Product Datasheet

Arginase 1/ARG1/liver Arginase Antibody - BSA Free
NBP1-32731

Unit Size: 0.1 mg

Aliquot and store at -20C or -80C. Avoid freeze-thaw cycles.

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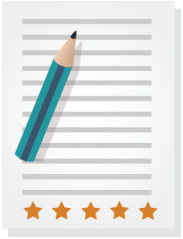


NBP1-32731

Arginase 1/ARG1/liver Arginase Antibody - BSA Free

Product Information

Unit Size	0.1 mg
Concentration	1.0 mg/ml
Storage	Aliquot and store at -20C or -80C. Avoid freeze-thaw cycles.
Clonality	Polyclonal
Preservative	0.02% Sodium Azide
Isotype	IgG
Purity	Immunogen affinity purified
Buffer	PBS

Product Description

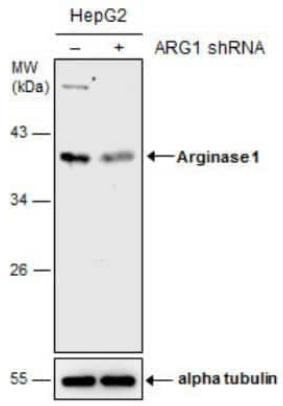
Host	Rabbit
Gene ID	383
Gene Symbol	ARG1
Species	Human, Mouse, Rat
Reactivity Notes	Rat reactivity reported in scientific literature (PMID:32701588). Immunogen displays the following percentage of sequence identity for non-tested species: Porcine (89%).
Immunogen	Arginase 1/ARG1/liver Arginase Antibody made from full length human Arginase 1 Recombinant protein.

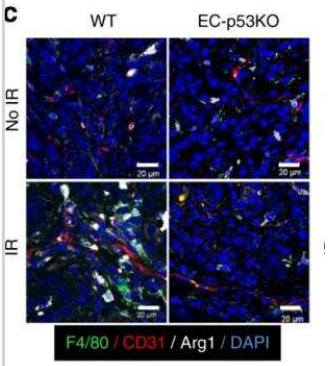
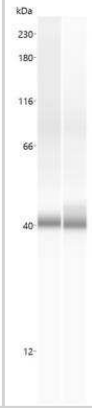
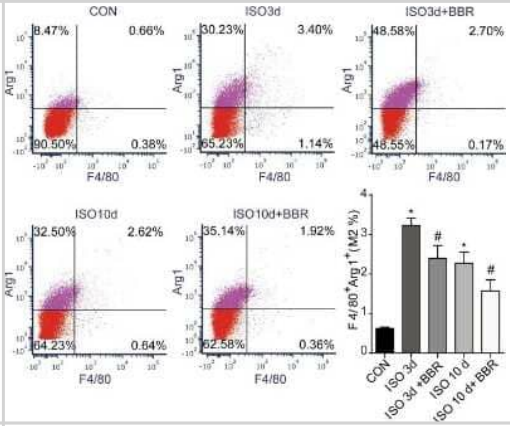
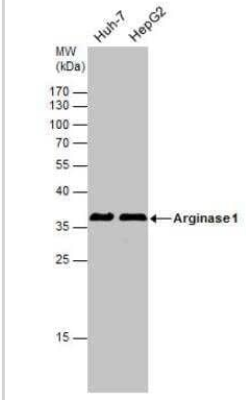
Product Application Details

