Mouse PDGF Rα Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF1062

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse PDGF Rα in direct ELISAs and Western blots. In direct ELISAs, less than 1% cross-reactivity with recombinant human (rh) PDGF Rα, rhPDGF Rβ, and recombinant mouse PDGF Rβ is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse PDGF Rα Leu25-Glu524 (Asp65Glu, Gly439Ala, Thr440Ala) Accession # P26618
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose.

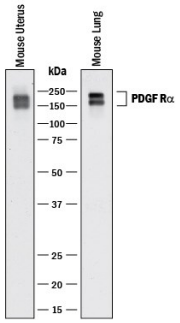
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	1 µg/mL	See Below
Flow Cytometry	0.25 µg/10^6 cells	3T3-L1 mouse embryonic fibroblast adipose-like cell line
Immunohistochemistry	5-15 µg/mL	See Below
Neutralization	Measured by its ability to neutralize PDGF-AA-induced proliferation in the NR6R-3T3 mouse fibroblast cell line. The Neutralization Dose (ND_{50}) is typically 0.2 - 1.6 µg/mL in the presence of 250 ng/mL Recombinant Human PDGF-AA.	

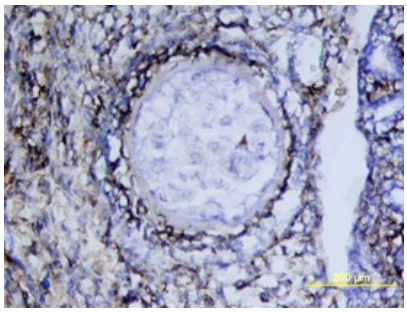
DATA

Western Blot



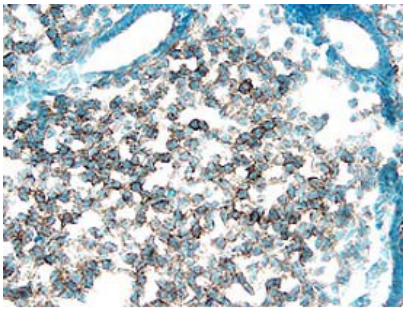
Detection of Mouse PDGF Rα by Western Blot. Western blot shows lysates of mouse uterus tissue and mouse lung tissue. PVDF membrane was probed with 1 µg/mL of Goat Anti-Mouse PDGF Ra Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1062) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). Specific bands were detected for PDGF Ra at approximately 160-200 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunohistochemistry



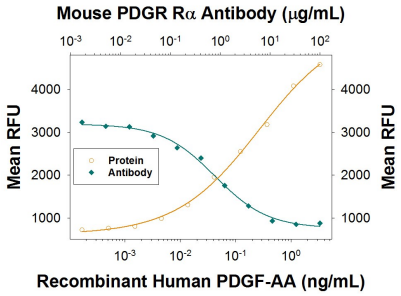
PDGF Rα in Mouse Embryo. PDGF Ra was detected in immersion fixed frozen sections of mouse embryo using Goat Anti-Mouse PDGF Ra Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1062) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for Chromogenic IHC Staining of Frozen Tissue Sections.

Immunohistochemistry



PDGF Rα in Mouse Embryo. PDGF Ra was detected in immersion fixed frozen sections of mouse embryo using 15 µg/mL Goat Anti-Mouse PDGF Ra Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1062) overnight at 4 °C. Tissue was stained with the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). Specific labeling was localized to the plasma membrane of mesenchymal cells. View our protocol for Chromogenic IHC Staining of Frozen Tissue Sections.

Neutralization



Cell Proliferation Induced by PDGF-AA and Neutralization by Mouse PDGF Rα Antibody. Recombinant Human PDGF-AA (Catalog # 221-AA) stimulates proliferation in the NR6R-3T3 mouse fibroblast cell line in a dose-dependent manner (orange line), as measured by Resazurin (Catalog # AR002). Proliferation elicited by Recombinant Human PDGF-AA (250 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Mouse PDGF Ra Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1062). The ND_{50} is typically 0.2-1.6 µg/mL.

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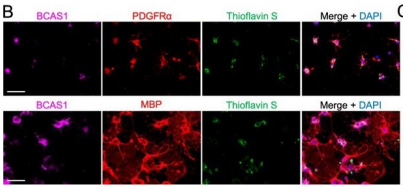
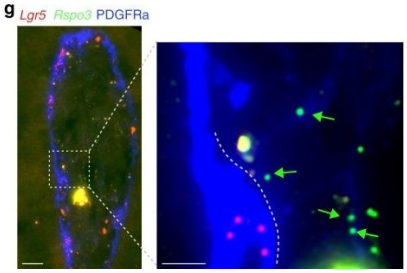
Immunocytochemistry/ Immunofluorescence



