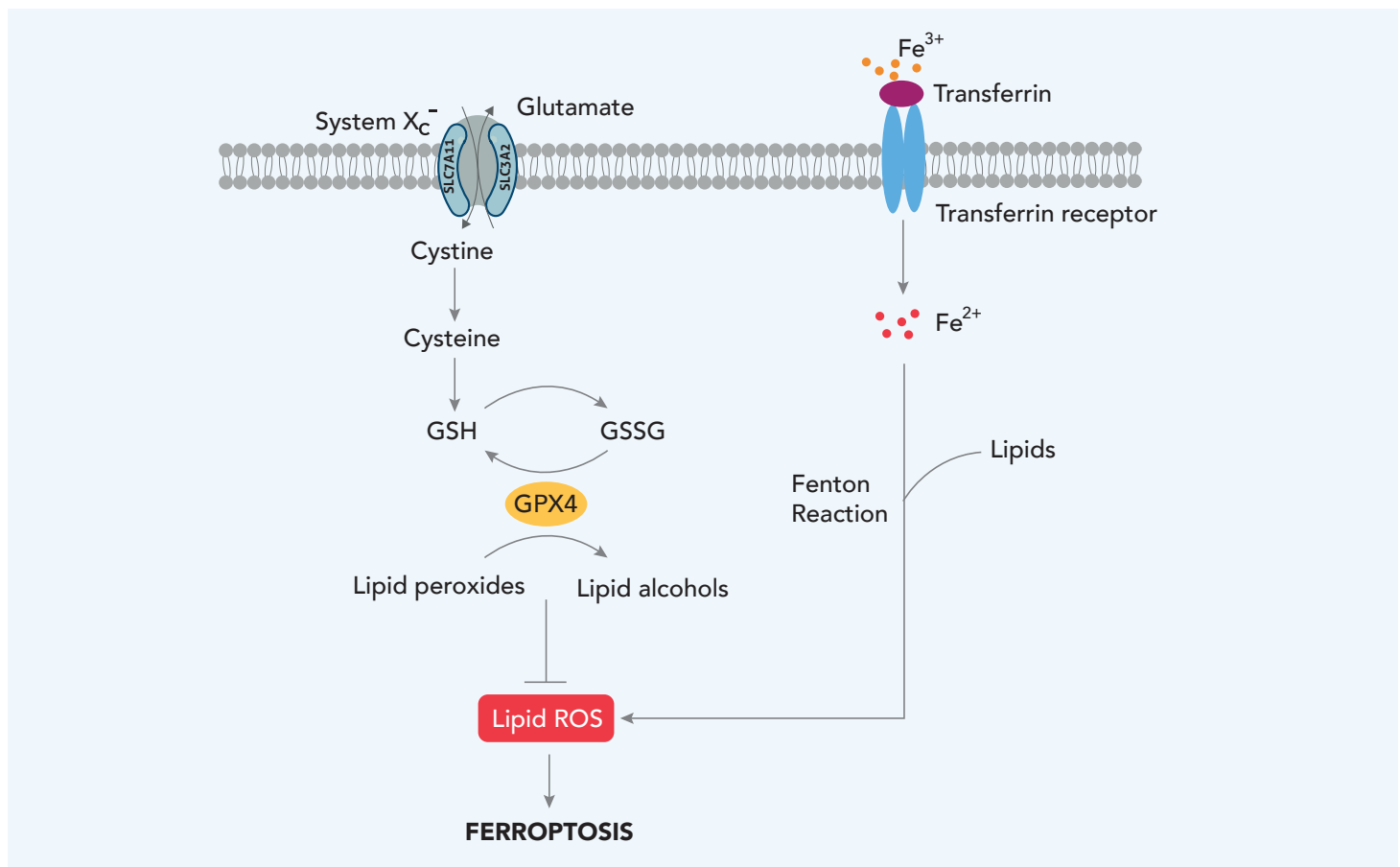
Ferroptosis Research

Ferroptosis is an iron-dependent form of regulated cell death characterized by the increase in intracellular reactive oxygen species (ROS) levels. The primary morphological hallmark of ferroptosis is decrease in mitochondrial accompanied by a loss of mitochondrial cristae, which is typically not seen in other cell death pathways.