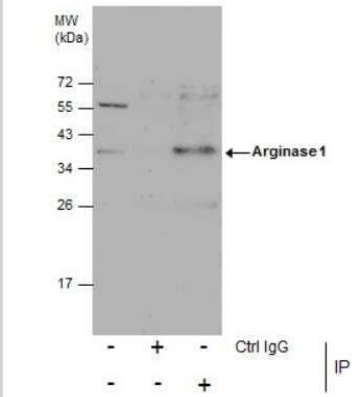
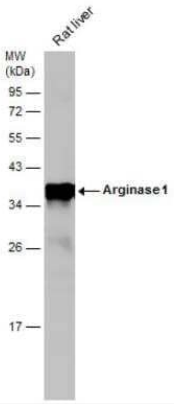
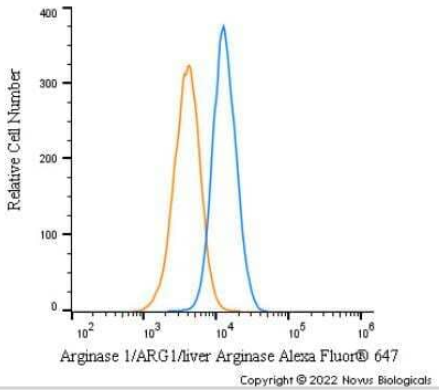
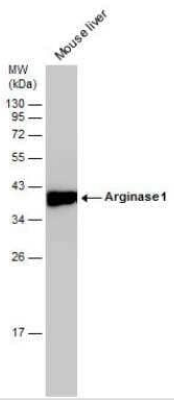
Applications	Western Blot, Simple Western, Flow Cytometry, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Frozen, Immunohistochemistry-Paraffin, Immunoprecipitation, Knockdown Validated
Recommended Dilutions	Western Blot 1:1000-1:50000, Simple Western, Flow Cytometry 5 - 10 ug/ml, Immunohistochemistry 1:100-1:1000, Immunocytochemistry/ Immunofluorescence 1:10 - 1:500, Immunoprecipitation 1:10 - 1:500, Immunohistochemistry-Paraffin 1:100-1:1000, Immunohistochemistry-Frozen 1:10 - 1:500, Knockdown Validated

Images

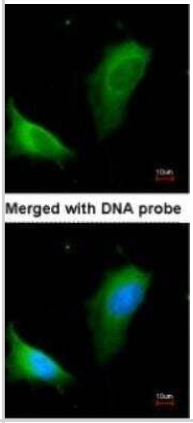
Knockdown Validated: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Non-transfected (-) and transfected (+) HepG2 whole cell extracts (30 ug) were separated by 10% SDS-PAGE, and the membrane was blotted with Arginase 1 antibody.



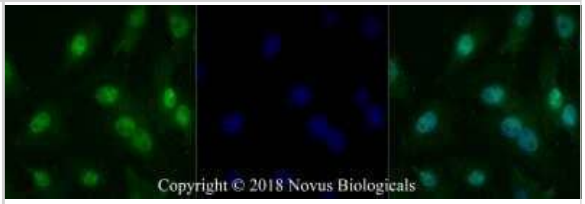
Immunohistochemistry: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - TRP53-regulated EndMT modulates the M1 and M2 populations of increased TAMs after radiotherapy. Immunofluorescence detection of F4/80, CD31, and Arg1, in KP tumours from WT and EC-p53KO mice, with or without irradiation (23 days after irradiation). Image collected and cropped by Citeab from the following publication (Tumour-vasculature development via endothelial-to-mesenchymal transition after radiotherapy controls CD44v6+ cancer cell and macrophage polarization. Nat Commun (2018) licensed under a CC-BY license.	
Simple Western: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Simple Western lane view shows a specific band for ARG1 in human and mouse Liver lysate using ARG1 antibody (NBP1-32731) at 25 ug/ml. This experiment was performed under reducing conditions using the 12-230 kDa separation system.	
Flow Cytometry: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Effects of berberine on the M2 population of macrophages. Representative dot plot of M2 subpopulations in control group and the rats injected with ISO 3 and 7 days later. M2 cells were labelled with F4/80 and Arg1. Image collected and cropped by Citeab from the following publication (Protective role of berberine in isoprenaline-induced cardiac fibrosis in rats. BMC Cardiovasc Disord (2019) licensed under a CC-BY license.	
Western Blot: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Arginase 1 antibody detects Arginase 1 protein. Various whole cell extracts (30ug) were separated by 12% SDS-PAGE, and the membrane was blotted with Arginase 1 antibody diluted at 1:1000.	