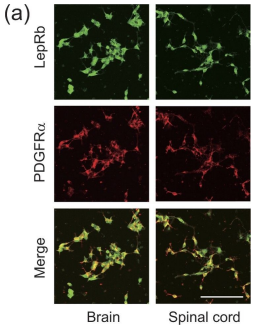
Detection of Rat PDGF R alpha by Immunocytochemistry/Immunofluorescence. Extracellularly applied recombinant human α-syn PFFs induced cytoplasmic α-syn-immunoreactive inclusions in primary BCAS1(+) cell cultures. Immunostaining of oligodendroglial cells incubated with 1 µM α-syn PFFs for 24 h from days 3 (upper) and 4 (lower) after differentiation induction showing the ubiquitous development of thioflavin S-labeled inclusions in PDGFRα(+) cells and BCAS1(+) cells. In contrast, few BCAS1(−)/MBP(+) cells developed thioflavin S-labeled inclusions. Scale bar = 50 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32727582), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



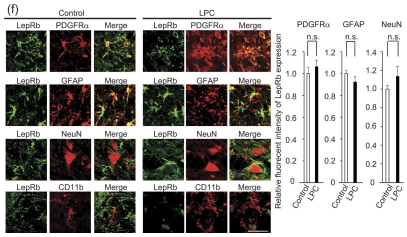
Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. Rspo3 mRNAs are localized on telopodes that extend away from the cell bodies of the mouse VTTs. VTTs are marked by Lgr5 mRNA (red dots), Rspo3 mRNA (green dots) is localized away from the cell body, PDGFRa antibody mark VTTs cell bodies and telopodes. Scale bar–10 µm, in inset, green arrows point to Rspo3 mRNAs (green dots) localized on PDGFRa telopodes (blue). Telocyte cell body is marked by white dashed line. inset Scale bar–5 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32321913), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. Leptin promotes OPC proliferation. Representative image of cultured OPCs stained with antibodies against LepRb (green) and PDGFRα (red). Scale bar: 25 µm. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. LPC injection does not enhance leptin expression in the CNS. Representative images of LepRb (green) expression in combination with PDGFRα, GFAP NeuN, and CD11b (red) in the mouse spinal cord with or without LPC injection. Spinal cord sections were obtained 3 days after LPC injection. Graph indicates the relative intensity of leptin protein expression in indicated cell type (n = 3). P = 0.287452 (PDGFRα), 0.181059 (GFAP), 0.199972 (NeuN), Student's t-test, n.s. indicates no significant difference. *P < 0.05, **P < 0.01, error bars represent SEM. Scale bar: 25 µm. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY licence.

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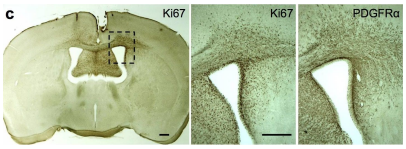
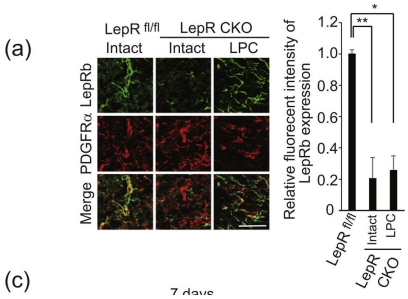
Immunohistochemistry



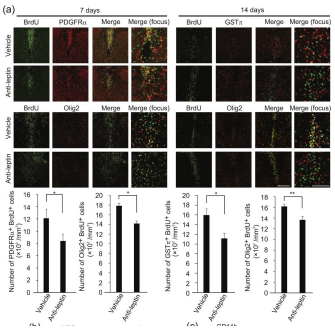
Detection of Mouse PDGF R alpha by Immunohistochemistry. PDGFRα driven mouse brain tumor model. Example of early stage tumor growth, as revealed by IHC for proliferation marker Ki67 and PDGFRα. Note high density of Ki67+ proliferating cells in tumor area, increased expression level of PDGFRα, and invasive migration of tumor cells through corpus callosum into contralateral hemisphere. Scale bar: 50 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/25683249), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



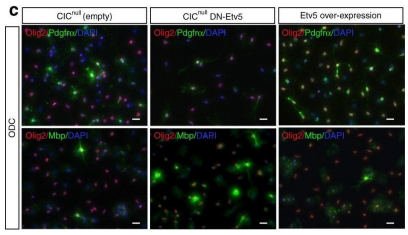
Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. OPC expresses leptin receptors. Representative images of mouse spinal cord sections, which were double-labeled for LepRb (green) in combination with PDGFRα (red). Spinal cord sections were obtained 7 days after LPC injection; the graph shows quantification (n = 3). P = 0.007573 (LepRb flox vs intact CKO), 0.0108779 (LepRb flox vs LPC CKO), ANOVA with Tukey's post-hoc test. Scale bar: 25 µm. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. Endogenous leptin sustains spontaneous OPC proliferation. Representative images of mouse spinal cord sections, which were prepared 7 days (left panels) and 14 days (right panels) after LPC injection and double labeled for BrdU in combination with PDGFRα (upper panels), GSTπ (upper panels) and olig2 (lower panels). BrdU was administrated during 3–7 days after LPC injection; the graph shows quantification (n = 5–8). P = 0.042915 (PDGFRα and BrdU labeled cells), 0.013560 (Olig2 and BrdU labeled cells 7 days after injection), 0.012111 (GSTπ and BrdU labeled cells), 0.009797 (Olig2 and BrdU labeled cells 14 days after injection), Student's t-test. Scale bar: 50 µm. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. Etv5 is necessary and sufficient for proliferation and cell fate bias downstream of Cic loss. Cic-null mouse NSCs (CicnullEmpty), Cic-null mouse NSCs with dominant negative Etv5 (CicnullDN-Etv5), and Cic-wildtype mouse NSCs overexpressing Etv5 (Etv5 overpression) were grown in lineage-directed culture conditions and assessed for their ability to differentiate to oligodendrocytes as determined by immunostaining for Olig2, Pdgfra, and Mbp. Scale bar: 10 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/31043608), licensed under a CC-BY licence.

