# VCP Recombinant Monoclonal Antibody

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| **Product Code** | CSB-RA182227A0HU |
| **Storage** | Upon receipt, store at -20°C or -80°C. Avoid repeated freeze. |
| **Uniprot No.** | P55072 |
| **Immunogen** | A synthesized peptide derived from human VCP |
| **Species Reactivity** | Human, Rat |
| **Tested Applications** | ELISA, WB, IHC, IF, IP; Recommended dilution: WB:1:500-1:5000, IHC:1:50-1:200, IF:1:20-1:200, IP:1:200-1:1000 |
| **Relevance** | Necessary for the fragmentation of Golgi stacks during mitosis and for their reassembly after mitosis. Involved in the formation of the transitional endoplasmic reticulum (tER). The transfer of membranes from the endoplasmic reticulum to the Golgi apparatus occurs via 50-70 nm transition vesicles which derive from part-rough, part-smooth transitional elements of the endoplasmic reticulum (tER). Vesicle budding from the tER is an ATP-dependent process. The ternary complex containing UFD1, VCP and NPLOC4 binds ubiquitinated proteins and is necessary for the export of misfolded proteins from the ER to the cytoplasm, where they are degraded by the proteasome. The NPLOC4-UFD1-VCP complex regulates spindle disassembly at the end of mitosis and is necessary for the formation of a closed nuclear envelope. Regulates E3 ubiquitin-protein ligase activity of RNF19A. Component of the VCP/p97-AMFR/gp78 complex that participates in the final step of the sterol-mediated ubiquitination and endoplasmic reticulum-associated degradation (ERAD) of HMGCR. Involved in endoplasmic reticulum stress-induced pre-emptive quality control, a mechanism that selectively attenuates the translocation of newly synthesized proteins into the endoplasmic reticulum and reroutes them to the cytosol for proteasomal degradation (PubMed:26565908). Also involved in DNA damage response: recruited to double-strand breaks (DSBs) sites in a RNF8- and RNF168-dependent manner and promotes the recruitment of TP53BP1 at DNA damage sites (PubMed:22020440, PubMed:22120668). Recruited to stalled replication forks by SPRTN: may act by mediating extraction of DNA polymerase eta (POLH) to prevent excessive translesion DNA synthesis and limit the incidence of mutations induced by DNA damage (PubMed:23042607, PubMed:23042605). Required for cytoplasmic retrotranslocation of stressed/damaged mitochondrial outer-membrane proteins and their subsequent proteasomal degradation (PubMed:16186510, PubMed:21118995). Essential for the maturation of ubiquitin-containing autophagosomes and the clearance of ubiquitinated protein by autophagy (PubMed:20104022). Acts as a negative regulator of type I interferon production by interacting with DDX58/RIG-I: interaction takes place when DDX58/RIG-I is ubiquitinated via 'Lys-63'-linked ubiquitin on its CARD domains, leading to recruit RNF125 and promote ubiquitination and degradation of DDX58/RIG-I (PubMed:26471729). |
| **Form** | Liquid |
| **Conjugate** | Non-conjugated |

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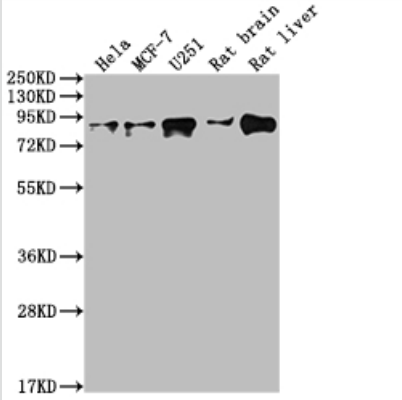
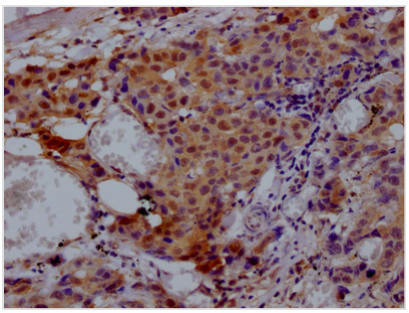
| **Storage Buffer** | Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. |
| **Purification Method** | Affinity-chromatography |
| **Isotype** | Rabbit IgG |
| **Clonality** | Monoclonal |
| **Product Type** | Recombinant Antibody |
| **Immunogen Species** | Homo sapiens (Human) |
| **Research Area** | Neuroscience; Metabolism; Signal transduction |
| **Gene Names** | VCP |
| **Clone No.** | 5H12 |