Immunoprecipitation: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Analysis was performed using Arginase 1 antibody EasyBlot anti-Rabbit IgG was used as a secondary reagent. Arginase 1 protein from HepG2 whole cell extracts using 5 ug of Arginase 1 antibody.	
Western Blot: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Rat tissue extract (50 ug) was separated by 12% SDS-PAGE, and the membrane was blotted with Arginase 1 antibody diluted at 1:10000.	
Immunocytochemistry/Immunofluorescence: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - An intracellular stain was performed on HepG2 cells with Arginase 1/ARG1/liver Arginase Antibody NBP1-32731AF647 (blue) and a matched isotype control (orange). Cells were fixed with 4% PFA and then permeabilized with 0.1% saponin. Cells were incubated in an antibody dilution of 2.5 ug/mL for 30 minutes at room temperature. Both antibodies were conjugated to Alexa Fluor 647.	
Western Blot: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Mouse tissue extract (50 ug) was separated by 12% SDS-PAGE, and the membrane was blotted with Arginase 1 antibody diluted at 1:10000.	

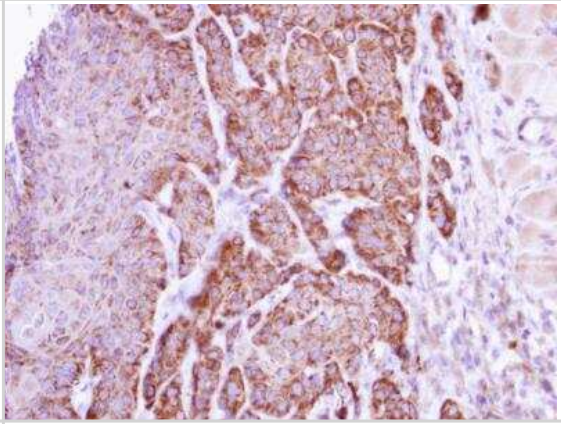
Immunocytochemistry/Immunofluorescence: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Paraformaldehyde-fixed HeLa.



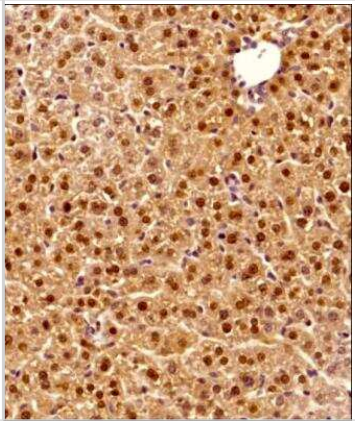
Immunocytochemistry/Immunofluorescence: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - HepG2 cells were fixed for 10 minutes using 10% formalin and then permeabilized for 5 minutes using 1X PBS + 0.05% Triton X-100. The cells were incubated with anti-ARG1 at 10 ug/ml overnight at 4C and detected with an anti-rabbit DyLight 488 (Green) at a 1:500 dilution. Nuclei were counterstained with DAPI (Blue). Cells were imaged using a 40X objective.

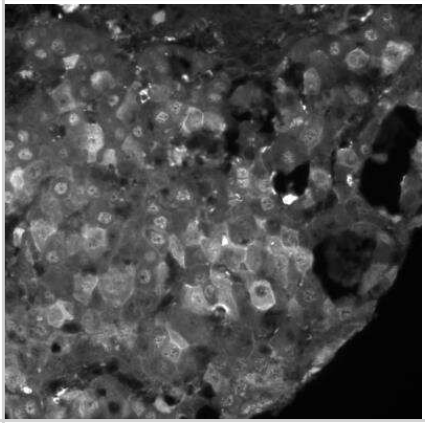
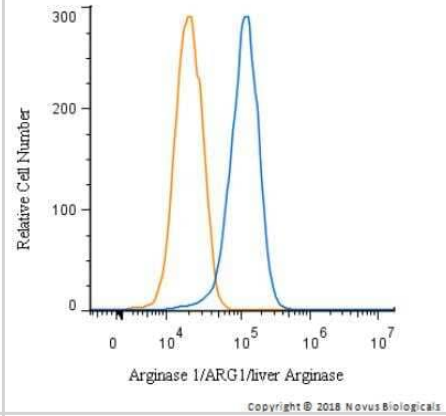
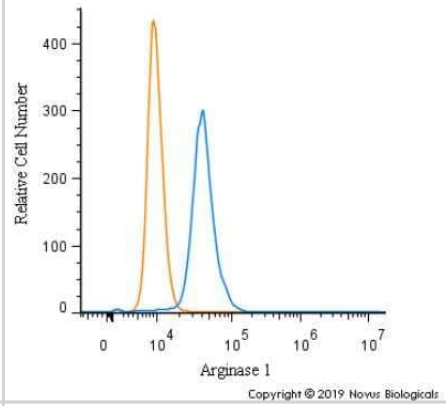
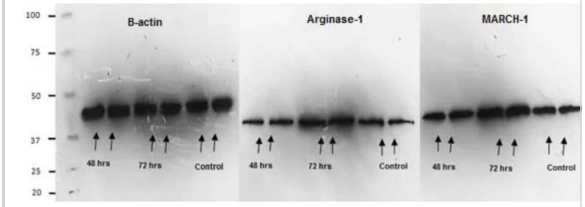


Immunohistochemistry-Paraffin: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Cal27 xenograft, using arginase I antibody at 1:500 dilution.