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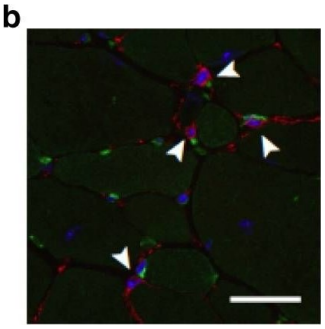
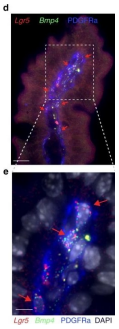


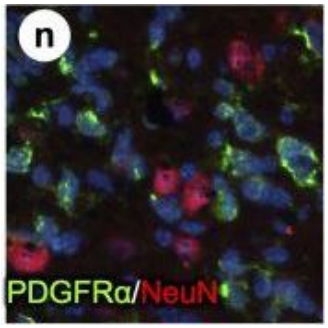
Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. Transplantation of CD11b/LIF transgenic BMCs reduces the numbers of FAPs in dystrophic muscle but does not affect phenotype. To quantify the number of FAPs, transgenic mouse muscle sections were co-labeled with antibodies to PDGFRα (red) and CD31, CD45 (green). Arrowheads indicate FAPs (CD31-CD45-PDGFRα+). Bar = 50 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/31243277), licensed under a CC-BY licence.

Immunocytochemistry/ Immunofluorescence



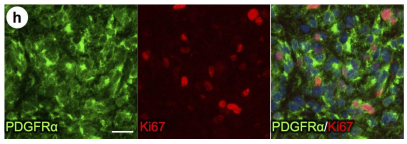
Detection of Mouse PDGF R alpha by Immunocytochemistry/Immunofluorescence. Lgr5 is expressed abundantly in mouse villus tip telocytes. d) Lgr5 mRNA (red dots) expressed in PDGFRa+ VTTs that co-express Bmp4 mRNA (green dots). Scale bar–10 µm. Red arrows point to Lgr5 and Bmp4 double positive cells. e) Blow up of the region boxed in d). Scale bar–5 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32321913), licensed under a CC-BY licence.

Immunohistochemistry



Detection of Mouse PDGFR alpha by Immunohistochemistry PDGFRα driven brain tumors display features of high grade glioma.(a–g) Histopathological analysis of tumor areas by H&E staining shows a high concentration of mitotic figures (a, arrows), high cellularity and nuclear atypia (b), perineuronal satellitosis (c; N, neuronal nuclei), perivascular growth (d), intrafascicular growth (e), subarachnoid spreading (f), and areas of incipient necrosis (g; arrows point to pyknotic nuclei). (h–k) IF labeling of brain tumor sections for cell type specific markers. Nuclei labeled with DAPI are shown in blue. Tumor cells with high PDGFRα expression were highly proliferative, as seen by proliferation marker Ki67 (h), and express the OPC cell lineage markers Olig2, Sox2, Sox10, and Ng2, as well as the neural stem cell marker Nestin (i–k). Tumor cells were negative for immunosignal of astroglial marker GFAP, mature oligodendrocyte marker APC-CC1, and neuronal marker NeuN (l–n). Scale bars: 10 µm (a–g), 20 µm (h–n). Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/25683249), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunohistochemistry



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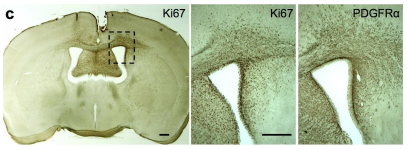
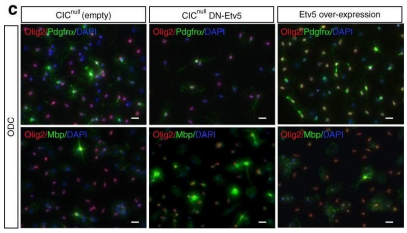


