

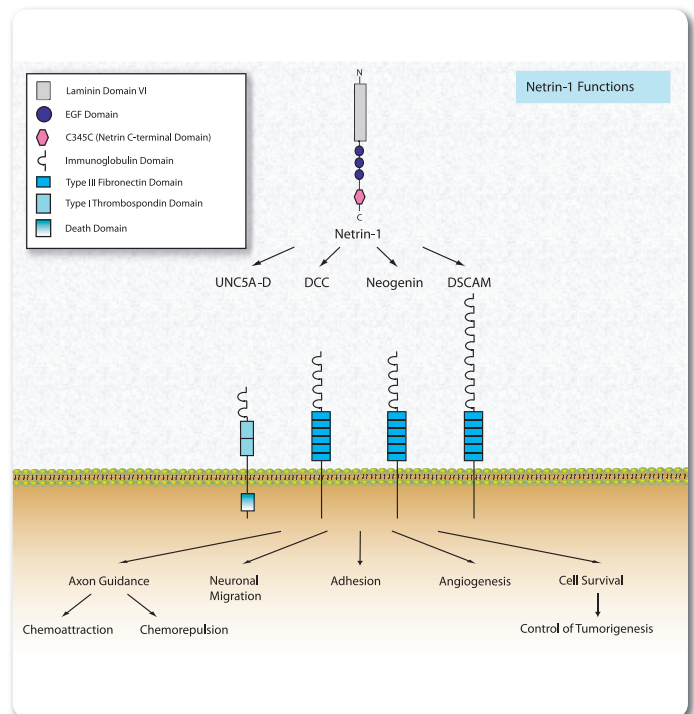
NETRINS & DEPENDENCE RECEPTORS

Netrins & Their Receptors

The netrins (whose name means “one who guides” in Sanskrit) are a family of laminin-related secreted proteins. In neuronal development netrin-1 is predominantly expressed by floor plate cells as commissural axons extend toward the ventral midline. Netrin-1 induces axonal outgrowth, axon orientation and neuronal migration. It is chemoattractive for some neurons and chemorepellent for others.

Netrin-1 is also expressed in organs such as pancreas, kidney, lung, bowel, bone and mammary gland. In these tissues, netrin-1 has different roles such as invasion of epithelial cells, leukocytes migration, cell adhesion or angiogenesis (see figure). As a survival factor, netrin-1 contributes to the control of tumorigenesis. Netrin-1 is overexpressed in metastatic breast cancer, conferring a selective advantage for tumor cell survival. Netrin-1 has recently been shown to play a role in kidney by maintaining vascular endothelial function. Moreover, netrin-1 might be used as a biomarker for acute kidney injury (AKI).

To carry its functions, netrin-1 interacts with specific receptors that belong to three protein families: DCC/neogenin, UNC5 and DSCAM. These receptors belong to the family of “dependence receptors” that induce apoptosis in the absence of their respective ligand, and promote survival when bound to their ligand (not proven for DSCAM yet). The netrin-1 mediated survival signal inhibits p53-induced apoptosis and is dependent on the activation of PI3-kinase and AKT signaling.



Netrin-4 (human) ELISA Kit

Product No: APO-54N-037-KI01

Quantity: 96 wells

Sensitivity: >50pg/ml (range 78 to 5000pg/ml)

- For the direct measurement of human netrin-4 from serum, plasma or cell culture supernatants.

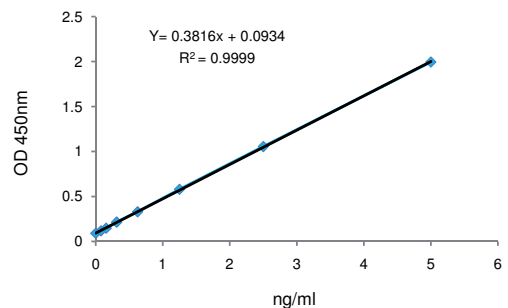


FIGURE: Typical standard curve for Netrin-4 (human) ELISA Kit.

Netrins & Their Receptors

Netrin-1

Netrin-1 (human) (rec.)