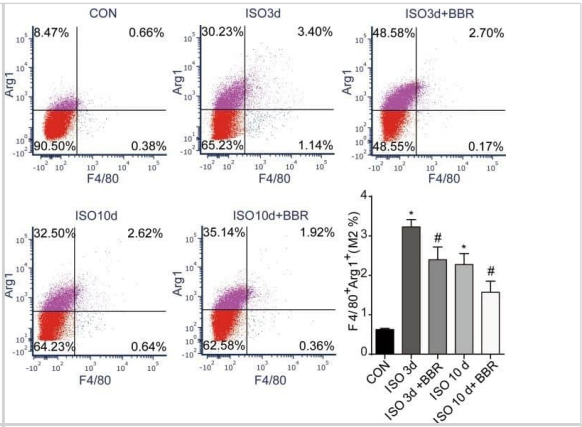


Immunohistochemistry-Paraffin: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Tissue section of the mouse liver using 1:200 dilution of ARG1 antibody (NBP1-32731). The signal was developed using HRP-DAB method which followed counterstaining of the cells with hematoxylin.

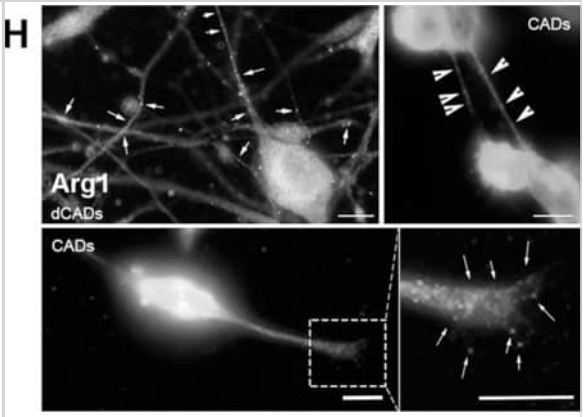


Immunohistochemistry-Paraffin: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Hepatocellular carcinoma stained with Arginase1 1:100, pH9 antigen retrieval. Image from verified customer review.	
Flow Cytometry: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - An intracellular stain was performed on HepG2 with NBP1-32731 and a matched isotype control. Cells were fixed with 4% PFA and then permeablized with 0.1% saponin. Cells were incubated in an antibody dilution of 5 ug/mL for 30 minutes at room temperature, followed by Rabbit IgG (H+L) Cross-Adsorbed Secondary Antibody.	
Flow Cytometry: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - An intracellular stain was performed on RH30 cells with Arginase 1 Antibody NBP1-32731 (blue) and a matched isotype control (orange). Cells were fixed with 4% PFA and then permeabilized with 0.1% saponin. Cells were incubated in an antibody dilution of 5.0 ug/mL for 30 minutes at room temperature, followed by Rabbit IgG (H+L) Cross-Adsorbed Secondary Antibody.	
Western Blot: Arginase 1/ARG1/liver Arginase Antibody [NBP1-32731] - Western blot analysis and gel protein densitometry were used for quantification of MARCH1 (NBP1-59758) and Arginase 1 (NBP1-32731) proteins on transduced macrophage D: The gel image indicates the blot results 48 and 72 hr after transduction, compared with the non-transduced cells. Image collected and cropped by CiteAb from the following publication (//pubmed.ncbi.nlm.nih.gov/35656075/) licensed under a CC-BY license.	