Detection of Mouse PDGFR alpha by Immunohistochemistry PDGFRα driven brain tumor model.(a) Schematic diagram of PDGFRα J/K knock-in alleles. ATG, start codon; SA, splice acceptor; STOP, PGK-neo cassette. (b) Kaplan-Meier survival curves of 4 mouse mutant cohorts with brain tumors. Mice generally succumbed to subcutaneous fibrosarcomas, and brain tumors were detected by histological analysis. (c) Example of early stage tumor growth, as revealed by IHC for proliferation marker Ki67 and PDGFRα. Note high density of Ki67+ proliferating cells in tumor area, increased expression level of PDGFRα, and invasive migration of tumor cells through corpus callosum into contralateral hemisphere. (d) H&E staining of an advanced brain tumor growth (asterisk in tumor centre, dashed line demarcates expansion). Scale bars: 50 µm (c, d). Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/25683249), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence Etv5 is necessary and sufficient for proliferation and cell fate bias downstream of Cic loss. a–f Cic-null NSCs (CicnullEmpty), Cic-null NSCs with dominant negative Etv5 (CicnullDN-Etv5), and Cic-wildtype NSCs overexpressing Etv5 (Etv5 overpression) were grown in lineage-directed culture conditions and assessed for their ability to differentiate to neurons, astrocytes, and oligodendrocytes as determined by immunostaining for bIII-Tubulin (Tuj1), Gfap, and Olig2, Pdgfra, and Mbp. Scale bar: 10 µm. Analysis of Tuj1 + cells from NSCs in neuronal differentiating condition, NDC a, d; analysis of Gfap + cells from NSCs in astrocytic differentiating condition, ADC b, e; and analyses of Olig2 + , Pdgfra + , and Mbp + cells from NSCs in oligodendrocyte differentiating condition, ODC c, f from n = 3 biological replicates, with three technical replicates each, for cell culture studies. g, h Representative images and quantitation of EdU incorporation 2 days post electroporation of wildtype ETV5 or empty control plasmid, both carrying mCherry as a marker, into E13 CICFl/Fl VZ. Note: mCherry fluorescence and EdU staining were false-colorized to green and red after grayscale imaging. Scale bar: 50 µm. Data from n = 4 mice per each group. Scale bar: 50 µm. i, j Representative images and quantitation of EdU incorporation 2 days post-electroporation of Cre only or of Cre co-electroporated with DNETV5 into E13 CICFl/Fl VZ. Data from n = 4 mice per each group. Scale bar: 50 µm k EdU incorporation assay in cultured Cic-wildtype NSCs without or with ETV5 overexpression from n ≥ 3 biological replicates. l EdU incorporation in Cic-floxed NSCs with Cre, and without or with DNETV5 expression from n ≥ 3 biological replicates. Data shown as mean ± SD. Statistical analyses performed either t test in h, j, k, l; or with ANOVA with Tukey's post hoc test in d, e, f. ns–not significant, *p < 0.05, **p < 0.01, ***p < 0.0001. Source data are provided as a Source Data file. ADC–astrocytic differentiation condition, NDC–neuronal differentiation condition, ODC–oligodendrocytic differentiation condition. VZ–ventricular zone, LV–lateral ventricle Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/31043608), licensed under a CC-BY license. Not internally tested by R&D Systems.

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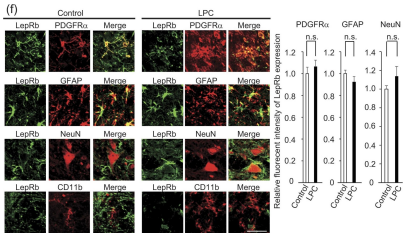
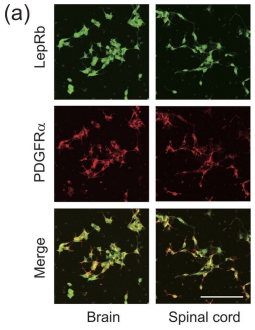


Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence LPC injection does not enhance leptin expression in the CNS.(a) Representative images of MBP expression in a mouse spinal cord 14 days after LPC injection are shown; the graph shows quantification of the demyelinating area in the dorsal spinal cord (n = 3–4). P = 0.001542, Student's t-test. (b) Representative images of NeuN expression in a mouse spinal cord 14 days after LPC injection; the graph shows quantification of the density of NeuN-positive cells in the spinal cord (n = 3). P = 0.299940, Student's t-test, n.s. indicates no significant difference. (c) Quantification of leptin protein expression in indicated organs. Tissues were obtained from the mice 3 days after LPC injection (n = 3 for control, 4 for LPC injection). P = 0.318966 (adipose tissue), 0.10446 (brain stem), 0.332281 (cerebellum), 0.345245 (liver), 0.453104 (kidney), 0.098135 (heart), 0.335722 (lung), 0.236771 (muscle), 0.44662 (spleen), 0.465966 (stomach). Student's t-test. n.s. indicates no significant difference. (d) Quantification of spinal cord leptin protein 3 days after LPC injection (n = 3 for control, 4 for LPC injection). P = 0.026865, Student's t-test. (e) Quantification of spinal cord leptin mRNA 3 days after LPC injection (n = 6). P = 0.324930, Student's t-test, n.s. indicates no significant difference. (f) Representative images of LepRb (green) expression in combination with PDGFRα, GFAP NeuN, and CD11b (red) in the mouse spinal cord with or without LPC injection. Spinal cord sections were obtained 3 days after LPC injection. Graph indicates the relative intensity of leptin protein expression in indicated cell type (n = 3). P = 0.287452 (PDGFRα), 0.181059 (GFAP), 0.199972 (NeuN), Student's t-test, n.s. indicates no significant difference. *P < 0.05, **P < 0.01, error bars represent SEM. Scale bars; 100 µm for (a and b), 25 µm for (f). Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence Leptin promotes OPC proliferation.(a) Representative image of cultured OPCs stained with antibodies against LepRb (green) and PDGFRα (red). Scale bar: 25 µm. (b) Relative BrdU incorporation into the OPC obtained from the brain (left graph) and spinal cord (right graph). Cells were treated with recombinant leptin for 48 h (n = 4). (Left graph) P = 0.005993 (control vs 10 ng/mL), 0.045616 (control vs 100 ng/mL), (Right graph) P = 0.004456 (control vs 10 ng/mL), 0.017859 (control vs 100 ng/mL). (c) Relative BrdU incorporation into the OPC after leptin stimulation (10 ng/ml) with U0126 (20 µM), a MEK inhibitor (n = 4 for brain OPCs, n = 3 for spinal cord OPCs). (Left graph) P = 0.019753 (control vs leptin), 0.039433 (leptin vs leptin + U0126), (Right graph) P = 0.045545 (control vs leptin), 0.04486 (leptin vs leptin + U0126). (d) Representative images of western blotting (upper panels) and quantitative analysis of ERK phosphorylation (lower graph) are shown. OPCs were treated with leptin (10 ng/ml) under indicated periods (n = 3). P = 0.006352 (2 min), 0.016571 (5 min), 0.017675 (10 min), 0.024100 (15 min), 0.081342 (30 min). *P < 0.05, **P < 0.01, ANOVA with Tukey's post-hoc test. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY license. Not internally tested by R&D Systems.