ALX-522-100-2010 2 x 10 µg

Produced in HEK 293 cells. The extracellular domain of human netrin-1 (aa 28-604) is fused at the N-terminus to a FLAG®-tag. **SPECIFICITY:** Binds to human, mouse and rat receptors UNC5H and DCC. **BIOLOGICAL ACTIVITY:** Induces axon outgrowth. Inhibits DCC- and UNC5B (UNC5H2)-mediated apoptosis in HEK 293 cells.

LI: Netrin-1 expression confers a selective advantage for tumor cell survival in metastatic breast cancer: J. Fitamant, et al.; PNAS **105**, 4850 (2008)

Netrin-1 (mouse) (rec.)

ALX-522-124-2010 2 x 10 µg

Produced in HEK 293 cells. The extracellular domain of mouse netrin-1 (aa 27-604) is fused at the N-terminus to a FLAG®-tag. **SPECIFICITY:** Binds to human and mouse UNC5B.

Netrin-1 (chicken) (rec.)

ALX-522-106-2010 2 x 10 µg

Produced in HEK 293 cells. Chicken netrin-1 (aa 27-606) is fused at the C-terminus to a linker peptide (6 aa) and a FLAG®-tag. **SPECIFICITY:** Binds to human receptor UNC5B.

Netrin-1, mAb (Nora-1)

ALX-804-838-C100 100 µg

CLONE: Nora-1. **ISOTYPE:** Mouse IgG2. **IMMUNOGEN:** Recombinant human, mouse and chicken netrin-1 (aa 28-264). **SPECIFICITY:** Recognizes human, mouse and chicken netrin-1. **APPLICATION:** ELISA, IHC, IP, WB.

Netrin-1, pAb (AT118)

ALX-210-943-C100 100 µg

From rabbit. **IMMUNOGEN:** Recombinant human netrin-1 (aa 23-449) (Prod. No. ALX-522-100). **SPECIFICITY:** Recognizes human, mouse and chicken netrin-1. **APPLICATION:** IHC (FS, PS), WB.

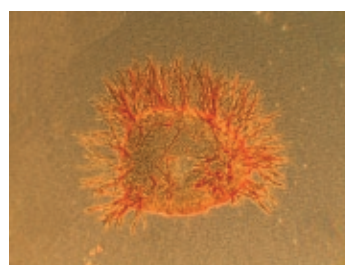
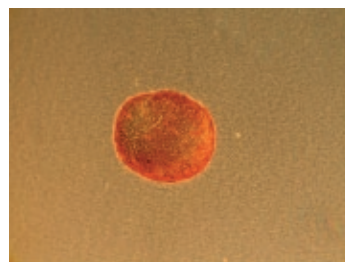


FIGURE: Netrin-1 (human) (rec.) (Prod. No. ALX-522-100) mediated commissural axon outgrowth.

METHOD: Dorsal spinal cord was dissected out from E13 rat embryos and cultured in collagen matrix in the presence or absence of netrin-1 (250ng/ml). Axons were then stained with an anti-β-tubulin antibody.

Picture courtesy of Véronique Corset, Centre Léon Bérard, Lyon.

Latest Insight

Netrin-1 inhibits Endothelial Cell Apoptosis during Angiogenesis

Recently, M. Castets et al. showed that netrin-1 controls the survival of endothelial cells and promotes angiogenesis by blocking apoptosis induced by its unbound UNC5B receptor. They propose that overexpression of netrin-1 in tumor epithelial cells may have two additive effects. First, as reported by J. Fitamant et al., to confer a selective advantage for epithelial tumor cells by inhibiting dependence-receptor-induced cell death. Second, it could also potentially favor blood vessel maintenance and/or development, and consequently promote cancer progression. Therefore, an anticancer approach based on disruption of netrin-1 function, should eradicate not only tumor epithelial cells but also tumor angiogenetic vessels.