Effects of berberine on the M2 population of macrophages. Representative dot plot of M2 subpopulations in control group and the rats injected with ISO 3 and 7 days later. M2 cells were labelled with F4/80 and Arg1. *P < 0.05 as compared with the control group. #P < 0.05 vs. the corresponding ISO group



Immunocytochemistry/ Immunofluorescence: Arginase 1/ARG1/liver Arginase Antibody - BSA Free [NBP1-32731] - Validation of the LCM/MS data from cellular protrusions using microscopy. Immunofluorescence (IF) of proteins identified by LCM/MS (A–D) “expected” or (E–H) “not expected” to be within protrusions based on their known functions/localizations. (A) Cd47 & (B) Anxa2 are found in both hCAD/dCAD protrusions. (C) Tenm2 is found within hCAD protrusions & (D) Cobl in GCs. Interestingly, (E) Grk5 was observed in hCAD protrusions; (F) Hist1h3b protein in hCAD protrusions & GCs (G) Hspa1b in dCAD protrusions & TNTs & (H) Arg1 in dCAD protrusions, GCs, & TNTs. White arrows/arrowheads show punctates within dCAD/hCAD protrusions & GCs or within TNTs, respectively. Scale bars = 10 μm. IF of all 8 proteins corroborate the LCM/MS protein identification for each subtypes of protrusions. (I) 1198 unique proteins were identified by LCM/MS to be in protrusions & 169 were found to be exclusive to protrusions. 904 of the 1198 proteins found in protrusions & 87 out of 169 exclusive proteins had images in the HPA Subcell database. IF images for the proteins identified by LCM/MS in protrusions, present in the HPA Subcell database, were observed & catalogued as being observed or not in protrusions (Figure S2). On average 4.7% of proteins are found in protrusions in the HPA database, 13.6% are found in our LCM isolated protrusions & 23% were found in the “exclusive” LCM protrusions. The fold enrichment increases by 2.9% or 4.8% when we looked at proteins identified by LCM/MS in protrusions or exclusive to protrusions, respectively. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/30866487), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Publications

Chen Z, Yang X, Chen Z et al. A new histone deacetylase inhibitor remodels the tumor microenvironment by deletion of polymorphonuclear myeloid-derived suppressor cells and sensitizes prostate cancer to immunotherapy BMC medicine 2023-10-25 [PMID: 37880708] (Flow Cytometry, Mouse)

Tikhonova MA, Shoeva OY, Tenditnik MV et al. Evaluating the Effects of Grain of Isogenic Wheat Lines Differing in the Content of Anthocyanins in Mouse Models of Neurodegenerative Disorders Nutrients 2020-12-18 [PMID: 33353018]

Chuanqi Cai, Sreenivasulu Kilari, Avishek K. Singh, Chenglei Zhao, Michael L. Simeon, Avanish Misra, Yiqing Li, Sanjay Misra Differences in Transforming Growth Factor□β1/BMP7 Signaling and Venous Fibrosis Contribute to Female Sex Differences in Arteriovenous Fistulas Journal of the American Heart Association: Cardiovascular and Cerebrovascular Disease 2020-08-06 [PMID: 32757791]

De-Huang Guo, Masaki Yamamoto, Caterina M. Hernandez, Hesam Khodadadi, Babak Baban, Alexis M. Stranahan Beige adipocytes mediate the neuroprotective and anti-inflammatory effects of subcutaneous fat in obese mice Nature Communications 2021-07-30 [PMID: 34330904]

Jiang Y, Liao H, Yan L et al. A Metal-Organic Framework-Incorporated Hydrogel for Delivery of Immunomodulatory Neobavaisoflavone to Promote Cartilage Regeneration in Osteoarthritis ACS applied materials & interfaces 2023-10-11 [PMID: 37769191]

Radic Shechter K, Kafkia E, Zirngibl K et al. Metabolic memory underlying minimal residual disease in breast cancer Molecular Systems Biology 2021-10-25 [PMID: 34694069]

Liu H, Zhang L, Liu Z et al. Galectin-3 as TREM2 upstream factor contributes to lung ischemia-reperfusion injury by regulating macrophage polarization iScience 2023-09-15 [PMID: 37636061]

Chen J, Shao Y, Sasore T et al. Interphotoreceptor Retinol-Binding Protein Ameliorates Diabetes-Induced Retinal Dysfunction and Neurodegeneration Through Rhodopsin Diabetes 2021-03-01 [PMID: 33334874]