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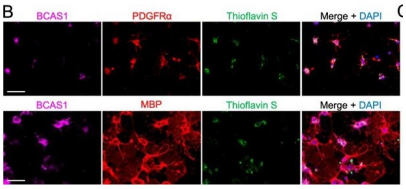
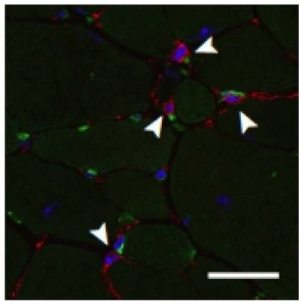
Immunocytochemistry/ Immunofluorescence



Detection of Rat PDGFR alpha by Immunocytochemistry/Immunofluorescence Extracellularly applied recombinant human α-syn PFFs induced cytoplasmic α-syn-immunoreactive inclusions in primary BCAS1(+) cell cultures. a Confocal images of BCAS1(+) cells, which were incubated with 1 µM α-syn PFFs for 24 h from day 4 after differentiation induction, showing the intracellular inclusions labeled with both anti-α-syn antibody and thioflavin S. Scale bar = 5 µm. b Immunostaining of oligodendroglial cells incubated with 1 µM α-syn PFFs for 24 h from days 3 (upper) and 4 (lower) after differentiation induction showing the ubiquitous development of thioflavin S-labeled inclusions in PDGFRα(+) cells and BCAS1(+) cells. In contrast, few BCAS1(−)/MBP(+) cells developed thioflavin S-labeled inclusions. Scale bar = 50 µm. c The percentages of oligodendroglial cells containing thioflavin S-labeled inclusions were compared between BCAS1(−)/PDGFRα(+) cells and BCAS1(+)/PDGFRα(+) cells (upper, performed on day 3), and between BCAS1(+)/MBP(+) cells and BCAS1(−)/MBP(+) cells (lower, performed on day 4). N = 4, respectively, independent culture, Mann–Whitney, p* < 0.05 Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32727582), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence Transplantation of CD11b/LIF transgenic BMCs reduces the numbers of FAPs in dystrophic muscle but does not affect phenotype. a QPCR analysis shows that TA muscles from LIF BMT/mdx recipients have reduced Pdgfra gene expression. N = 7 or 8 for WT BMT/mdx and LIF BMT/mdx data sets, respectively, * indicates significantly different from WT BMT/mdx recipients at P < 0.05. P-values based on two-tailed t-test. For all histograms in the figure, the bars indicate mean ± sem. b To quantify the number of FAPs, muscle sections were co-labeled with antibodies to PDGFRα (red) and CD31, CD45 (green). Arrowheads indicate FAPs (CD31-CD45-PDGFRα+). Bar = 50 µm. c Fewer FAPs (CD31-CD45-PDGFRα+) in TA cross-sections of LIF BMT/mdx recipients compared to WT BMT/mdx recipients. N = 5 for each data set. d There was no detectible change in phenotype of PDGFRα+ cells assayed for co-expression of the fibrogenic marker HSP47. e FACS plots demonstrating strategy for sorting FAPs (Hoechst + CD11b-CD31-CD45-PDGFRα+). Fibroblasts derived from FAPs were stimulated with LIF (10 ng/ml) and/or TGFβ1 (10 ng/ml) for 3 h (f–h) or 3 days (i–k) and assayed by QPCR for Ctgf (f, i), Fn1 (g, j), and Col1a1 (h, k). N = 4 technical replicates for each data set. Significant findings were verified with biological replicates of cells sorted from independent donors. * Indicates significantly different from control cultures, # indicates significantly different from TGFβ1 treated cultures, and Φ indicates significantly different from LIF-treated cultures at P < 0.05. P-values based on ANOVA with Tukey's multiple comparison test. Source data are provided as a Source Data file Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/31243277), licensed under a CC-BY license. Not internally tested by R&D Systems.

