

Product Datasheet

[Anti-Neurexin-1-alpha \[IPI-NRXN1a.21\]](#)

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Overview

Antigen	Neurexin-1-alpha
Immunogen	Purified recombinant fragment of Mouse Neurexin-1-alpha, corresponding to AA: 28-258.
Host/isotype	Rabbit/IgG
Clonality	Recombinant monoclonal
Clone name	IPI-NRXN1a.21
RRID	AB_3678701
IPI ID	TAB0014761-013-002
Specificity	NRXN1a; Does not recognize other NRXNs
Species reactivity	Human and mouse (predicted)
Amount	100 µg
Concentration	1 mg/mL
Purification	Expressed in HEK293T cells and affinity purified using Protein A
Storage buffer	PBS, pH 7.4
Shipping	Shipped on blue ice at +4C
Storage	Store at +4C for up to 3 months. For long-term storage, aliquot and store at -20C. Avoid multiple freeze/thaw cycles.

IPI Tested Applications[‡]

Application	Tested concentration	Result	Reference
IF – Binding	1 µg/mL	Positive	https://doi.org/10.57733/addgene.1okdr3
IF – Specificity	1 µg/mL	Positive	https://doi.org/10.57733/addgene.z8c95s
SPR	0.25 µg/mL	Positive	https://doi.org/10.57733/addgene.7was7f
IHC	10 µg/mL	Positive	https://doi.org/10.57733/addgene.1megng

[‡] Not suitable for WB application.

Community Data*

Application	Lab	Reference
ICC	Luís F. Ribeiro, Ph.D., University of Coimbra	https://doi.org/10.57733/addgene.7i6hw8

* Supporting Data is generated by external partner labs, in the process of evaluating IPI antibody panels.

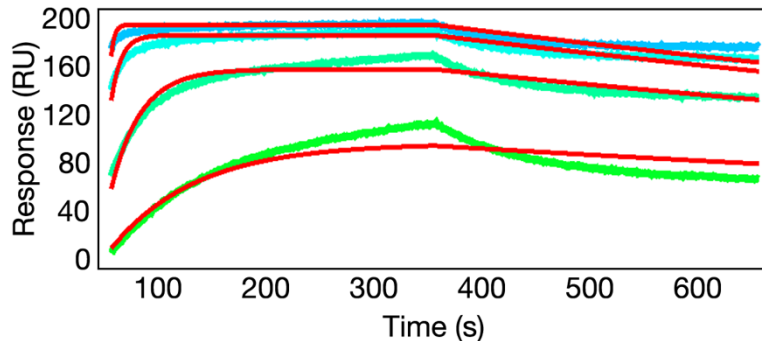
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Applications

Surface Plasmon Resonance (SPR)

Anti-Neurexin-1-alpha [IPI-NRXN1a.21]

Addgene #237797



Kinetic Parameters

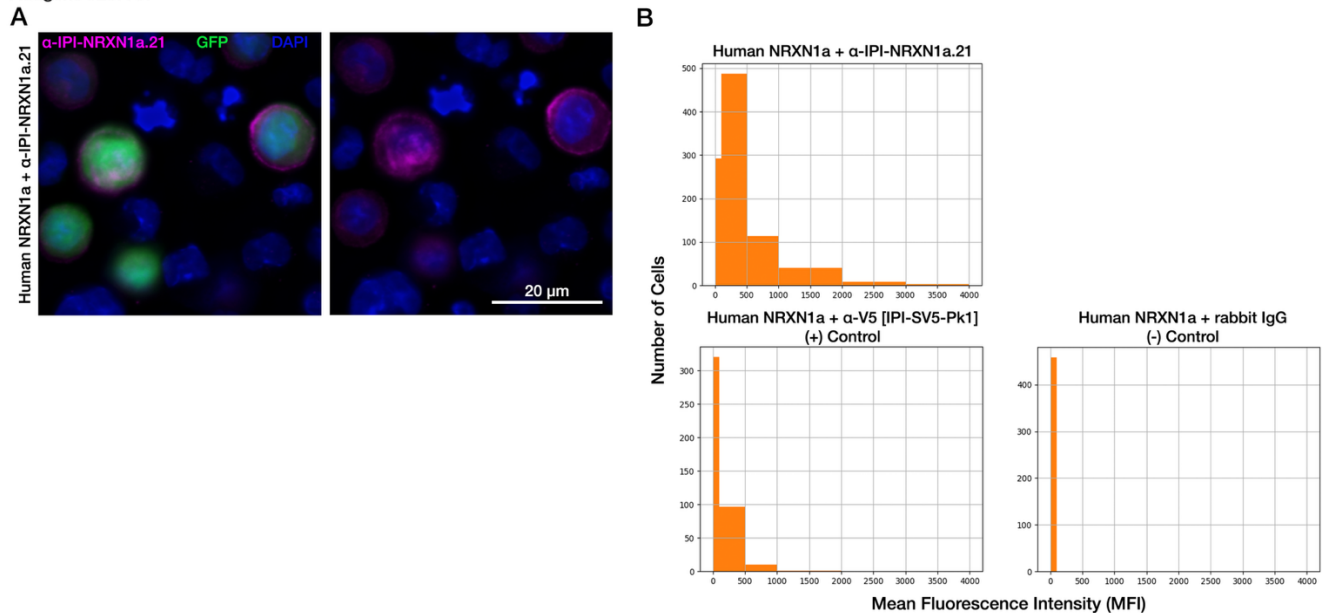
k_a ($M^{-1}s^{-1}$)	k_d (s^{-1})	K_D (M)
2.50×10^6	5.90×10^{-4}	2.40×10^{-10}