Liang W, Zhang Y, Zhou L et al. Zeb1 regulation of wound-healing-induced inflammation in alkali-damaged corneas iScience 2022-04-15 [PMID: 35340433]

Zangeneh Z, Khamisipour G, Andalib AR Induced overexpression of MARCH-1 in human macrophages altered to M2 phenotype for suppressing inflammation process Iranian journal of basic medical sciences 2022-04-01 [PMID: 35656075] (WB, Human)

Sohn HS, Choi JW, Jhun J Et al. Tolerogenic nanoparticles induce type II collagen-specific regulatory T cells and ameliorate osteoarthritis Sci Adv 2022-11-25 [PMID: 36427299] (IF/IHC, Mouse)

Details:
Citation using the FITC version of this antibody.

Kang R, Gamdzyk M, Luo Y et al. Three Days Delayed Recanalization Improved Neurological Function in pMCAO Rats by Increasing M2 Microglia-Possible Involvement of the IL-4R/STAT6/PPAR gamma Pathway Translational stroke research 2022-07-22 [PMID: 35867328] (WB, Rat)

Details:
Dilution used 1:1001

More publications at http://www.novusbio.com/NBP1-32731

Procedures

Western Blot protocol for Arginase 1/ARG1/liver Arginase Antibody (NBP1-32731)

Western Blot Protocol

1. Perform SDS-PAGE on samples to be analyzed, loading 10-25 ug of total protein per lane.
2. Transfer proteins to PVDF membrane according to the instructions provided by the manufacturer of the membrane and transfer apparatus.
3. Stain the membrane with Ponceau S (or similar product) to assess transfer success, and mark molecular weight standards where appropriate.
4. Rinse the blot TBS -0.05% Tween 20 (TBST).
5. Block the membrane in 5% Non-fat milk in TBST (blocking buffer) for at least 1 hour.
6. Wash the membrane in TBST three times for 10 minutes each.
7. Dilute anti-ARG1 primary antibody in blocking buffer and incubate overnight at 4C with gentle rocking.
8. Wash the membrane in TBST three times for 10 minutes each.
9. Incubate the membrane in diluted HRP conjugated secondary antibody in blocking buffer (as per manufacturer's instructions) for 1 hour at room temperature.
10. Wash the blot in TBST three times for 10 minutes each (this step can be repeated as required to reduce background).
11. Apply the detection reagent of choice in accordance with the manufacturers instructions.

Immunohistochemistry-Paraffin protocol for Arginase 1/ARG1/liver Arginase Antibody (NBP1-32731)

Immunohistochemistry-Paraffin Embedded Sections

Antigen Unmasking:
Bring slides to a boil in 10 mM sodium citrate buffer (pH 6.0) then maintain at a sub-boiling temperature for 10 minutes. Cool slides on bench-top for 30 minutes.

Staining:
1. Wash sections in deionized water three times for 5 minutes each.
2. Wash sections in wash buffer for 5 minutes.
3. Block each section with 100-400 ul blocking solution for 1 hour at room temperature.
4. Remove blocking solution and add 100-400 ul diluted primary antibody. Incubate overnight at 4 C.
5. Remove antibody solution and wash sections in wash buffer three times for 5 minutes each.
6. Add 100-400 ul biotinylated diluted secondary antibody. Incubate 30 minutes at room temperature.
7. Remove secondary antibody solution and wash sections three times with wash buffer for 5 minutes each.
8. Add 100-400 ul Streptavidin-HRP reagent to each section and incubate for 30 minutes at room temperature.
9. Wash sections three times in wash buffer for 5 minutes each.
10. Add 100-400 ul DAB substrate to each section and monitor staining closely.
11. As soon as the sections develop, immerse slides in deionized water.
12. Counterstain sections in hematoxylin.
13. Wash sections in deionized water two times for 5 minutes each.
14. Dehydrate sections.
15. Mount coverslips.

Immunocytochemistry/Immunofluorescence protocol for Arginase 1/ARG1/liver Arginase Antibody (NBP1-32731)

Immunocytochemistry Protocol

Culture cells to appropriate density in 35 mm culture dishes or 6-well plates.