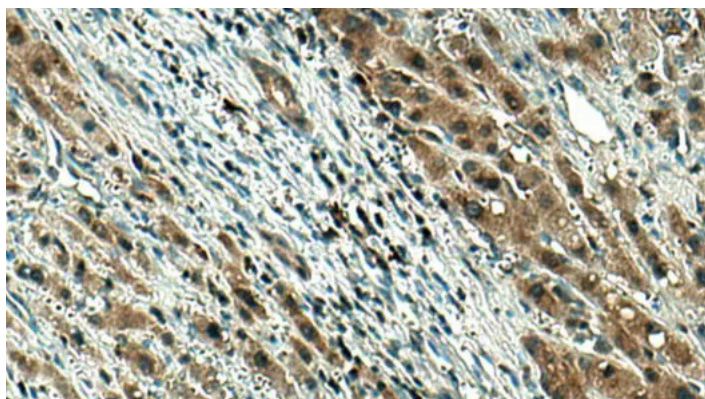
The peroxidase GPX4, whose activity relies on glutathione (GSH) biosynthesis is a key regulator of the ferroptosis pathway. GPX4 utilizes GSH as a cofactor to reduce intracellular toxic lipid peroxides into lipid alcohols. Inactivation of GPX4 caused by intracellular GSH depletion leads to ROS accumulation, thereby triggering ferroptosis. Ferroptosis can also be regulated by the cell surface cysteine-glutamate antiporter (system x_c^-)

consisting of SLC7A11 and SLC3A2 in conjunction with the glutathione metabolic pathway. Inhibition of system x_c^- prevents glutathione synthesis by inhibiting cysteine absorption, leading to oxidative stress and impairment of GPX4 activity, which in turn promotes ferroptosis.

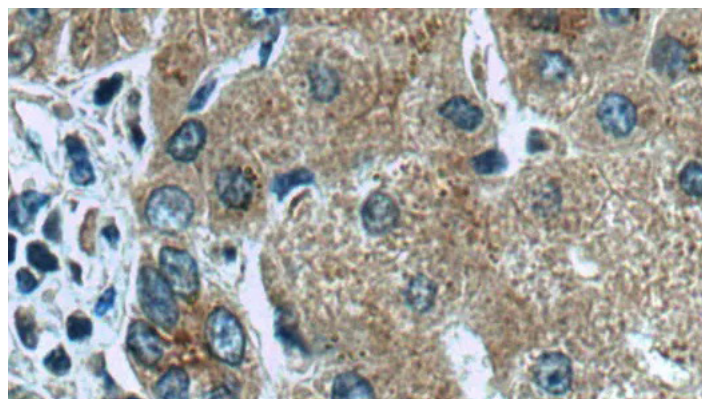
Transferrin receptor plays a crucial role in ferroptosis by regulating the cellular uptake of iron, which then mediates the peroxidation of lipids via Fenton reactions leading to the induction of ferroptotic cell death. Recently, several GPX4-independent pathways including the FSP1-CoQ10 pathway, and the ESCRT-III-dependent membrane repair pathway have been shown to be involved in the regulation of ferroptosis.



Unconjugated Primary Antibodies for Ferroptosis Research



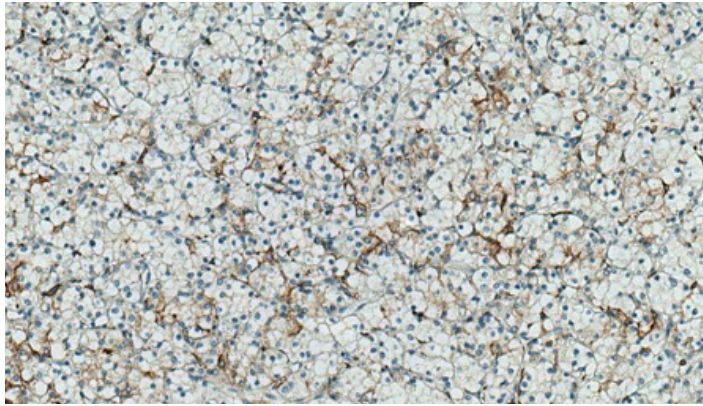
IHC analysis of human liver cancer tissue using monoclonal GPX4 antibody (67763-1-Ig).