Surface Plasmon Resonance (SPR) kinetics analysis of the interaction between Anti-Neurexin-1-alpha [IPI-NRXN1a.21] and *H. sapiens* (human) NRXN1a. SPR binding kinetics were measured on a Cytiva LSA using HC30M chips (Cytiva, cat. #4279) at 25 °C. Goat anti-rabbit IgG Fc (Jackson ImmunoResearch, cat. #111-005-046) was immobilized via amine coupling, and test antibodies were captured using a 96-channel print-head. Antigens (400 nM to five lower concentrations, 2-fold dilutions) were injected in antigen buffer (20 mM HEPES pH 7.4, 150 mM NaCl, 1 mM CaCl₂, 1 mM MgCl₂, 0.005% Tween 80) with 300 s association/ dissociation phases and acid regeneration. Data (reference/buffer subtracted, smoothed) were globally fit to a 1:1 Langmuir model to derive k_a , k_d , and K_D using Cytiva Kinetics software v1.9.2.44.63, and replotted in OriginPro 2023b. Results show a high-affinity and specific binding event between the antibody and antigen. doi: <https://doi.org/10.57733/addgene.7was7f>

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Immunofluorescence (IF) – Species Reactivity

Anti-Neurexin-1-alpha [IPI-NRXN1a.21]
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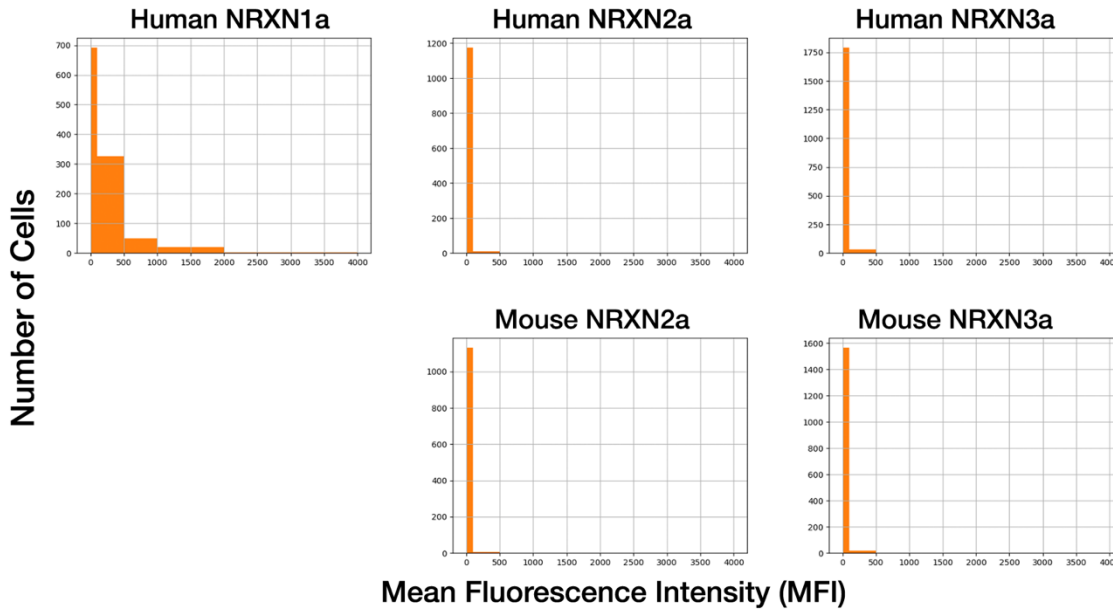


