

## Product Datasheet

### [Anti-Neurexin-2-beta \[IPI-NRXN2b.9\]](#)

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#### Overview

Antigen	Neurexin-2-beta
Immunogen	Purified recombinant fragment of Human Neurexin-2-beta, corresponding to AA: 51-206.
Host/isotype	Rabbit/IgG
Clonality	Recombinant monoclonal
Clone name	IPI-NRXN2b.9
RRID	AB_3678707
IPI ID	TAB0015325-013-002
Specificity	NRXN2b; Does not recognize other NRXNs
Species reactivity	Human and mouse
Amount	100 µg
Concentration	1 mg/mL
Purification	Expressed in HEK293 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<sup>‡</sup>

Application	Tested concentration	Result	Reference
Flow	0.66-100 µg/mL	Positive	<a href="https://doi.org/10.57733/addgene.arf8ht">https://doi.org/10.57733/addgene.arf8ht</a>
IF – Binding	1 µg/mL	Positive	<a href="https://doi.org/10.57733/addgene.eg8zhy">https://doi.org/10.57733/addgene.eg8zhy</a>
IF – Specificity	0.1 µg/mL	Positive	<a href="https://doi.org/10.57733/addgene.v4wm51">https://doi.org/10.57733/addgene.v4wm51</a>
IF – siRNA KD	5 µg/mL	Positive	<a href="https://doi.org/10.57733/addgene.gf6zps">https://doi.org/10.57733/addgene.gf6zps</a>
WB	5 µg/mL	Negative	Unpublished

<sup>‡</sup> Not suitable for WB application.

#### Community Data\*

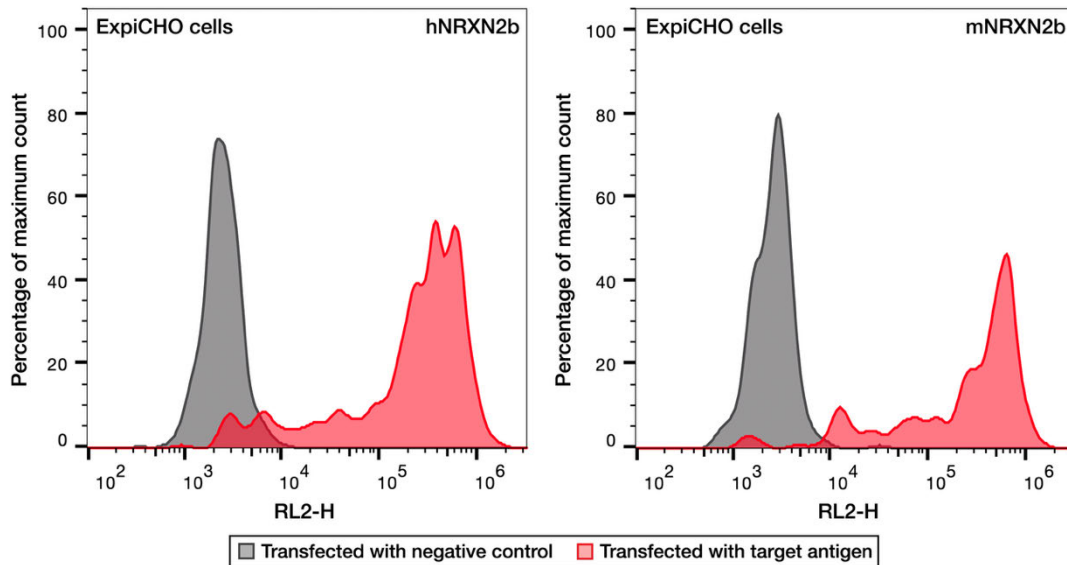
Application	Lab	Reference
IF	Luís F. Ribeiro, Ph.D., University of Coimbra	<a href="https://doi.org/10.57733/addgene.z6kl2f">https://doi.org/10.57733/addgene.z6kl2f</a>

