

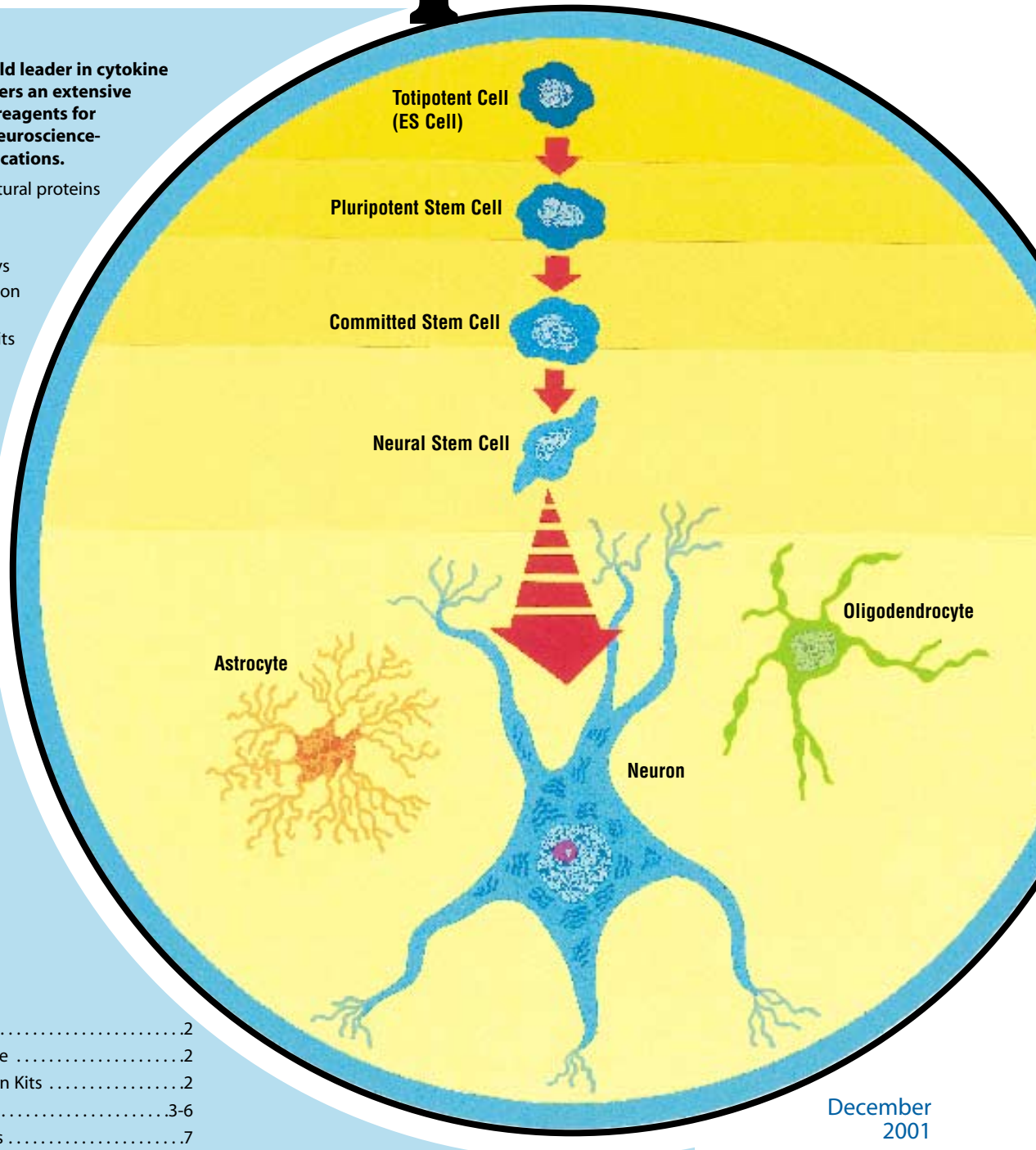
In Scope

R&D Systems, the world leader in cytokine research reagents, offers an extensive selection of research reagents for developmental and neuroscience-related research applications.

- Recombinant and natural proteins
- Antibodies
- Immunoassays
- Enzyme activity assays
- Stem cell differentiation kits
- Receptor detection kits
- cDNA expression arrays
- mRNA quantitation kits
- Primer pairs
- Probe cocktails

Figure Legend:

Stem cells can be self-renewing and are thus able to propagate and generate additional stem cells. They can also differentiate into various progenitor cells, which commit to further maturation along specific lineages (e.g. neural stem cell differentiation).



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December 2001



Making the discoveries of today, your research tools tomorrow.