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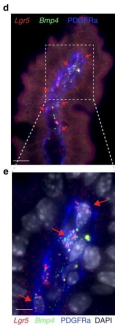
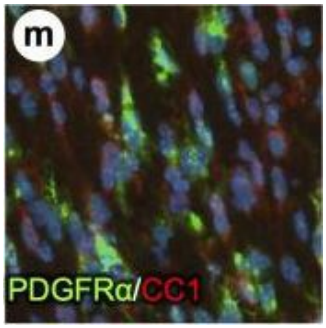
Immunocytochemistry/ Immunofluorescence



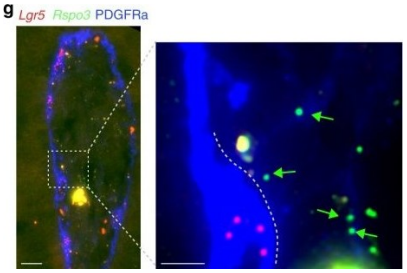
Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence Lgr5 is expressed abundantly in villus tip telocytes.a smFISH of Lgr5, DAPI in blue, Scale bar–20 µm. b Blow up of villus tip, Scale bar–10 µm. In a, b thin white arrows point at autofluorescent blobs. c blow up of crypt, Scale bar–10 µm. Red arrows in b–c point to Lgr5 positive cells. dLgr5 mRNA (red dots) expressed in PDGFRa+ VTTs that co-express Bmp4 mRNA (green dots). Scale bar–10 µm. Red arrows point to Lgr5 and Bmp4 double positive cells. e Blow up of the region boxed in d. Scale bar–5 µm. fLgr5 mRNA concentrations in VTTs are comparable to those in Lgr5+ crypt base columnar cells (n = 25 cells examined over 2 mice for each region). Boxes show 25–75 percentiles of the smFISH expression, horizontal red lines are medians. Whiskers, extend to the most extreme data point within 1.5× the interquartile range (IQR) from the box; g) Rspo3 mRNAs are localized on telopodes that extend away from the cell bodies of the VTTs. VTTs are marked by Lgr5 mRNA (red dots), Rspo3 mRNA (green dots) is localized away from the cell body, PDGFRa antibody mark VTTs cell bodies and telopodes. Scale bar–10 µm, in inset, green arrows point to Rspo3 mRNAs (green dots) localized on PDGFRa telopodes (blue). Telocyte cell body is marked by white dashed line. inset Scale bar–5 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32321913), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunohistochemistry



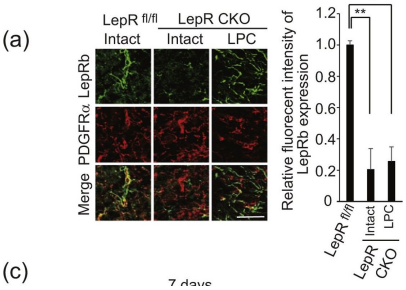
Detection of Mouse PDGFR alpha by Immunohistochemistry PDGFRα driven brain tumors display features of high grade glioma.(a–g) Histopathological analysis of tumor areas by H&E staining shows a high concentration of mitotic figures (a, arrows), high cellularity and nuclear atypia (b), perineuronal satellitosis (c; N, neuronal nuclei), perivascular growth (d), intrafascicular growth (e), subarachnoid spreading (f), and areas of incipient necrosis (g; arrows point to pyknotic nuclei). (h–k) IF labeling of brain tumor sections for cell type specific markers. Nuclei labeled with DAPI are shown in blue. Tumor cells with high PDGFRα expression were highly proliferative, as seen by proliferation marker Ki67 (h), and express the OPC cell lineage markers Olig2, Sox2, Sox10, and Ng2, as well as the neural stem cell marker Nestin (i–k). Tumor cells were negative for immunosignal of astroglial marker GFAP, mature oligodendrocyte marker APC-CC1, and neuronal marker NeuN (l–n). Scale bars: 10 µm (a–g), 20 µm (h–n). Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/25683249), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence Lgr5 is expressed abundantly in villus tip telocytes.a smFISH of Lgr5, DAPI in blue, Scale bar–20 µm. b Blow up of villus tip, Scale bar–10 µm. In a, b thin white arrows point at autofluorescent blobs. c blow up of crypt, Scale bar–10 µm. Red arrows in b–c point to Lgr5 positive cells. dLgr5 mRNA (red dots) expressed in PDGFRa+ VTTs that co-express Bmp4 mRNA (green dots). Scale bar–10 µm. Red arrows point to Lgr5 and Bmp4 double positive cells. e Blow up of the region boxed in d. Scale bar–5 µm. fLgr5 mRNA concentrations in VTTs are comparable to those in Lgr5+ crypt base columnar cells (n = 25 cells examined over 2 mice for each region). Boxes show 25–75 percentiles of the smFISH