LI: Inhibition of Endothelial Cell Apoptosis by Netrin-1 during Angiogenesis: M. Castets, et al.; Dev. Cell **16**, 614 (2009) • Netrin-1 expression confers a selective advantage for tumor cell survival in metastatic breast cancer: J. Fitamant, et al.; PNAS **105**, 4850 (2008)

Neogenin & DCC

Neogenin (human):Fc (human) (rec.)

ALX-522-122-C050 50 µg

Produced in HEK 293 cells. The extracellular domain of human neogenin (aa 34-1105) is fused to the Fc portion of human IgG1.

DCC (Fibronectin Domain 5) (human) (rec.)

ALX-522-109-C050 50 µg

Produced in *E. coli*. The fibronectin domain 5 (FBN5) of human DCC (aa 841-941) is fused to a N-terminal tag. **SPECIFICITY:** Binds to human netrin-1.

LI: Netrin-1 expression confers a selective advantage for tumor cell survival in metastatic breast cancer: J. Fitamant, et al.; PNAS **105**, 4850 (2008)

DCC (human), mAb (Axel-1)

ALX-804-853-C100 Purified 100 µg

ALX-804-853PF-C100 Purified (PF) 100 µg

ALX-804-853TD-T100 ATTO 488 100 tests

ALX-804-853TS-T100 ATTO 647N 100 tests

CLONE: Axel-1. **ISOTYPE:** Mouse IgG2a. **IMMUNOGEN:** Recombinant human DCC fibronectin domain 5 (Prod. No. ALX-522-109). **SPECIFICITY:** Recognizes human DCC. **APPLICATION:** FC. **FUNC:** Blocking.

incorporating

ALEXIS **BIOMOL**
BIOCHEMICALS

www.enzolifesciences.com

UNC

UNC5A (human):Fc (human) (rec.)

ALX-522-121-C050 50 µg
Produced in CHO cells. The extracellular domain of UNC5A (UNC5H1) (aa 26-306) is fused to the Fc portion of human IgG1.

UNC5A (human), mAb (Dettwy-1)

ALX-804-864-C100 100 µg
CLONE: Dettwy-1. **ISOTYPE:** Mouse IgG1. **IMMUNOGEN:** Extracellular domain of human UNC5A (UNC5H1) (aa 26-306) fused to the Fc portion of human IgG1 (Prod. No. ALX-522-121). **SPECIFICITY:** Recognizes human UNC5A. **APPLICATION:** ELISA, FC.

UNC5B (mouse):Fc (human) (rec.)

ALX-522-123-C050 50 µg
Produced in HEK 293 cells. The extracellular domain of mouse UNC5B (UNC5H2) (aa 27-376) is fused to the Fc portion of human IgG1. **SPECIFICITY:** Binds to human and mouse netrin-1.

UNC5B (human):Fc (human) (rec.)

ALX-522-095-C050 50 µg
Produced in CHO cells. The extracellular domain of human UNC5B (UNC5H2) (aa 28-363) is fused to the Fc portion of human IgG1. **SPECIFICITY:** Binds to human, mouse and chicken netrin-1 and to chicken netrin-2. **BIOLOGICAL ACTIVITY:** Inhibits netrin-1 mediated survival of HEK 293 cells overexpressing DCC or UNC5B.

LT: Netrin-1 expression confers a selective advantage for tumor cell survival in metastatic breast cancer: J. Fitamant, et al.; PNAS **105**, 4850 (2008)

UNC5B, mAb (Guido-1)

ALX-804-846-C100 100 µg
ALX-804-846TD-T100 ATTO 488 100 tests
ALX-804-846TS-T100 ATTO 647N 100 tests
CLONE: Guido-1. **ISOTYPE:** Mouse IgG2. **IMMUNOGEN:** Recombinant human UNC5B (UNC5H2) (aa 28-363) (Prod. No. ALX-522-095). **SPECIFICITY:** Recognizes human and mouse UNC5B. **APPLICATION:** FC.

Netrin-4

Netrin-4 (human) (rec.)

ALX-522-113-2010 2 x 10 µg
Produced in HEK 293 cells. Human netrin-4 is fused at the N-terminus to a FLAG[®]-tag.

Netrin-4 (mouse) (rec.)