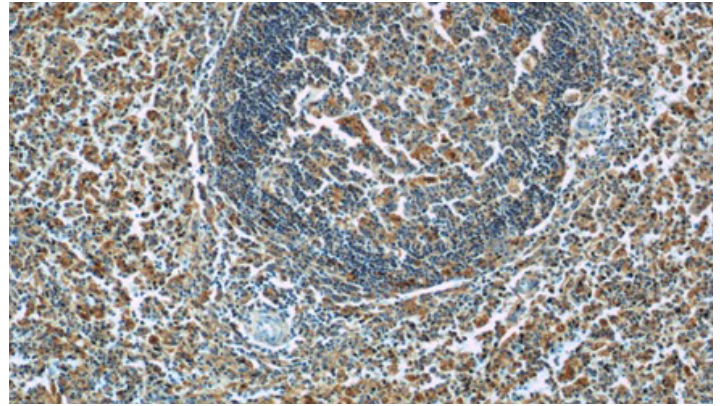
IHC analysis of human heart tissue using polyclonal FSP1 antibody (20886-1-AP).

Catalog No.	Antigen	Clonality	Applications
10021-1-Ig	5 Lipoxygenase	Polyclonal	WB, IHC, IF, ELISA
10084-2-AP	CD71	Polyclonal	WB, IP, IHC, IF, ELISA
10088-2-AP	ATG7	Polyclonal	WB, IP, IHC, IF, ELISA
10181-2-AP	ATG5	Polyclonal	WB, IHC, IF, FC, ELISA
10274-1-AP	TAU	Polyclonal	WB, IHC, IF, ELISA
10355-1-AP	P21	Polyclonal	WB, IP, IHC, IF, FC, CoIP, ELISA
10442-1-AP	P53	Polyclonal	WB, IP, IF, CoIP, ChIP, ELISA
10503-2-AP	KEAP1	Polyclonal	WB, IP, IHC, IF, CoIP, ELISA
10701-1-AP	HO-1/HMOX1	Polyclonal	WB, IP, IHC, IF, FC, CoIP, ELISA
10708-1-AP	SAT1	Polyclonal	WB, IP, IHC, IF, ELISA
10727-1-AP	Ferritin light chain	Polyclonal	WB, IP, IHC, IF, ELISA
11061-2-AP	RBMS1	Polyclonal	WB, IP, IF, ELISA
11148-1-AP	Hephaestin	Polyclonal	WB, IHC, ELISA
11194-1-AP	AKR1C3	Polyclonal	WB, IP, IHC, ELISA
11257-1-AP	ERK1/2	Polyclonal	WB, IHC, IF, FC, ELISA
11587-1-AP	GRP78/BIP	Polyclonal	WB, IP, IHC, IF, FC, CoIP, ELISA
11663-1-AP	VDAC2	Polyclonal	WB, IP, IHC, IF, ELISA
11899-1-AP	TERF1	Polyclonal	WB, IP, IHC, IF, ELISA
12015-1-AP	NDRG2	Polyclonal	WB, IP, IHC, ELISA
12375-1-AP	COX2/ Cyclooxygenase 2/ PTGS2	Polyclonal	WB, IHC, IF, ELISA
12601-1-AP	GCLC	Polyclonal	WB, IP, IHC, ELISA
12919-1-AP	PKC Beta	Polyclonal	WB, IP, IHC, FC, ELISA
13128-1-AP	FDFT1	Polyclonal	WB, IP, IHC, IF, ELISA
13533-1-AP	HMGCR	Polyclonal	IHC, IF, ELISA
14787-1-AP	CBS	Polyclonal	WB, IP, IHC, IF, ELISA
14812-1-AP	ISCU	Polyclonal	WB, IP, IHC, IF, ELISA