Anti-Neurexin-1-alpha [IPI-NRXN1a.21] (Addgene#237797) shows binding to human HNRXN1a. A) Immunofluorescence (IF) of ExpiCHO cells transfected with human NRXN1a. Widefield images taken at 40X magnification on an EVOS-m7000 microscope and deconvolved using the richardson-lucy algorithm in the FIJI deconlab plugin. Left image shows all 3 channels (IPI-NRXN1a.21, GFP (transfection control) and DAPI) while the right images only show IPI-NRXN1a.21 and DAPI. B) Combined quantification of multiple images of the same transfected cells taken at 10X magnification. GFP-positive cells were identified via the neural network CellPose, then the mean fluorescence intensity (MFI) of the far-red channel for each cell, representing IPI-NRXN1a.21 staining, was recorded. Each histogram displays the number of cells with MFIs ranging from below 100 (background fluorescence) to 4095 (saturation). NRXN3b.b31 staining of human NRXN1a is shown in the top row, and compared to a positive (left) and negative (right) control in the bottom row. For both panels, IPI-NRXN1a.21 was used at 1 μ g/mL (1:1,000 dilution). Because human and mouse NRXN1a are so sequentially similar, mouse NRXN1a binding was not tested for this antibody. doi: <https://doi.org/10.57733/addgene.1okdr3>

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Immunofluorescence (IF) – Target Specificity

Anti-Neurexin-1-alpha [IPI-NRXN1a.21]
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NRXN Specificity

	NRXN1		NRXN2		NRXN3		Strong	++
	Hu	Mo	Hu	Mo	Hu	Mo		
IPI-NRXN1a.21	++						Weak	+
							None	

Anti-Neurexin-1-alpha [IPI-NRXN1a.21] (Addgene#237797) shows specific binding to human NRXN1a only. Each graph depicts the combined quantification of multiple images of the same transfected cells taken at 10X magnification. GFP-positive cells were identified via the neural network CellPose, then the mean fluorescence intensity (MFI) of the far-red channel for each cell, representing IPI-NRXN1a.21 staining, was recorded. Each histogram displays the number of cells with MFIs ranging from below 100 (background fluorescence) to 4095 (saturation). IPI-NRXN1a.21 staining of human and mouse variants of each NRXNa family member is compared on the top and bottom rows. To test family-wide cross-reactivity, IPI-NRXN1a.21 was used at 1 ug/mL (1:1,000 dilution). Because human and mouse NRXN1a are so sequentially similar, mouse NRXN1a binding was not tested for this antibody. doi: <https://doi.org/10.57733/addgene.z8c95s>

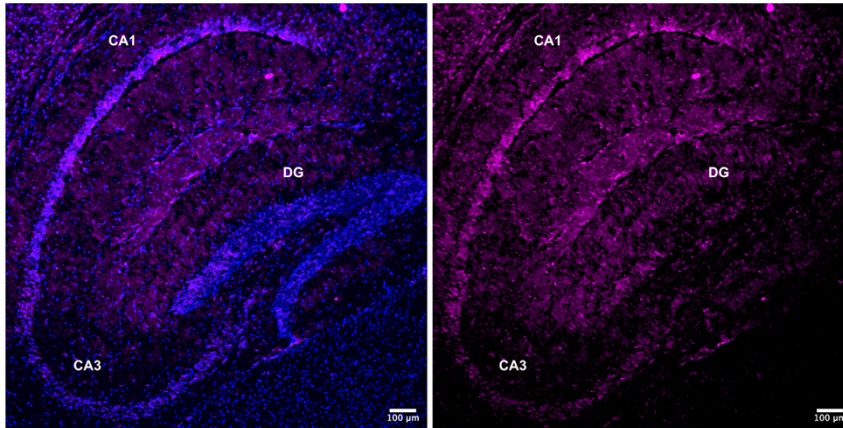
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Immunohistochemistry (IHC)