[β-Netrin (mouse) (rec.)]
ALX-522-136-2010 2 x 10 µg
Produced in HEK 293 cells. Mouse netrin-4 (aa 21-628) is fused at the N-terminus to a FLAG[®]-tag.

Netrin-4 (human), mAb (Netry-1)

ALX-804-860-C100 100 µg
ALX-804-860B-C100 Biotin 100 µg
CLONE: Netry-1. **ISOTYPE:** Mouse IgG1. **IMMUNOGEN:** Recombinant human netrin-4 (Prod. No. ALX-522-113). **SPECIFICITY:** Recognizes human netrin-4. **APPLICATION:** ELISA, IP.

Netrin-4 (human), mAb (Netry-2)

ALX-804-862-C100 100 µg
CLONE: Netry-2. **ISOTYPE:** Mouse IgG1. **IMMUNOGEN:** Recombinant human netrin-4 (Prod. No. ALX-522-113). **SPECIFICITY:** Recognizes human netrin-4. **APPLICATION:** ELISA, IP, WB.

Netrin-4 (human), pAb (AT128)

ALX-210-953-C100 100 µg
ALX-210-953B-C100 Biotin 100 µg
From rabbit. **IMMUNOGEN:** Recombinant human netrin-4 (Prod. No. ALX-522-113). **SPECIFICITY:** Recognizes human netrin-4. **APPLICATION:** ELISA, IP, WB.

Netrin-4 (human) Detection Set [For ELISA Application]

Product No: APO-54N-033-KI01
Quantity: For 5 x 96 wells
Content: 1 vial Standard (lyophilized) (STD)
1 vial Coating Antibody (COAT)
1 vial Detection Antibody (DET)
Sensitivity: >50pg/ml (range 0 to 5ng/ml)

- For the quantitative determination of human netrin-4 from biological fluids (serum, plasma and cell culture supernatant).