Catalog No.	Antigen	Clonality	Applications
15070-1-AP	PCBP2	Polyclonal	WB, IHC, IF, CoIP, ELISA
15109-1-AP	PHKG2	Polyclonal	WB, IP, IHC, IF, ELISA
15193-1-AP	CD98/SLC3A2	Polyclonal	WB, IP, IHC, IF, FC, ELISA
15194-1-AP	DHFR	Polyclonal	WB, IP, IHC, IF, ELISA
15207-1-AP	CHAC1	Polyclonal	WB, IHC, IF, ELISA
15296-1-AP	CARS	Polyclonal	WB, IHC, IF, ELISA
15712-1-AP	GSS	Polyclonal	WB, IHC, IF, ELISA
16006-1-AP	CISD1	Polyclonal	WB, IP, IHC, IF, FC, ELISA
16131-1-AP	Citrate synthase	Polyclonal	WB, IP, IHC, IF, CoIP, ELISA
16140-1-AP	ACSF2	Polyclonal	WB, IHC, IF, ELISA
16396-1-AP	NRF2, NFE2L2	Polyclonal	WB, IP, IHC, IF, FC, CoIP, ChIP, ELISA
16981-1-AP	RPL8	Polyclonal	WB, ELISA
17435-1-AP	Transferrin	Polyclonal	WB, IHC, IF, ELISA
17772-1-AP	NOX1	Polyclonal	WB, IHC, ELISA
18284-1-AP	HSP27	Polyclonal	WB, IP, IHC, IF, FC, ELISA
18420-1-AP	P62,SQSTM1	Polyclonal	WB, IP, IHC, IF, FC, CoIP, ELISA
19013-1-AP	NOX2	Polyclonal	WB, IHC, IF, ELISA
19543-1-AP	Phospho-FANCD2 (Ser330)	Polyclonal	WB, IHC, ELISA
20459-1-AP	ZIP8	Polyclonal	WB, IP, IHC, IF, FC, ELISA
20507-1-AP	DMT1	Polyclonal	WB, IHC, IF, ELISA
20886-1-AP	AIFM2/ FSP1	Polyclonal	WB, IP, IHC, IF, ELISA
21131-1-AP	Ceruloplasmin	Polyclonal	WB, IHC, ELISA
21891-1-AP	P53	Polyclonal	WB, IP, IHC, IF, CoIP, ELISA
21898-1-AP	TGF Beta 1	Polyclonal	WB, IHC, IF, FC, Cell treatment, ELISA
21991-1-AP	PKC Alpha	Polyclonal	WB, IP, IHC, IF, FC, ELISA
22401-1-AP	ACSL4/FACL4	Polyclonal	WB, IP, IHC, IF, ELISA
23829-1-AP	IREB2	Polyclonal	WB, IHC, IF, CoIP, ELISA
25443-1-AP	TTC35	Polyclonal	WB, IP, ELISA
26864-1-AP	SLC7A11/xCT	Polyclonal	WB, RIP, IHC, IF, ELISA
27308-1-AP	COX2/ Cyclooxygenase 2/ PTGS2	Polyclonal	WB, IHC, IF, ELISA
28273-1-AP	mTOR	Polyclonal	WB, IHC, ELISA
28413-1-AP	ATG7	Polyclonal	WB, IHC, ELISA
28501-1-AP	GCH1	Polyclonal	WB, ELISA
28619-1-AP	FANCD2	Polyclonal	WB, IHC, IF, ELISA
28733-1-AP	Phospho-ERK1/2 (Thr202/Tyr204)	Polyclonal	WB, IP, IHC, IF, ELISA
28866-1-AP	Phospho-Tau (Thr181)	Polyclonal	WB, IF, ELISA
28900-1-AP	Phospho-HSP27 (Ser78)	Polyclonal	WB, ELISA
28926-1-AP	Phospho-PKC Alpha (Ser657)	Polyclonal	WB, ELISA
28960-1-AP	Phospho-P53 (Ser46)	Polyclonal	WB, ELISA
28961-1-AP	Phospho-P53 (Ser15)	Polyclonal	WB, IF, ELISA
28963-1-AP	Phospho-P53 (Ser392)	Polyclonal	WB, ELISA
29123-1-AP	Phospho-PKC Alpha (Thr638)	Polyclonal	WB, ELISA
29403-1-AP	DPP4/CD26	Polyclonal	WB, ELISA
29976-1-AP	IREB2	Polyclonal	WB, IHC, IF, CoIP, ELISA
51068-1-AP	ERK1/2	Polyclonal	WB, IHC, IF, FC, ELISA
55260-1-AP	VDAC3	Polyclonal	WB, IP, IHC, ELISA
55261-1-AP	VDAC2	Polyclonal	WB, IHC, ELISA