Mouse Dopaminergic Neuron Differentiation Kit

Dopamine cell bodies exist in the mid-brain, where they are mainly located within the substantia nigra, ventral tegmental area, and retrorubral field. These dopaminergic (DA) neurons give rise to extensive forebrain DA innervation.¹ The midbrain dopamine projections to the striatum have been among the most extensively studied catecholamine neurons, in part, because the degeneration of DA neurons in the substantia nigra results in Parkinson's disease (PD).² Both animal models and clinical trial results have suggested that cell replacement therapies may be effective in treating PD.³ This approach is limited, however, by the availability of a rich, effective source of neural precursors for DA neuron generation.

Embryonic stem (ES) cells have been recognized as the most pluripotent stem cell population,⁴ giving rise to a collection of differentiated cells and tissues, including neurons. Thus, they may serve as a potential source of replacement DA neurons in PD. Methods have been reported for generating DA neurons from ES cells,^{5,6} thus demonstrating the feasibility of identifying conditions required for functional DA neuron differentiation of ES cells. Experimental models established from these studies might facilitate the *in vitro* examination of aspects of neural development, in particular the underlying mechanisms controlling cell lineage and fate commitment.

Continued on page 3

Kit Procedure Outline

Stage I:

Expansion of Undifferentiated ES Cells



Stage II:

Formation of Embryoid Bodies



Stage III:

Selection of Nestin-positive Cells



Stage IV:

Expansion of Nestin-positive Cells



Stage V:

Differentiation to Dopaminergic Neurons



Immunoassay Kits

Quantikine® - Human and Mouse ELISAs

Analyte	Species	Catalog #	Sensitivity	Range	Size
Activin A	human	DAC00	.23 pg/mL	15.6-1000 pg/mL	.96 Wells
	mouse	MAC00	.10 pg/mL	46.9-3000 pg/mL	.96 Wells
Angiogenin	human	DAN00	.6 pg/mL	78.1-5000 pg/mL	.96 Wells
BDNF	human	DBD00	.20 pg/mL	62.5-4000 pg/mL	.96 Wells
BMP-2	human	DBP200	.54 pg/mL	62.5-4000 pg/mL	.96 Wells
BMP-4	human	DBP400	1.04 pg/mL	31.2-2000 pg/mL	.96 Wells
P-Cadherin	human	DPCD0	0.63 ng/mL	1.25-80 ng/mL	.96 Wells
CNTF	human	DNT00	.8 pg/mL	31.2-2000 pg/mL	.96 Wells
FGF basic	human	DFB50	.3 pg/mL	10-640 pg/mL	.96 Wells
	High Sensitivity	human	HSFB75	0.22 pg/mL	1-64 pg/mL
FGF-4	human	DF400	.30 pg/mL	93.8-6000 pg/mL	.96 Wells
Follistatin	human	DFN00	.29 pg/mL	250-16,000 pg/mL	.96 Wells
SCF	human	DCK00	.9 pg/mL	31.2-2000 pg/mL	.96 Wells
TGF-β1	human	DB100	.7 pg/mL	31.2-2000 pg/mL	.96 Wells
TGF-β2	human	DB250	.7 pg/mL	31.2-2000 pg/mL	.96 Wells

Other ELISAs

Substance P		DE1400	.8 pg/mL	9.8-10,000 pg/mL	.96 Wells
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R&D Systems Analytical Testing Service (RDS-ATS)

RDS-ATS is a GLP compliant cytokine ELISA testing service. In contrast to standard reference laboratories, we specialize in a single area: cytokines. R&D Systems' reputation for quality in the development and manufacture of recombinant cytokines, antibodies and the Quantikine ELISA is respected worldwide. RDS-ATS' mission is to provide accurate and reproducible results in a timely, confidential manner. Our Quality Assurance department provides complete project oversight; evaluating all laboratory activities for compliance with GLP, including standard procedures, equipment, personnel and test performance.

For more information, please visit our website: www.RnDSystems.com

Stem Cell Differentiation Kits

Product	Catalog #	Size
Mouse Dopaminergic Neuron Differentiation Kit	SC001	.1 Kit

