

# CPTC-ARG1-1(CAB080011)

**Uniprot ID:** [P05089](#)

**Protein name:** ARG1\_HUMAN

**Full name:** Arginase-1

**Tissue specificity:** Within the immune system initially reported to be selectively expressed in granulocytes (polymorphonuclear leukocytes [PMNs]) (PubMed:15546957). Also detected in macrophages mycobacterial granulomas (PubMed:23749634). Expressed in group2 innate lymphoid cells (ILC2s) during lung disease (PubMed:27043409).

**Function:** Key element of the urea cycle converting L-arginine to urea and L-ornithine, which is further metabolized into metabolites proline and polyamides that drive collagen synthesis and bioenergetic pathways critical for cell proliferation, respectively; the urea cycle takes place primarily in the liver and, to a lesser extent, in the kidneys. Functions in L-arginine homeostasis in nonhepatic tissues characterized by the competition between nitric oxide synthase (NOS) and arginase for the available intracellular substrate arginine. Arginine metabolism is a critical regulator of innate and adaptive immune responses. Involved in an antimicrobial effector pathway in polymorphonuclear granulocytes (PMN). Upon PMN cell death is liberated from the phagolysosome and depletes arginine in the microenvironment leading to suppressed T cell and natural killer (NK) cell proliferation and cytokine secretion (PubMed:15546957, PubMed:16709924, PubMed:19380772). In group 2 innate lymphoid cells (ILC2s) promotes acute type 2 inflammation in the lung and is involved in optimal ILC2 proliferation but not survival (By similarity). In humans, the immunological role in the monocytic/macrophage/dendritic cell (DC) lineage is unsure.

**Subcellular location:**

Cytoplasm (*experimental evidence*)

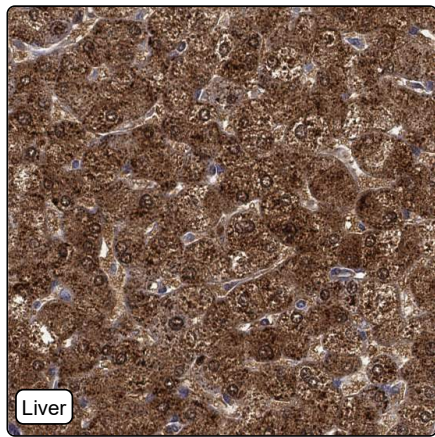
Cytoplasmic granule (*experimental evidence*)

**NOTE:** Localized in azurophil granules of neutrophils (PubMed:15546957).

**Protein existence:** Experimental evidence at protein level

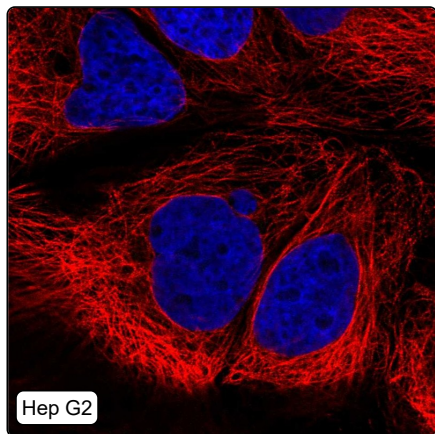
**Comment:**

## Immunohistochemistry



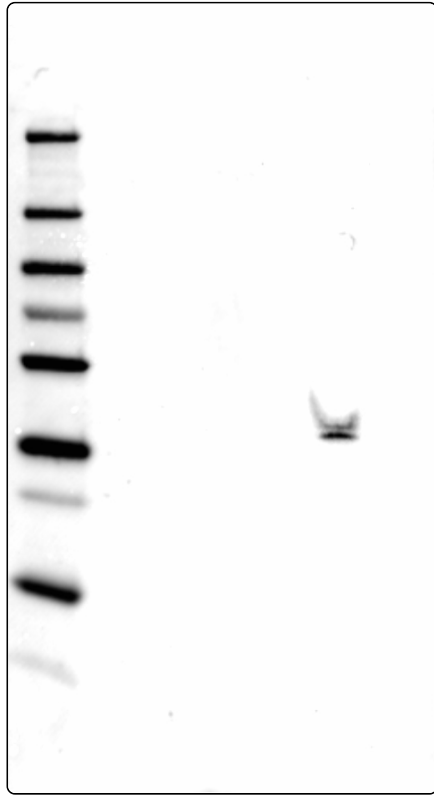
<b>IHC protocol:</b>	HIER pH6, Dilution 1:600
<b>IHC test staining:</b>	Cytoplasmic and nuclear positivity in liver and bone marrow.
<b>Literature conformance:</b>	Partly consistent with extensive gene/protein characterization data
<b>Literature significance:</b>	
<b>RNA consistency:</b>	Consistent with RNA expression data
<b>IHC Sibling similarity:</b>	Other antibody shows similar IHC staining pattern

## Immunofluorescence



<b>IF Overlay:</b>	antibody (green), anti-tubuline (red) and DAPI (blue)
<b>IF main location:</b>	
<b>IF additional location:</b>	
<b>IF Antibody score:</b>	Failed IF
<b>IF in Hep G2:</b>	Negative
<b>IF in RH-30:</b>	Negative
<b>IF in U-2 OS:</b>	Negative

# Western blot



<b>WB Size markers (kDa):</b>	250, 130, 100, 70, 55, 35, 25, 15, 10
<b>WB Lanes:</b>	Marker (1), RT4 (2), U-251 MG (3), Plasma (4), Liver (5), Tonsil (6)
<b>WB Target weight (kDa):</b>	25, 35, 36
<b>WB Validation:</b>	Supported (Single band corresponding to the predicted size in kDa (+/-20%.))