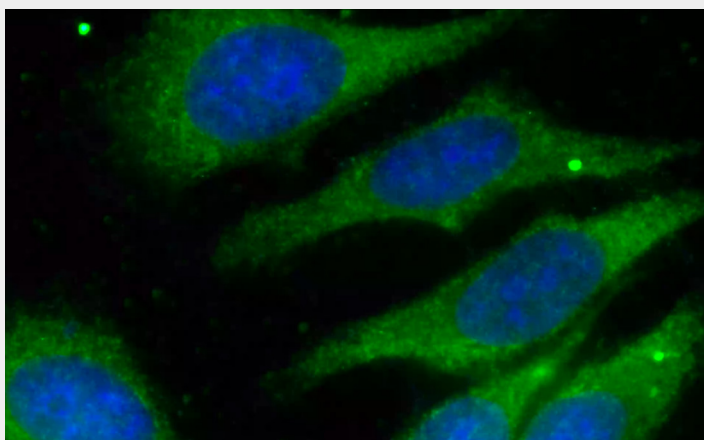
IHC analysis of human renal cell carcinoma tissue slide using monoclonal SLC3A2 antibody (66883-1-Ig).



IHC analysis of human spleen tissue using polyclonal Ferritin light chain antibody (10727-1-AP).

Catalog No.	Antigen	Clonality	Applications
60027-1-Ig	KEAP1	Monoclonal	WB, IHC, IF, ELISA
60283-2-Ig	P53	Monoclonal	WB, IP, IHC, IF, CoIP, ELISA
66156-1-Ig	Ceruloplasmin	Monoclonal	WB, IHC, ELISA
66171-1-Ig	Transferrin	Monoclonal	WB, IHC, IF, ELISA
66180-1-Ig	CD71	Monoclonal	WB, IP, IHC, IF, FC, ELISA
66184-1-Ig	P62,SOSTM1	Monoclonal	WB, IP, IHC, IF, FC, CoIP, ELISA
66326-1-Ig	5 Lipoxygenase	Monoclonal	WB, IHC, ELISA
66351-1-Ig	COX2/ Cyclooxygenase 2/ PTGS2	Monoclonal	WB, IHC, IF, ELISA
66388-1-Ig	VDAC2	Monoclonal	WB, IHC, ELISA
66421-1-Ig	PKC Alpha	Monoclonal	WB, IHC, IF, ELISA
66499-1-Ig	TAU	Monoclonal	WB, IHC, ELISA
66504-1-Ig	NRF2, NFE2L2	Monoclonal	WB, IHC, IF, CoIP, ELISA
66574-1-Ig	GRP78/BIP	Monoclonal	WB, IP, IHC, IF, FC, ELISA
66617-1-Ig	ACSL4	Monoclonal	WB, IHC, ELISA
66743-1-Ig	HO-1/HMOX1	Monoclonal	WB, IHC, IF, CoIP, ELISA
66744-1-Ig	ATG5	Monoclonal	WB, IHC, ELISA
66767-1-Ig	HSP27	Monoclonal	WB, IHC, IF, ELISA
66883-1-Ig	CD98/SLC3A2	Monoclonal	WB, IHC, IF, FC, ELISA
66888-1-Ig	mTOR	Monoclonal	WB, PLA, IP, IHC, IF, ELISA
67191-1-Ig	NDRG2	Monoclonal	WB, IHC, ELISA
67341-1-Ig	ATG7	Monoclonal	WB, IHC, IF, ELISA
67592-1-Ig	TERF1	Monoclonal	WB, ELISA
67598-1-Ig	GSS	Monoclonal	WB, IHC, IF, ELISA
67763-1-Ig	GPX4	Monoclonal	WB, IHC, IF, ELISA
67778-1-Ig	Phospho-mTOR (Ser2448)	Monoclonal	WB, IHC, IF, ELISA
67784-1-Ig	citrate synthase	Monoclonal	WB, IHC, IF, ELISA
67826-1-Ig	Phospho-P53 (Ser15)	Monoclonal	WB, ELISA
67861-1-Ig	CBS	Monoclonal	WB, IHC, ELISA