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

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## Applications

### Flow cytometry

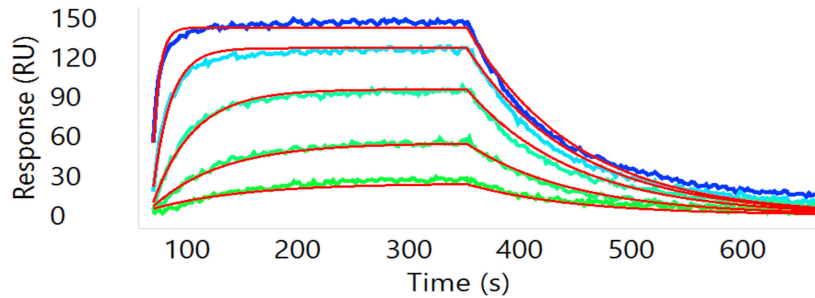


**Anti-Neurexin-2-beta [IPI-NRXN2b.9] (Addgene #273809) recognizes mouse and human NRXN2b in flow cytometry.** Histogram from FACS analysis on ExpiCHO cells transfected with human or mouse NRXN2b (red), or B7H3 negative control (gray). Cells expressing human (left panel) or mouse (right panel) NRXN2b were labeled with Anti-Neurexin-2-beta [IPI-NRXN2b.9] and Alexa Fluor 647 F(ab')<sub>2</sub> goat anti-rabbit IgG Fc fragment (Jackson ImmunoResearch, 111-606-046). Labeled cells were analyzed with an Intellicyt iQue Screener Plus flow cytometer. Histograms were generated and normalized to mode using FlowJo™ v10.10. doi: <https://doi.org/10.57733/addgene.arf8ht>

**EC<sub>50</sub> (data not shown):** A fourteen-point titration of antibody concentrations, ranging from 660 nM (0.1 mg/mL) to 4.42 pM with a 1:2.5 dilution factor, against human and mouse NRXN2b showed reactivity towards human and mouse NRXN2b with observed EC<sub>50</sub> values of 0.26 nM and 0.35 nM for human and mouse NRXN2b, respectively.

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### Surface Plasmon Resonance (SPR)