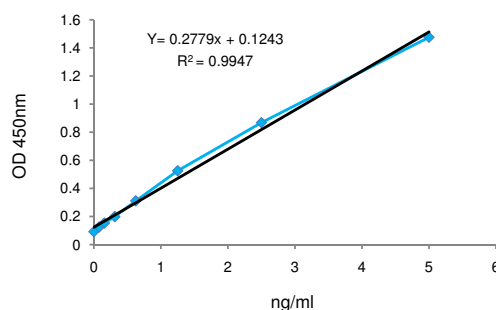
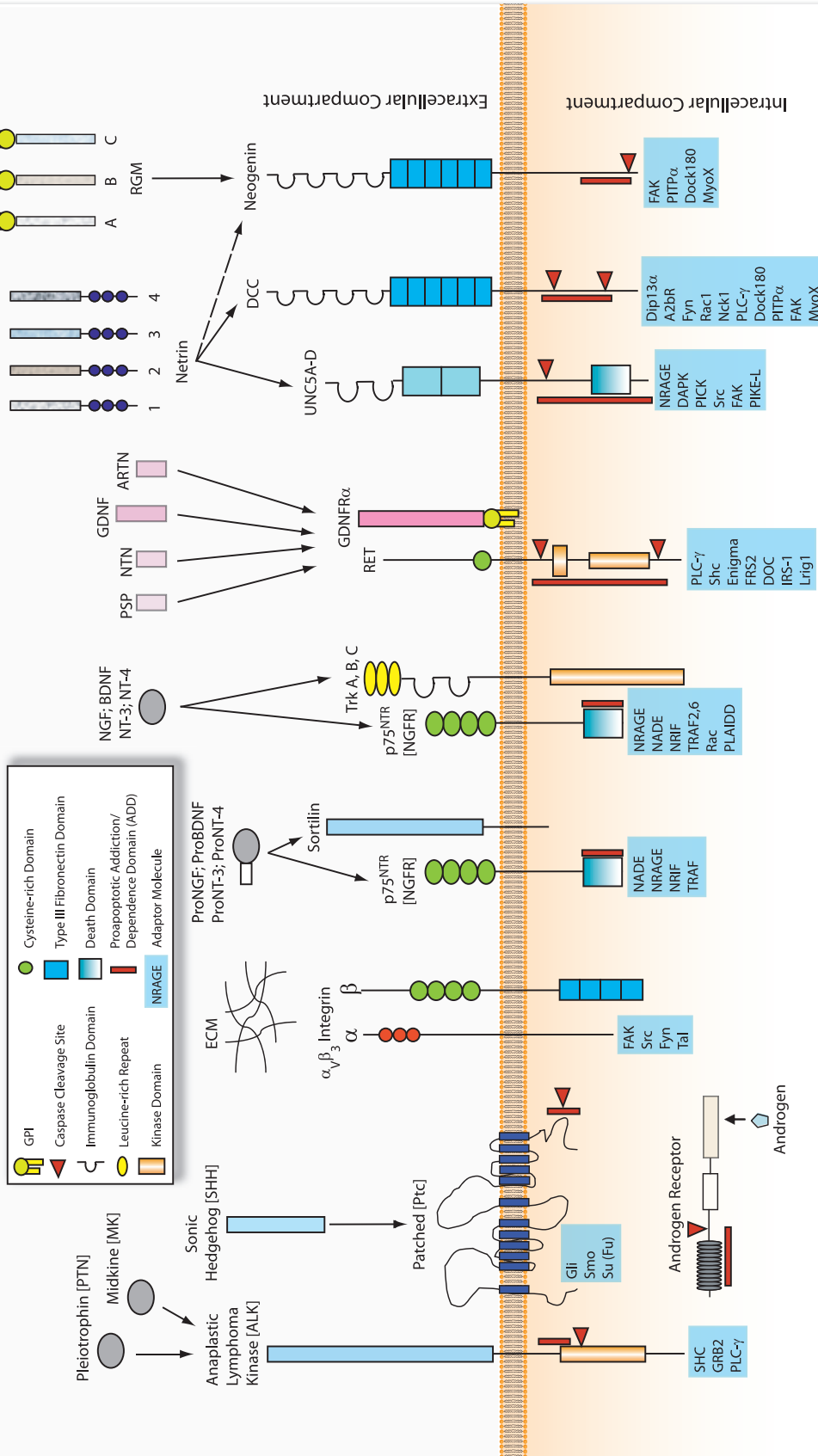


FIGURE: Typical standard curve for Netrin-4 (human) Detection Set [for ELISA Application]

Dependence Receptors & Their Ligands



Dependence Receptors, ligands, and related products are available on www.enzolifesciences.com



Switzerland & Rest of Europe

ENZO LIFE SCIENCES AG
 Industriestrasse 17, Postfach
 CH-4415 Lausen / Switzerland
 Tel. + 41/0 61 926 89 89
 Fax + 41/0 61 926 89 79
info-ch@enzolifesciences.com

North/South America

ENZO LIFE SCIENCES INTERNATIONAL, INC.
 5120 Butler Pike
 Plymouth Meeting, PA 19462-1202
 USA
 Tel. 1-800-942-0430 / (610) 941-0430
 Fax (610) 941-9252
info-usa@enzolifesciences.com

Benelux

ENZO LIFE SCIENCES BVBA
 Melkerijweg 3
 BE-2240 Zandhoven / Belgium
 Tel. +32/0 3 466 04 20
 Fax +32/0 3 466 04 29
info-be@enzolifesciences.com

Germany

ENZO LIFE SCIENCES GmbH
 Marie-Curie-Strasse 8
 DE-79539 Lörrach / Germany
 Tel. +49/0 7621 5500 526
 Toll Free: 0800 6649518
 Fax +49/0 7621 5500 527
info-de@enzolifesciences.com

UK & Ireland

ENZO LIFE SCIENCES (UK) LTD.
 Palatine House
 Matford Court
 Exeter EX2 8NL / UK
 Tel. 0845 601 1488 (UK customers)
 Tel. +44/0 1392 825900 (overseas)
 Fax +44/0 1392 825910
info-uk@enzolifesciences.com

For Local Distributors please visit our Website.

incorporating



www.enzolifesciences.com