Catalog No.	Antigen	Clonality	Applications
67882-1-Ig	LPCAT3	Monoclonal	WB, IHC, ELISA
67900-1-Ig	Phospho-P53 (Ser46)	Monoclonal	WB, IHC, FC, ELISA
67933-1-Ig	CARS	Monoclonal	WB, IF, ELISA
68030-1-Ig	CISD1	Monoclonal	WB, IHC, ELISA
68049-1-Ig	AIFM2	Monoclonal	WB, IHC, ELISA
68068-1-Ig	FTL	Monoclonal	WB, IHC, ELISA
69012-1-Ig	NeutraKine® TGF beta 1	Monoclonal	Neutralization, IHC, FC, ELISA
80031-1-RR	Phospho-ERK1/2 (Thr202/Tyr204)	Recombinant	WB, ELISA
80077-1-RR	P53	Recombinant	WB, IF, ELISA
80195-1-RR	Phospho-P53 (Ser15)	Recombinant	WB, ELISA
80294-1-RR	P62,SQSTM1	Recombinant	WB, IHC, IF, ELISA
80593-1-RR	NRF2, NFE2L2	Recombinant	WB, IF, ELISA
80596-1-RR	Phospho-mTOR (Ser2448)	Recombinant	WB, ELISA
80744-1-RR	KEAP1	Recombinant	WB, ELISA
80849-1-RR	GRP78,BIP	Recombinant	WB, IHC, ELISA



NRF2/NFE2L2

Nuclear factor erythroid 2-related factor 2 (NRF2) is a transcription factor that plays a critical role in regulating oxidative homeostasis in cells by inducing the expression of antioxidant and anti-inflammatory genes under conditions of elevated oxidative stress. Several key anti-ferroptotic genes have been identified as downstream targets of NRF2.

Proteintech's recombinant NRF2 Antibody (Cat. No. 80593-1-RR) provides high lot-to-lot consistency and specificity. The image on left shows immunofluorescence analysis of HepG2 cells using our recombinant NRF2 antibody at a dilution of 1:200.

Explore our full range of recombinant antibodies

Genetically defined monoclonals, recombinantly produced. Unrivalled reproducibility. Good for long-term, high-level projects. Proteintech recombinant antibodies are raised in rabbit.