See Kit Procedure Outline below

Proteins

Analyte	Species	Catalog #	Source	Size(s)
Activin A	human	.338-AC-005/025	CHO	.5 µg/25 µg
Activin B	human	.659-AB-005/025	CHO	.5 µg/25 µg
Activin RIA/Fc Chimera	human	.637-AR-100	NS0	100 µg
Activin RIB/Fc Chimera	human	.808-AR-100	NS0	100 µg
Activin RIIA/Fc Chimera	human	.340-R2-100	<i>Sf</i> 21	100 µg
Activin RIIB/Fc Chimera	human	.339-RB-100	NS0	100 µg
		339-RBB-100	<i>Sf</i> 21	100 µg
Agrin	rat	.550-AG-100	<i>Sf</i> 21	100 µg
ALK-1/Fc Chimera	human	.370-AL-100	NS0	100 µg
	mouse	.770-MA-100	NS0	100 µg
ALK-7/Fc Chimera	rat	.577-A7-100	NS0	100 µg
Angiogenin	human	.265-AN-050/250	<i>E. coli</i>	.50 µg/250 µg
Angiopoietin-2	human	.623-AN-025	NS0	.25 µg
Angiopoietin-2 biotinylated	human	.BT623	NS0	.10 µg
BACE-1	human	.931-AS-100	NS0	100 µg
BDNF	human	.248-BD-005/025	<i>Sf</i> 21	.5 µg/25 µg
BMP-2	human	.355-BEC-010	<i>E. coli</i>	.10 µg
	human	.355-BM-010	CHO	.10 µg
BMP-4	human	.314-BP-010	NS0	.10 µg
BMP-5	human	.615-BM-050	NS0	.50 µg
BMP-6	human	.507-BP-020	NS0	.20 µg
BMP-7	human	.354-BP-010	CHO	.10 µg
BMPR-IA/Fc Chimera	human	.315-BR-100	NS0	100 µg
	mouse	.437-MR-100	NS0	100 µg
BMPR-IB/Fc Chimera	human	.505-PR-100	NS0	100 µg
	mouse	.444-BR-100	<i>Sf</i> 21	100 µg
BMPR II/Fc Chimera	human	.811-BR-100	NS0	100 µg
E-Cadherin/Fc Chimera	human	.648-EC-100	NS0	100 µg
	mouse	.748-EC-050	NS0	.50 µg
P-Cadherin/Fc Chimera	human	.861-PC-100	NS0	100 µg
	mouse	.761-MP-050	NS0	.50 µg
Chordin	mouse	.758-CN-050	NS0	.50 µg
CNTF	human	.257-NT-010/050	<i>E. coli</i>	.10 µg/50 µg
	rat	.557-NT-010/050	<i>E. coli</i>	.10 µg/50 µg
CNTF sRα	human	.303-CR-050	<i>Sf</i> 21	.50 µg
	rat	.558-CR-050	<i>Sf</i> 21	.50 µg
Contactin/Fc Chimera	human	.904-CN-100	<i>Sf</i> 21	100 µg
DAN/Fc Chimera	human	.955-DA-050	NS0	.50 µg
DAN	mouse	.755-DA-050	NS0	.50 µg
DCC/Fc Chimera	mouse	.844-DC-050	<i>Sf</i> 21	.50 µg
Decapentaplegic (Dpp)	drosophila	.159-DP-020	<i>E. coli</i>	.20 µg
β-ECGF	human	.231-BC-025	<i>E. coli</i>	.25 µg
Ectodysplasin (EDA)	mouse	.191-ED-010	CHO	.10 µg
Ectodysplasin R (EDAR)/Fc Chimera	human	.157-ER-100	NS0	100 µg
EphA1/Fc Chimera	human	.638-A1-200	NS0	.200 µg
EphA2/Fc Chimera	mouse	.639-A2-200	NS0	.200 µg

Continued from page 2

R&D Systems' Mouse Dopaminergic Neuron Differentiation Kit is a system designed for *in vitro* neural differentiation of mouse ES cells in a serum-free environment. The kit contains specially formulated ITS and N-2 Supplements which are used to select and enrich neural stem cell populations. The Growth Factor Cocktail, consisting of the human fibroblast growth factor basic (FGF basic), mouse fibroblast growth factor 8 isoform b (FGF-8b) and mouse sonic hedgehog amino terminal peptide (Shh-N), is included for effective DA neuron differentiation. This kit has been shown to generate an average of 15 ± 5% DA neurons as estimated from double labeling various mouse ES cell lines with tyrosine hydroxylase and TuJ1.

References

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- Zigmond, M.J. et al. (1999) *Fundamental Neuroscience*, Academic Press, p. 965.
- Bjorklund, A and O. Lindvall (2000) *Nature Neurosci.* **3**:537.
- Evans, M.J. and M.H. Kaufman (1981) *Nature* **292**:154.
- Lee, S.H. et al. (2000) *Nature Biotechnol.* **18**:675.
- Kawasaki, H. et al. (2000) *Neuron* **28**:31.

Ephs and Ephrins

Eph receptor tyrosine kinases and their ephrin ligands play key roles in controlling cell movement during neural development.¹⁻⁴ Cell contact-dependent repulsion, mediated by Eph/ephrin interactions, is important for regulating guidance and cellular organization of axons and neural crest cells. Both Ephs and ephrins can be expressed on axons and cells of neural tube/neural crest derivation. This expression is often of a temporal nature providing repulsive cues for migrating cells and processes.

During the migration of neural crest cells and spinal motor neurons, EphB molecules on these cells encounter ephrins expressed on cells of the developing somite. This interaction generates a repulsive signal, causing the cells and axons to either retreat or undergo redirection. During axon migration in the brain, axons will express B type ephrins, while surrounding neurons or astrocytes express B type Ephs. Ephrin-B interactions with B type Ephs will result in bidirectional signaling, providing a repulsive cue for migrating axons.