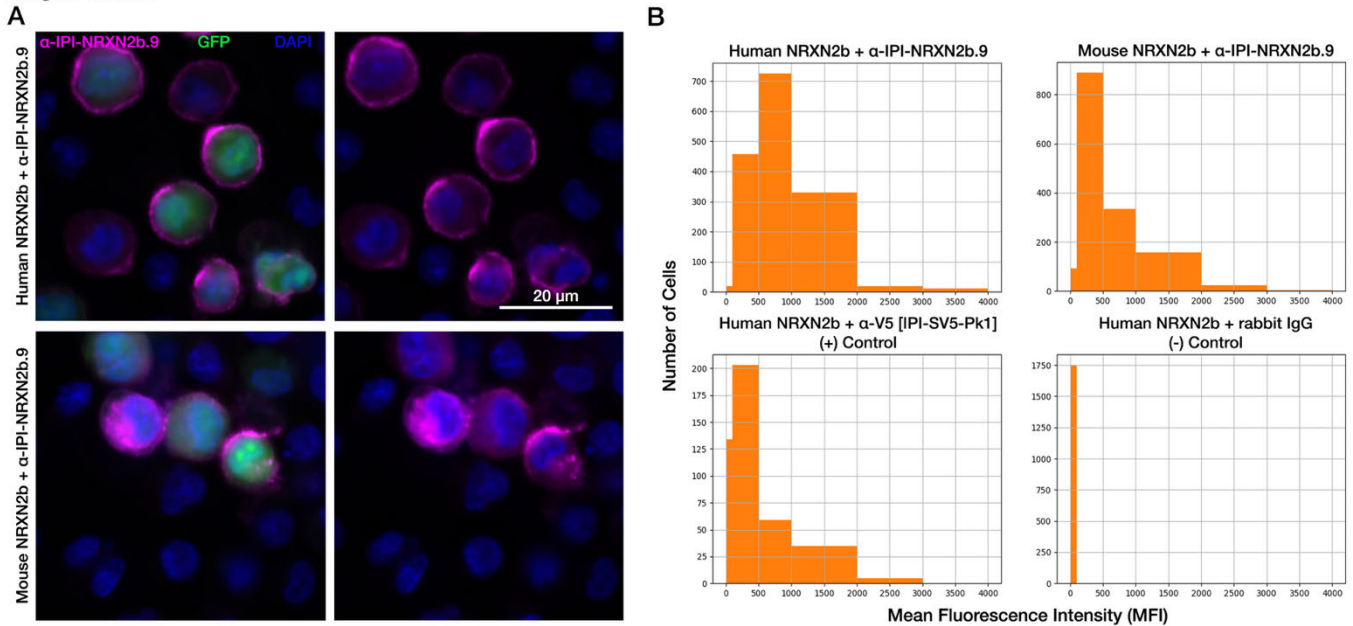


	$k_a$ ( $M^{-1}s^{-1}$ )	$k_d$ ( $s^{-1}$ )	$K_D$ (M)	$R_{max}$ (RU)	Res. sd
<b>IPI-NRXN2b.9</b>	$3.9 \times 10^5$	$1.0 \times 10^{-2}$	$2.6 \times 10^{-8}$	152.3	3.5

**Surface Plasmon Resonance (SPR) kinetics analysis of the interaction between Anti-Neurexin-2-beta [IPI-NRXN2b.9] and human NRXN2b.** SPR binding kinetics were measured on a Catterra LSA using HC30M chips (Catterra, 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 CaCl<sub>2</sub>, 1 mM MgCl<sub>2</sub>, 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 Catterra 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.

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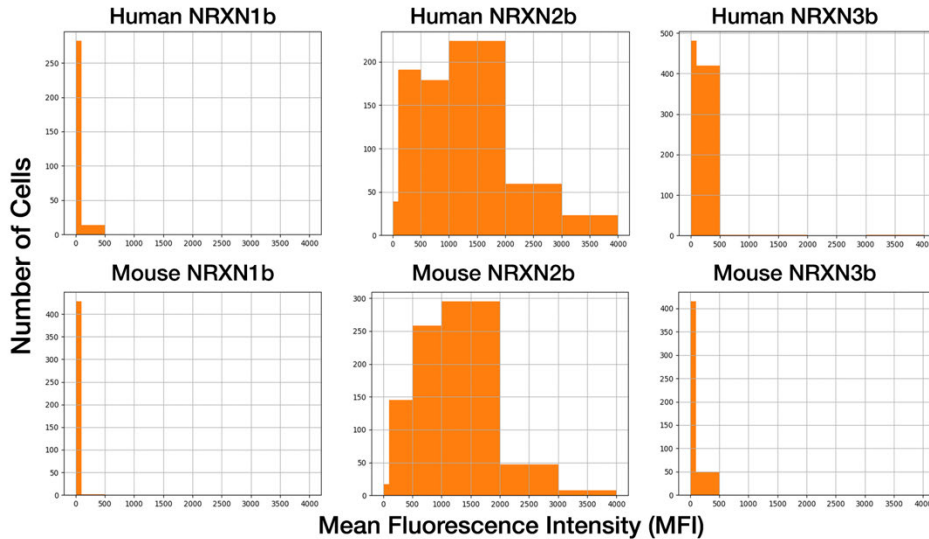
**Immunofluorescence (IF) – Species Reactivity**



**Anti-Neurexin-2-beta [IPI-NRXN2b.9] (Addgene #273809) recognizes mouse and human NRXN2b in immunofluorescence.** A) Immunofluorescence (IF) of ExpiCHO cells transfected with human (top) and mouse (bottom) NRXN2b. Widefield images taken at 40X magnification on an EV0S-m7000 microscope and deconvolved using the richardson-lucy algorithm in the FIJI deconlab plugin. Left images show all 3 channels (IPI-NRXN2b.9, GFP (transfection control) and DAPI) while the right images only show IPI-NRXN2b.9 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-NRXN2b.9 staining, was recorded. Each histogram displays the number of cells with MFIs ranging from below 100 (background fluorescence) to 4095 (saturation). NRXN2b.9 staining of human (left) and mouse (right) NRXN3b is shown in the top row, and compared to a positive (left) and negative (right) control in the bottom row. For both panels, IPI-NRXN2b.9 was used at 1  $\mu$ g/mL (1:1000 dilution). doi: <https://doi.org/10.57733/addgene.eq8zhy>