Anti-Neurexin-1-alpha [IPI-NRXN1a.21]

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IPI-NRXN1a.21 DAPI



Anti-Neurexin-1-alpha [IPI-NRXN1a.21] (Addgene#237797) shows strongest staining in the CA1 region of the hippocampus, weaker in CA3 and absent in DG, aligning with expression data detailed in the Allen Brain Atlas. Immunohistochemistry (IHC) of a 20 micron cryosection of the hippocampal section of an adult mouse brain. Widefield images taken at 4X magnification on an EVOS-m7000 microscope. Left image shows IPI-NRXN1a.21 and DAPI while the right image only shows IPI-NRXN1a.21. IPI-NRXN1a.21 was used at 10 ug/mL (1:100 dilution). <https://doi.org/10.57733/addgene.1megng>

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Antibody Details

Antibody design and production

Human variable domains for the heavy and light chain of the FAB fragment used in yeast display were grafted onto the constant CH1, CH2 and CH3 domains of rabbit IgG. The chimera human/rabbit IgG1 construct was recombinantly expressed in Expi HEK293 cells, using pTipi2.1 as the expression vector. The antibody was purified by affinity chromatography using protein A (XYZ) and acid elution, followed by immediate buffer exchange using 1 x PBS buffer pH 7.4.

Sequence information

Heavy chain and light chain amino acid sequences are available upon request after purchase. [Contact us](#) to request.

Antibody Characterization

LC-MS: Intact mass analysis via LC-MS methods allows for confirmation antibody mass, and to identify any product-related variants such as glycosylation. Before conducting intact mass analysis via LC-MS, the antibody was reduced to its heavy chain (HC) and light chain (LC). This process allows for confirmation of the masses corresponding to the amino acid sequences of both chains.

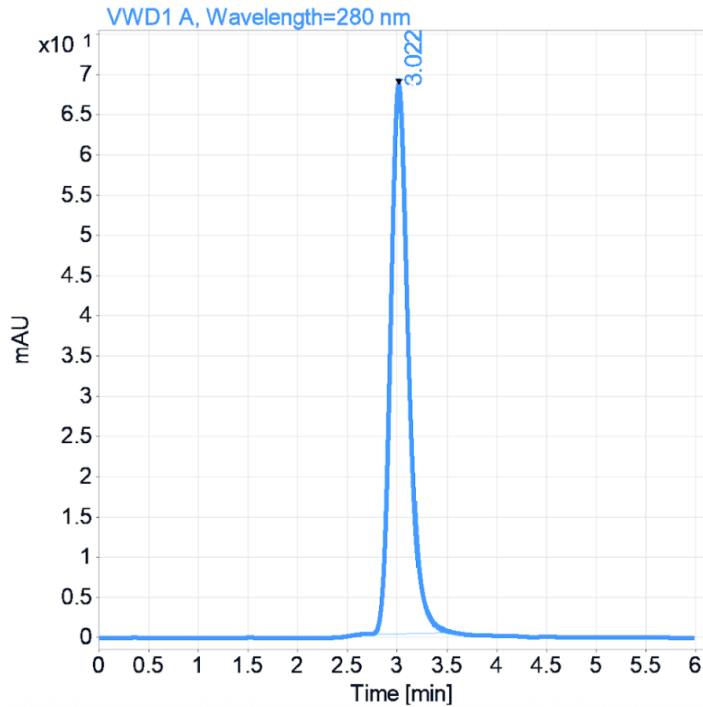
	HC MW (Da) <i>Calculated</i>	HC MW (Da) <i>Observed</i>	HC MW (Da) <i>Delta</i>	LC MW (Da) <i>Calculated</i>	LC MW (Da) <i>Observed</i>	LC MW (Da) <i>Delta</i>
IPI-NRXN1a.21	49891.74	49894.22	2.48	23817.38	23817.31	-0.07

Heavy Chain (HC) Mass Calculation: The calculated molecular weight (MW) of the HC is derived by adding the mass of the unmodified HC amino acid sequence to the mass of the predominant N-glycan form (G0F), which is 1444.5 Da. This calculation assumes that the intrachain disulfide bonds remain intact. For HCs with an N-terminal glutamine (Q), the mass of Q is converted to pyroglutamic acid (PyroGlu), resulting in a deduction of 17.03 Da from the total mass. Additionally, for HCs with a C-terminal lysine (K), the mass of K (128.09 Da) is also subtracted.