1. Remove culture medium and wash the cells briefly in PBS. Add 10% formalin to the dish and fix at room temperature for 10 minutes.
2. Remove the formalin and wash the cells in PBS.
3. Permeablize the cells with 0.1% Triton X100 or other suitable detergent for 10 min.
4. Remove the permeablization buffer and wash three times for 10 minutes each in PBS. Be sure to not let the specimen dry out.
5. To block nonspecific antibody binding, incubate in 10% normal goat serum from 1 hour to overnight at room temperature.
6. Add primary antibody at appropriate dilution and incubate overnight at 4C.
7. Remove primary antibody and replace with PBS. Wash three times for 10 minutes each.
8. Add secondary antibody at appropriate dilution. Incubate for 1 hour at room temperature.
9. Remove secondary antibody and replace with PBS. Wash three times for 10 minutes each.
10. Counter stain DNA with DAPi if required.

*The above information is only intended as a guide. The researcher should determine what protocol best meets their needs. Please follow safe laboratory procedures.

Flow (Intracellular) protocol for Arginase 1/ARG1/liver Arginase Antibody (NBP1-32731)

Protocol for Flow Cytometry Intracellular Staining
Sample Preparation.
1. Grow cells to 60-85% confluency. Flow cytometry requires between 2 x 105 and 1 x 106 cells for optimal performance.
2. If cells are adherent, harvest gently by washing once with staining buffer and then scraping. Avoid using trypsin as this can disrupt certain epitopes of interest. If enzymatic harvest is required, use Accutase, Collagenase, or TrypLE Express for a less damaging option.
3. Reserve 100 uL for counting, then transfer cell volume into a 50 mL conical tube and centrifuge for 8 minutes at 400 RCF.
a. Count cells using a hemocytometer and a 1:1 trypan blue exclusion stain to determine cell viability before starting the flow protocol. If cells appear blue, do not proceed.
4. Re-suspend cells to a concentration of 1 x 106 cells/mL in staining buffer (NBP2-26247).
5. Aliquot out 1 mL samples in accordance with your experimental samples.

Tip: When cell surface and intracellular staining are required in the same sample, it is advisable that the cell surface staining be performed first since the fixation and permeablization steps might reduce the availability of surface antigens.

Intracellular Staining.
Tip: When performing intracellular staining, it is important to use appropriate fixation and permeabilization reagents based upon the target and its subcellular location. Generally, our Intracellular Flow Assay Kit (NBP2-29450) is a good place to start as it contains an optimized combination of reagents for intracellular staining as well as an inhibitor of intracellular protein transport (necessary if staining secreted proteins). Certain targets may require more gentle or transient permeabilization protocols such as the commonly employed methanol or saponin-based methods.
Protocol for Cytoplasmic Targets:
Optional: Perform cell surface staining as described in the previous section.
1. Fix the cells by adding 100 uL fixation solution (such as 4% PFA) to each sample for 10-15 minutes.
2. Permeabilize cells by adding 100 uL of a permeabization buffer to every 1 x 106 cells present in the sample. Mix well and incubate at room temperature for 15 minutes.
a. For cytoplasmic targets, use a gentle permeabilization solution such as 1X PBS + 0.5% Saponin or 1X PBS + 0.5% Tween-20.
b. To maintain the permeabilized state throughout your experiment, use staining buffer + 0.1% of the permeabilization reagent (i.e. 0.1% Tween-20 or 0.1% Saponin).
3. Following the 15 minute incubation, add 2 mL of the staining buffer + 0.1% permeabilizer to each sample.
4. Centrifuge for 5 minutes at 400 RCF.
5. Discard supernatant and re-suspend in 1 mL of staining buffer + 0.1% permeabilizer.
6. Stain each sample at 1 uL/ 1 x 106 cells of primary antibody or 1-3 uL/ 1 x 106 cells for directly conjugated antibodies. Mix well and incubate at room temperature for 30 minutes- 1 hour. Gently mix samples every 10-15 minutes.
7. Following the primary/conjugate incubation, add 2 mL/sample of staining buffer +0.1% permeabilizer and centrifuge for 5 minutes at 400 RCF.
8. Remove supernatant and re-suspend each sample in 2 mL staining buffer + 0.1% permeabilizer, repeat wash for 5 minutes at 400 RCF.
9. If using a directly conjugated antibody, after the second wash, re-suspend cell pellet to a final volume of 500 uL per sample and proceed with flow analysis.

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