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**Immunofluorescence (IF) – Target Specificity**



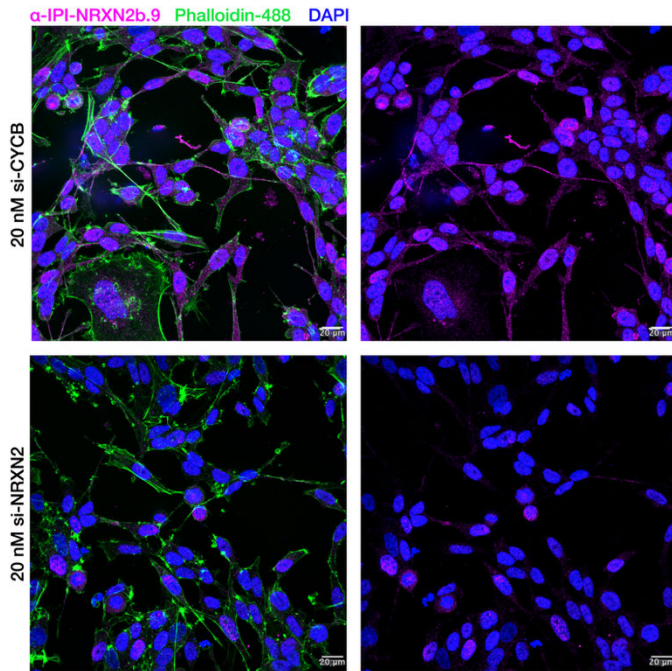
**NRXN Specificity**

	NRXN1		NRXN2		NRXN3		Strong	++
	Hu	Mo	Hu	Mo	Hu	Mo		
IPI-NRXN2b.9			++	++			Weak	+
							None	

**Anti-Neurexin-2-beta [IPI-NRXN2b.9] (Addgene #273809) is specific for mouse and human NRXN2b in immunofluorescence.** 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-NRXN2b.9 staining, was recorded. Each histogram displays the number of cells with MFIs ranging from below 100 (background fluorescence) to 4095 (saturation). IPI-NRXN2b.9 staining of human and mouse variants of each NRXNb family member is compared on the top and bottom rows. To test family-wide cross-reactivity, IPI-NRXN2b.9 was used at 0.1 ug/mL (1:10,000 dilution). doi:

<https://doi.org/10.57733/addgene.v4wm51>

### Immunofluorescence (IF) – siRNA KD



Immunofluorescence (IF) of NC1H446 cells treated with 20 nM siRNA against housekeeping gene cyclophilin B (top row) and 20 nM siRNA against NRXN2 for 90 hours, then stained for NRXN2 expression using IPI-NRXN2b.9 and for actin with Alexa Fluor 488-conjugated phalloidin. Confocal images taken at 40X magnification on an ImageXpress HT confocal.ai microscope. Left images show all 3 channels (IPI-NRXN2b.9, actin, and DAPI) while the right images only show IPI-NRXN2b.9 and DAPI. For both panels, NRXN2b.9 was used at 5 ug/mL (1:200 dilution) siRNA knockdown resulted in reduced staining with IPI-NRXN2b.9 by a significant degree in cells expressing NRXN2 using a siRNA specific to NRXN2 but not with control siRNA. doi: <https://doi.org/10.57733/addgene.gf6zps>