Light Chain (LC) Mass Calculation: The calculated molecular weight (MW) of the LC is obtained from the mass of the unmodified LC amino acid sequence, assuming that the intrachain disulfide bonds are not reduced. For LCs with an N-terminal glutamine (Q), the mass of Q is converted to pyroglutamic acid (PyroGlu), leading to a deduction of 17.03 Da from the total mass. For LCs with a C-terminal lysine (K), the mass of K (128.09 Da) is subtracted as well.

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Size Exclusion Chromatography (SEC): SEC is a protein purification technique that separates molecules based on size.



	RT (min)	Width (min)	Area	Height	Area %	Result
IPI-NRXN1a.21	3.022	0.2089	855.0845	68.2237	100	Pass

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Antigen Details

Immunogen design:

cDNA of Human Neurexin-1-alpha with C-terminal His-, Avi-, and HA-tags was produced in transiently transfected Expi293F cells and purified from culture supernatant by Ni-NTA affinity purification followed by size-exclusion chromatography.

Immunogen sequences:

>Human NRXN1 (AA: 28-258, 292-419, 427-513):

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DYKDDDDKGSGLFPGAEGQWTRFPKWNACCESEMSFQLKTRSARGLVLYFDDEGFCDLFLELILTRGG
RLQLSFSIFCAEPATLLADTPVNDGAWHSVRIRRRQFRNTTLFIDQVEAKWVEVKSKRRDMTVFSGLFVGG
LPPELRAAALKLTLASVREPERPFKGWIRDVRVNSSQVLPVDSGEVKLDDEPPNSGGGSPCEAGEEGEGG
VCLNGGVCSVWDDQAVCDCSRTGFRGKDCSQEIKFGLQCVPVLLHDNDQGKYCCINTAKPLTEKDNN
VEGLAHLMMGDQGKSKGKEEYIATFKGSEYFCYDLSQNPIQSSSDEITLSFKTLQRNGLMLHTGKSADY
VNLALKNGAVSLVINLGSFAFEALVEPVNGKFNDNAWHDVKVTRNLRQHSGIGHAMVNKLHCSVTISVD
GILTTTGYTQEDYTMLGSDDFFYVGGSPSTADLPGSPVSNFMGCLKEVVYKNNDVRLELSRLAKQGDP
KMKIHGVVAFKCGSGGLNDIFEAQKIEWHEGSGHHHHHHHH
```

Sequence information:

HUGO: 8008
Uniprot: Q9ULB1
Refseq: NM_001135659.3

Structural information:

Topology: Single-pass type I membrane protein
PDB IDs: 3B3Q;5Z8Y;6NID
AlphaFold: AF-Q9ULB1-F1

Expression profiles:

Human Protein Atlas: ENSG00000179915

References

1. A. Morano, T. Riedel, and D. Moshinsky. (2026). ICC/IF for Anti-Neurexin-1-alpha [IPI-NRXN1a.21] in binding assay. Addgene. <https://doi.org/10.57733/addgene.1okdr3>
2. A. Morano, T. Riedel, and D. Moshinsky. (2026). ICC/IF for Anti-Neurexin-1-alpha [IPI-NRXN1a.21] in specificity assay. Addgene. <https://doi.org/10.57733/addgene.z8c95s>
3. A. Kachare, M. Anuganti, T. Riedel, and D. Moshinsky. (2026). Anti-Neurexin-1-alpha [IPI-NRXN1a.21] in Surface Plasmon Resonance (SPR). Addgene. <https://doi.org/10.57733/addgene.7was7f>
4. A. Morano, T. Riedel, and D. Moshinsky. (2026). Anti-Neurexin-1-alpha [IPI-NRXN1a.21] in Immunohistochemistry (Mouse). Addgene. <https://doi.org/10.57733/addgene.1megng>
5. J. Azevedo, C. Cação and L.F. Ribeiro. (2026). ICC for IPI-NRXN1a.21. Addgene. <https://doi.org/10.57733/addgene.7i6hw8>

How to cite this antibody:

Anti-Neurexin-1-alpha [IPI-NRXN1a.21] - from Institute for Protein Innovation (IPI) (Addgene #237797; <http://n2t.net/addgene:237797>; RRID: AB_3678701).

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