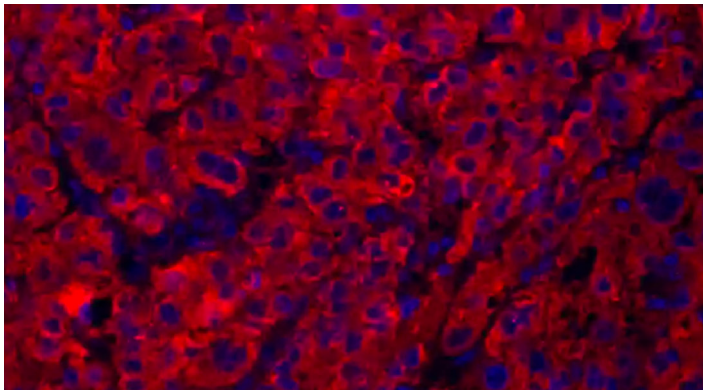
Learn more



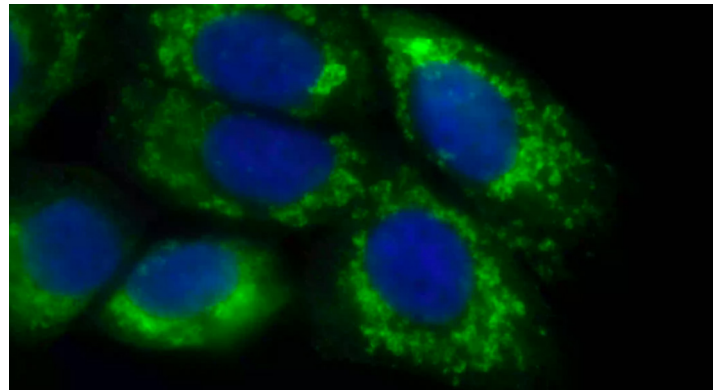
CoraLite® Fluorescent Dye-Conjugated Antibodies for Ferroptosis Research

Catalog No.	Antigen	Clonality	Applications
CL488-10181	ATG5	Polyclonal	FC (Intra)
CL488-10442	P53	Polyclonal	IF, FC (Intra)
CL488-10503	KEAP1	Polyclonal	IF
CL488-10701	HO-1/HMOX1	Polyclonal	IF
CL488-11257	ERK1/2	Polyclonal	FC (Intra)
CL488-11587	GRP78/BIP	Polyclonal	IF, FC (Intra)
CL488-12919	PKC Beta	Polyclonal	FC (Intra)
CL488-16396	NRF2, NFE2L2	Polyclonal	IF, FC (Intra)
CL488-21991	PKC Alpha	Polyclonal	FC (Intra)
CL488-51068	ERK1/2	Polyclonal	FC (Intra)
CL488-66171	Transferrin	Monoclonal	IF
CL488-66184	P62,SQSTM1	Monoclonal	IF
CL488-66192	ERK1/2	Monoclonal	IF, FC (Intra)
CL488-66388	VDAC2	Monoclonal	FC (Intra)
CL488-66421	PKC Alpha	Monoclonal	IF, FC (Intra)
CL488-66574	GRP78/BIP	Monoclonal	WB
CL488-66743	HO-1/HMOX1	Monoclonal	IF, FC (Intra)
CL488-66767	HSP27	Monoclonal	IF, FC(Intra)
CL488-66883	CD98/SLC3A2	Monoclonal	IF
CL488-67341	ATG7	Monoclonal	IF
CL488-67763	GPX4	Monoclonal	IF
CL488-67778	Phospho-mTOR (Ser2448)	Monoclonal	IF, FC (Intra)
CL488-67784	Citrate synthase	Monoclonal	IF
CL488-67826	Phospho-P53 (Ser15)	Monoclonal	FC (Intra)
CL488-80077	P53	Recombinant	IF, FC (Intra)
CL555-51068	ERK1/2	Polyclonal	IF
CL555-80077	P53	Recombinant	IF, FC (Intra)
CL594-10181	ATG5	Polyclonal	FC (Intra)
CL594-10442	P53	Polyclonal	IF, FC (Intra)
CL594-10503	KEAP1	Polyclonal	IF
CL594-10701	HO-1/HMOX1	Polyclonal	IF
CL594-11587	GRP78/BIP	Polyclonal	IF
CL594-16396	NRF2, NFE2L2	Polyclonal	IF, FC (Intra)
CL594-66171	Transferrin	Monoclonal	IF
CL594-66180	CD71	Monoclonal	IF
CL594-66184	P62,SQSTM1	Monoclonal	IF
CL594-66192	ERK1/2	Monoclonal	IF, FC (Intra)
CL594-66388	VDAC2	Monoclonal	FC (Intra)
CL594-66421	PKC Alpha	Monoclonal	IF
CL594-66574	GRP78/BIP	Monoclonal	WB
CL594-66743	HO-1/HMOX1	Monoclonal	IF, FC (Intra)
CL594-66767	HSP27	Monoclonal	IF