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence OPC expresses leptin receptors.(a) Representative images of spinal cord sections, which were double-labeled for LepRb (green) in combination with PDGFRα (red). Spinal cord sections were obtained 7 days after LPC injection; the graph shows quantification (n = 3). P = 0.007573 (LepRb flox vs intact CKO), 0.0108779 (LepRb flox vs LPC CKO), ANOVA with Tukey's post-hoc test. (b) Relative expression of leptin receptors mRNA in PDGFRα-positive OPC obtained from the brain of PDGFRα-creERT:: Lepr flox/flox mice and +/+::Lepr flox/flox mice (n = 5,6). P = 0.005878 (LepRa), 0.010306 (LepRb), 0.001535 (LepRc), 0.003169 (LepRd), 0.030459 (LepRe), Student's t-

expression, horizontal red lines are medians. Whiskers, extend to the most extreme data point within 1.5× the interquartile range (IQR) from the box; g) Rspo3 mRNAs are localized on telopodes that extend away from the cell bodies of the VTTs. VTTs are marked by Lgr5 mRNA (red dots), Rspo3 mRNA (green dots) is localized away from the cell body, PDGFRa antibody mark VTTs cell bodies and telopodes. Scale bar–10 µm, in inset, green arrows point to Rspo3 mRNAs (green dots) localized on PDGFRa telopodes (blue). Telocyte cell body is marked by white dashed line. inset Scale bar–5 µm. Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/32321913), licensed under a CC-BY license. Not internally tested by R&D Systems.

test. (c) Representative images of spinal cord sections which were double labeled for BrdU in combination with PDGFRα (left panels) and GSTπ (right panels). Sections were prepared 7 days (left panels) and 14 days (right panels) after LPC injection. BrdU was administrated during 3–7 days after LPC injection; the graph shows quantification (n = 5–8). P = 0.029791(PDGFRα and BrdU labeled cells), 0.028870 (GSTπ and BrdU labeled cells), Student's t-test. (d) Representative images of PDGFRα expression in the intact spinal cord of PDGFRα-creERT:: Lepr flox/flox mice and +/+::Lepr flox/flox mice; the graph shows quantification (n = 3–4). P = 0.404999, Student's t-test, n.s. indicates no significant difference. (e) Representative images of APC expression in the intact spinal cord of PDGFRα-creERT:: Lepr flox/flox mice and +/+::Lepr flox/flox mice; the graph shows quantification (n = 3). P = 0.495667, Student's t-test, n.s. indicates no significant difference. (f) Representative spinal cord section of PDGFRα-creERT:: Lepr flox/flox mice, which were prepared 14 days after LPC injection and stained with MBP; the graph shows quantification of the demyelinating area in the dorsal spinal cord (n = 7 for control, 10 for CKO). P = 0.030688, Student's t-test. (g) Representative spinal cord sections which were labeled for CD11b. Sections were prepared 7 days after LPC injection. The graph shows quantification (n = 3). P = 0.493264, Student's t-test, n.s. indicates no significant difference. *P < 0.05, **P < 0.01, error bars represent SEM. Scale bars: 25 µm for (a), 50 µm for high magnification images in (c), 100 µm for others. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY license. Not internally tested by R&D Systems.

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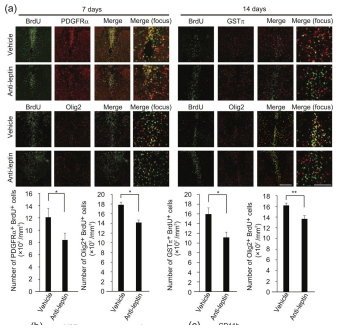
Mouse PDGF Rα Antibody

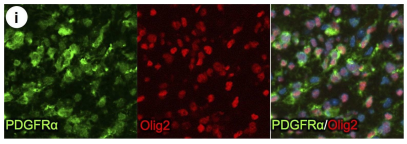
Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF1062

Immunocytochemistry/ Immunofluorescence



Detection of Mouse PDGFR alpha by Immunocytochemistry/Immunofluorescence Endogenous leptin sustains spontaneous OPC proliferation.(a) Representative images of spinal cord sections, which were prepared 7 days (left panels) and 14 days (right panels) after LPC injection and double labeled for BrdU in combination with PDGFRα (upper panels), GSTπ (upper panels) and olig2 (lower panels). BrdU was administrated during 3–7 days after LPC injection; the graph shows quantification (n = 5–8). P = 0.042915 (PDGFRα and BrdU labeled cells), 0.013560 (Olig2 and BrdU labeled cells 7 days after injection), 0.012111 (GSTπ and BrdU labeled cells), 0.009797 (Olig2 and BrdU labeled cells 14 days after injection), Student's t-test. (b) Representative spinal cord sections, which were prepared 14 days after LPC injection and stained with MBP are shown; the graph shows quantification (n = 6). P = 0.025243, Student's t-test. (c) Representative images of spinal cord section, which were prepared 7 days after LPC injection and labeled for CD11b; the graph shows quantification (n = 4). P = 0.213763, Student's t-test, n.s. indicates no significant difference. *P < 0.05, **P < 0.01, error bars represent SEM. Scale bar: 50 µm for high magnification images in a, 100 µm for others. Image collected and cropped by CiteAb from the following publication (https://www.nature.com/articles/srep40397), licensed under a CC-BY license. Not internally tested by R&D Systems.