## **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.

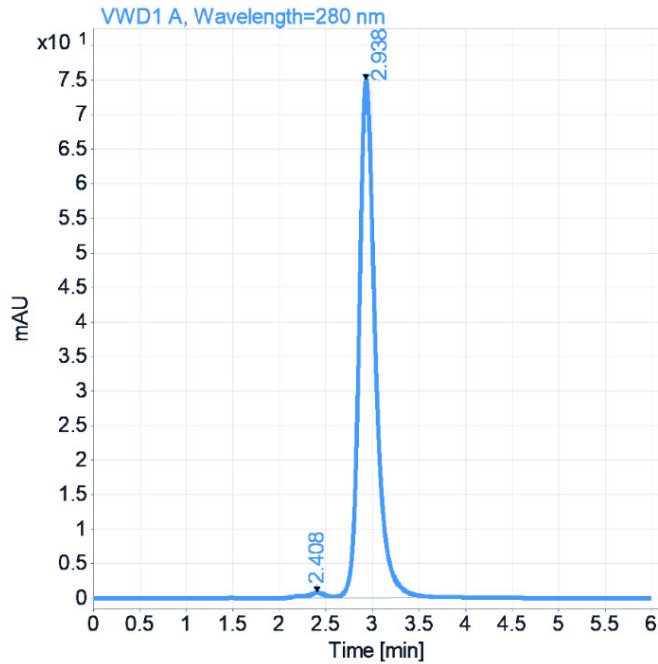
	<b>HC MW (Da) <i>Calculated</i></b>	<b>HC MW (Da) <i>Observed</i></b>	<b>HC MW (Da) <i>Delta</i></b>	<b>LC MW (Da) <i>Calculated</i></b>	<b>LC MW (Da) <i>Observed</i></b>	<b>LC MW (Da) <i>Delta</i></b>
<b>IPI-NRXN2b.9</b>	49945.84	49949.50	3.66	23817.44	23817.22	-0.22

**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
<b>IPI-NRXN2b.9</b>	2.938	0.2025	910.4749	74.9439	98.7188	Pass

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## **Antigen Details**

### **Immunogen design:**

cDNA of Human Neurexin-2-beta with C-terminal His- and Avi- 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 NRXN2b (AA: 51-206, 237-297)

ARVSSSLSTTHHVHHFHSKHGTVPIAINRMPFLTRGGHAGTTYIFGKGGALITYTWPPNDRPSTRMDRLA  
VGFSTHQRSAVLVRVDSASGLGDYLLQLHIDQGTGVVIFNVGTTDDITIDEPNAIVSDGKYHVVRFRSSGNA  
TLQVDSWPVNERYPAGRQLTIFNSQAAIKIGGRDQGRPFQGVSGLYYNGLKVLALAAESDPNVRTEGH  
LRLVGEGLGGGGSGGGGSLNDIFEAQKIEWHEGSGHHHHHHHHH

### **Sequence information:**

HUGO: 8009  
Uniprot: P58401  
Refseq: NM\_138734.3

### **Structural information:**

Topology: Single-pass type I membrane protein  
PDB IDs: 4NXR  
AlphaFold: AF-P58401-F1

### **Expression profiles:**

Human Protein Atlas ENSG00000110076

## **References**

1. Z. Anderson, H. Li, T. Riedel, H. Zhu and D. Moshinsky. (2025). Flow Cytometry for Anti-Neurexin-2-beta [IPI-NRXN2b.9]. Addgene. <https://doi.org/10.57733/addgene.arf8ht>
2. A. Morano, T. Riedel, and D. Moshinsky. (2025). ICC/IF for Anti-Neurexin-2-beta [IPI-NRXN2b.9] in binding assay. Addgene. <https://doi.org/10.57733/addgene.eg8zhy>
3. A. Morano, T. Riedel, and D. Moshinsky. (2025). ICC/IF for Anti-Neurexin-2-beta [IPI-NRXN2b.9] in specificity assay. Addgene. <https://doi.org/10.57733/addgene.v4wm51>
4. J. Azevedo, C. Cação and L.F. Ribeiro. (2025). IF for Anti-Neurexin-2-beta [IPI-NRXN2b.9]. Addgene. <https://doi.org/10.57733/addgene.z6kl2f>

## **How to cite this antibody:**

Anti-Neurexin-2-beta [IPI-NRXN2b.9] - from Institute for Protein Innovation (IPI) (Addgene #237809; <http://n2t.net/addgene:237809>; RRID: AB\_3678707).

If you publish research with this product, please [let us know](#) so that we can cite your paper.