Catalog No.	Antigen	Clonality	Applications
CL594-66883	CD98/SLC3A2	Monoclonal	IF
CL594-66888	mTOR	Monoclonal	IF
CL594-67341	ATG7	Monoclonal	IF, FC (Intra)
CL594-67763	GPX4	Monoclonal	IF
CL594-67778	Phospho-mTOR (Ser2448)	Monoclonal	IF, FC (Intra)
CL594-80077	P53	Recombinant	IF, FC (Intra)
CL595-18420	P62,SQSTM1	Polyclonal	FC (Intra)
CL647-67784	Citrate synthase	Monoclonal	IF
CL647-67826	Phospho-P53 (Ser15)	Monoclonal	FC (Intra)
CL647-69012	TGF beta 1	Monoclonal	FC (Intra)
CL650-12919	PKC Beta	Polyclonal	FC (Intra)
CL650-16006	CISD1	Polyclonal	FC (Intra)
CL650-18420	P62,SQSTM1	Polyclonal	FC (Intra)
CL650-21991	PKC Alpha	Polyclonal	FC (Intra)
CL650-51068	ERK1/2	Polyclonal	FC (Intra)
CL650-65235	CD71	Monoclonal	FC
CL650-66574	GRP78/BIP	Monoclonal	FC (Intra)
FITC-65235	CD71	Monoclonal	FC



Immunofluorescent analysis of human liver cancer tissue using CoraLite®594 Transferrin antibody (CL594-66171, Clone: 2B4C6).

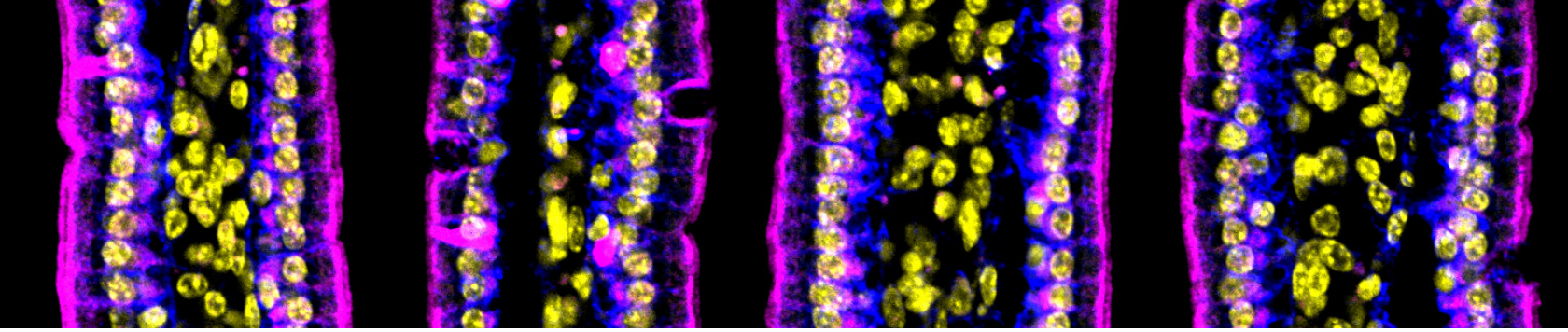


Immunofluorescence analysis of MCF-7 cells using CoraLite®488 citrate synthase antibody (CL488-67784, Clone: 2F9G6)

FlexAble

Can't find conjugated fluorescent antibodies against your protein targets? Try our **NEW FlexAble** Antibody Labeling Kits to label your favorite primary antibodies with any color of your choice. [Learn more](#)





Publish faster with Proteintech

Proteintech products have been cited over 150,000 times in journals worldwide and enable scientists to publish reliable and reproducible results.

What makes Proteintech antibodies different?

- Developed and validated by Proteintech scientists
- Risk-free trial of antibodies for any species and any application with our Proteintech Guarantee
- Specificity verified by **KD/KO Validation**
- Lot-to-lot consistency
- Trial sizes available

We also offer

- Primary antibodies against 13,500+ human targets
- CoraLite® conjugated antibodies for immunofluorescence
- Secondary antibodies
- Loading control and isotype control antibodies
- NeutraKine™ neutralizing antibodies
- FlexAble Antibody Labeling Kits
- ELISA kits
- IHCeasy Ready-to-use kits
- Cell separation kits
- Western blot and flow cytometry supporting reagents