Immunohistochemistry



Detection of Mouse PDGFR alpha by Immunohistochemistry PDGFRα driven brain tumors display features of high grade glioma.(a–g) Histopathological analysis of tumor areas by H&E staining shows a high concentration of mitotic figures (a, arrows), high cellularity and nuclear atypia (b), perineuronal satellitosis (c; N, neuronal nuclei), perivascular growth (d), intrafascicular growth (e), subarachnoid spreading (f), and areas of incipient necrosis (g; arrows point to pyknotic nuclei). (h–k) IF labeling of brain tumor sections for cell type specific markers. Nuclei labeled with DAPI are shown in blue. Tumor cells with high PDGFRα expression were highly proliferative, as seen by proliferation marker Ki67 (h), and express the OPC cell lineage markers Olig2, Sox2, Sox10, and Ng2, as well as the neural stem cell marker Nestin (i–k). Tumor cells were negative for immunosignal of astroglial marker GFAP, mature oligodendrocyte marker APC-CC1, and neuronal marker NeuN (l–n). Scale bars: 10 µm (a–g), 20 µm (h–n). Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/25683249), licensed under a CC-BY license. Not internally tested by R&D Systems.

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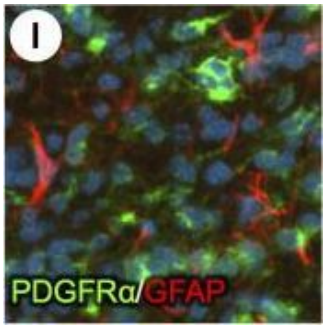
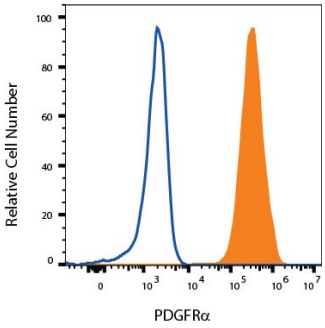
Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF1062

Immunohistochemistry



Detection of Mouse PDGFR alpha by Immunohistochemistry
PDGFRα driven brain tumors display features of high grade glioma.(a–g) Histopathological analysis of tumor areas by H&E staining shows a high concentration of mitotic figures (a, arrows), high cellularity and nuclear atypia (b), perineuronal satellitosis (c; N, neuronal nuclei), perivascular growth (d), intrafascicular growth (e), subarachnoid spreading (f), and areas of incipient necrosis (g; arrows point to pyknotic nuclei). (h–k) IF labeling of brain tumor sections for cell type specific markers. Nuclei labeled with DAPI are shown in blue. Tumor cells with high PDGFRα expression were highly proliferative, as seen by proliferation marker Ki67 (h), and express the OPC cell lineage markers Olig2, Sox2, Sox10, and Ng2, as well as the neural stem cell marker Nestin (i–k). Tumor cells were negative for immunosignal of astroglial marker GFAP, mature oligodendrocyte marker APC-CC1, and neuronal marker NeuN (l–n). Scale bars: 10 µm (a–g), 20 µm (h–n). Image collected and cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/25683249), licensed under a CC-BY license. Not internally tested by R&D Systems.

Flow Cytometry



Detection of PDGF Rα in 3T3-L1 cells by Flow Cytometry 3T3-L1 cells were stained with Goat Anti-Mouse PDGF Rα Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1062, filled histogram) or isotype control antibody (Catalog # 4-001-A, open histogram) followed by Allophycocyanin-conjugated Anti-Goat IgG Secondary Antibody (Catalog # F0108). View our protocol for Staining Membrane-associated Proteins.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

The platelet-derived growth factor (PDGF) family consists of proteins derived from four genes (PDGF-A, -B, -C, and -D) that form disulfide-linked homodimers (PDGF-AA, -BB, -CC, and -DD) and a heterodimer (PDGF-AB) (1, 2). These proteins regulate diverse cellular functions by binding to and inducing the homo- or hetero-dimerization of two receptors (PDGF Rα and Rβ). Whereas α/α homo-dimerization is induced by PDGF-AA, -BB, -CC, and -AB, α/β hetero-dimerization is induced by PDGF-AB, -BB, -CC, and -DD, and β/β homo-dimerization is induced only by PDGF-BB and -DD (1-4). Both PDGF Rα and Rβ are members of the class III subfamily of receptor tyrosine kinases (RTK) that also includes the receptors for M-CSF, SCF, and Flt-3 ligand. All class III RTKs are characterized by the presence of five immunoglobulin-like domains in their extracellular region and a split kinase domain in their intracellular region. Ligand-induced receptor dimerization results in autophosphorylation in trans resulting in the activation of several intracellular signaling pathways that can lead to cell proliferation, cell survival, cytoskeletal rearrangement, and cell migration. Many cell types, including fibroblasts and smooth muscle cells, express both the α and β receptors. Others have only the α receptors (oligodendrocyte progenitor cells, mesothelial cells, liver sinusoidal endothelial cells, astrocytes, platelets, and megakaryocytes) or only the β receptors (myoblasts, capillary endothelial cells, pericytes, T cells, myeloid hematopoietic cells, and macrophages) (1, 2). Recombinant mouse and human soluble PDGF Rβ bind PDGF with high affinity and are potent PDGF antagonists.

References:

1. Betsholtz, C. *et al.* (2001) BioEssays **23**:494.
2. Ostman, A. and A.H. Heldin (2001) Advances in Cancer Research **80**:1.
3. Gilbertson, D. *et al.* (2001) J. Biol. Chem. **276**:27406.
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