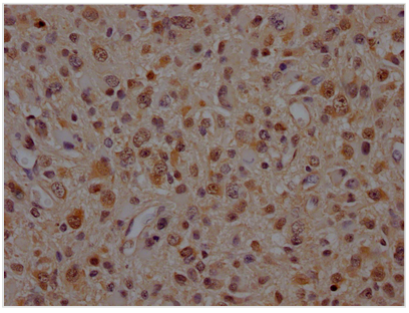
**Image**



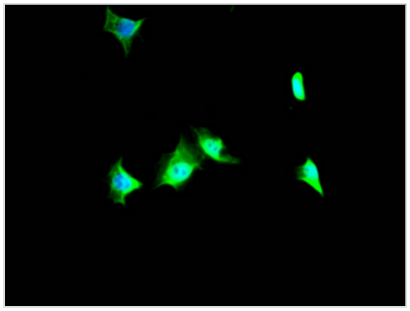

Western Blot
Positive WB detected in: Hela whole cell lysate, MCF-7 whole cell lysate, U251 whole cell lysate, Rat brain tissue, Rat liver tissue
All lanes: VCP antibody at 1:2000
Secondary
Goat polyclonal to rabbit IgG at 1/50000 dilution
Predicted band size: 90 kDa
Observed band size: 90 kDa



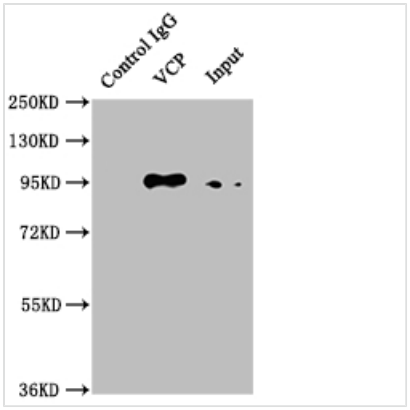
IHC image of CSB-RA182227A0HU diluted at 1:100 and staining in paraffin-embedded human breast cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a Goat anti-rabbit IgG polymer labeled by HRP and visualized using 0.05% DAB.



IHC image of CSB-RA182227A0HU diluted at 1:100 and staining in paraffin-embedded human glioma cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a Goat anti-rabbit IgG polymer labeled by HRP and visualized using 0.05% DAB.



Immunofluorescence staining of SY5Y Cells with CSB-RA182227A0HU at 1:50, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeated by 0.2% TritonX-100, and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4?. Nuclear DNA was labeled in blue with DAPI. The secondary antibody was FITC-conjugated AffiniPure Goat Anti-Rabbit IgG (H+L).




Immunoprecipitating VCP in U251 whole cell lysate
Lane 1: Rabbit control IgG instead of CSB-RA182227A0HU in U251 whole cell lysate. For western blotting,a HRP-conjugated Protein G antibody was used as the secondary antibody (1/2000)
Lane 2: CSB-RA182227A0HU(2µg)+ U251 whole cell lysate(500µg)
Lane 3: U251 whole cell lysate (10µg)

## Description

The VCP recombinant monoclonal antibody is used to detect human and rat VCP proteins in five applications including ELISA, WB, IHC, IF, and IP. It is produced through recombinant DNA technology by synthesizing the gene coding for the VCP monoclonal antibody after sequencing the cDNA of the VCP antibody-producing hybridomas. The hybridomas are created by fusing myeloma cells with B cells that were isolated from an animal immunized with a synthesized peptide derived from human VCP. The synthesized gene is then cloned into a vector and then transfected into cells for cultivation. The resulting VCP recombinant monoclonal antibody undergoes affinity chromatography purification.

The VCP protein, also known as p97, is a highly conserved member of the AAA+ (ATPases associated with various cellular activities) family. VCP plays a critical role in protein quality control by acting as an ATP-dependent molecular chaperone that mediates the degradation of misfolded proteins through the ubiquitin-proteasome system. It is also involved in DNA damage repair, membrane fusion, autophagy, and regulation of transcription factors. Mutations in the VCP gene have been associated with a range of human diseases, including the inclusion of body myopathy with Paget's disease of bone and frontotemporal dementia (IBMPFD).