References

- O'Leary, D.D. and D.G. Wilkinson (1999) *Curr. Opin. Neurobiol.* **9**:65.
- Nakamoto, M. (2000) *Int. J. Biochem. Cell Biol.* **32**:7.
- Wilkinson, D.G. (2000) *Int. Rev. Cytol.* **196**:177.
- Wilkinson, D.G. (2001) *Nat. Rev. Neurosci.* **2**:155.



Ephrin-B2 in Rat Embryonic Hippocampal Neurons. Indirect immunofluorescent staining of ephrin-B2 in a 10 day old culture of rat embryonic hippocampal neurons using R&D Systems' goat anti-mouse ephrin-B2 (Cat. # AF496). Strong labeling for ephrin-B2 may be seen in some non-neuronal cells. Neuronal labeling is low. Similar staining may be obtained with biotinylated goat anti-mouse ephrin-B2 antibodies (Cat. # BAF496) using a higher concentration.

Proteins

Analyte	Species	Catalog #	Source	Size(s)
EphA3/Fc Chimera	mouse	.640-A3-200	NSO	.200 µg
EphA4/Fc Chimera	mouse	.641-A4-200	NSO	.200 µg
EphA5/Fc Chimera	rat	.541-A5-200	NSO	.200 µg
EphA6/Fc Chimera	mouse	.607-A6-200	NSO	.200 µg
EphA7/Fc Chimera	mouse	.608-A7-200	NSO	.200 µg
EphA8/Fc Chimera	mouse	.454-A8-200	NSO	.200 µg
EphB1/Fc Chimera	rat	.542-B1-200	NSO	.200 µg
EphB2/Fc Chimera	mouse	.467-B2-200	NSO	.200 µg
EphB3/Fc Chimera	mouse	.432-B3-200	NSO	.200 µg
EphB4/Fc Chimera	mouse	.446-B4-200	NSO	.200 µg
EphB6/Fc Chimera	mouse	.611-B6-200	NSO	.200 µg
Eph Sampler Pack 1		SMPK1		.50 µg of each
<i>SMPK1 contains 50 µg of each of the following proteins:</i>				
human EphA1/Fc Chimera, mouse EphA2/Fc Chimera, mouse EphA3/Fc Chimera, mouse EphA4/Fc Chimera, rat EphA5/Fc Chimera, mouse EphA6/Fc Chimera, mouse EphA7/Fc Chimera, mouse EphA8/Fc Chimera.				
Eph Sampler Pack 2		SMPK2		.50 µg of each
<i>SMPK2 contains 50 µg of each of the following proteins:</i>				
mouse EphA4/Fc Chimera, rat EphB1/Fc Chimera, mouse EphB2/Fc Chimera, mouse EphB3/Fc Chimera, mouse EphB4/Fc Chimera, mouse EphB6/Fc Chimera.				
Ephrin-A1/Fc Chimera	mouse	.602-A1-200	NSO	.200 µg
Biotinylated	mouse	.BT602	NSO	.25 µg
Ephrin-A2/Fc Chimera	mouse	.603-A2-200	NSO	.200 µg
Biotinylated	mouse	.BT603	NSO	.25 µg
Ephrin-A3/Fc Chimera	human	.359-EA-200	NSO	.200 µg
Biotinylated	human	.BT359	NSO	.25 µg
Ephrin-A4/Fc Chimera	human	.369-EA-200	NSO	.200 µg
Biotinylated	human	.BT369	NSO	.25 µg
Ephrin-A4/Fc Chimera	mouse	.569-A4-200	NSO	.200 µg
Biotinylated	mouse	.BT569	NSO	.25 µg
Ephrin-A5/Fc Chimera	human	.374-EA-200	NSO	.200 µg
Biotinylated	human	.BT374	NSO	.25 µg
Ephrin-B1/Fc Chimera	mouse	.473-EB-200	NSO	.200 µg
Biotinylated	mouse	.BT473	NSO	.25 µg
Ephrin-B2/Fc Chimera	mouse	.496-EB-200	NSO	.200 µg
Biotinylated	mouse	.BT496	NSO	.25 µg
Ephrin-B3/Fc Chimera	human	.395-EB-200	Sf 21	.200 µg
Biotinylated	human	.BT395	Sf 21	.25 µg
Ephrin Sampler Pack 1		SMPK3		.50 µg of each
<i>SMPK3 contains 50 µg of each of the following proteins:</i>				
mouse Ephrin-A1/Fc Chimera, mouse Ephrin-A2/Fc Chimera, human Ephrin-A3/Fc Chimera, human Ephrin-A4/Fc Chimera, human Ephrin-A5/Fc Chimera, mouse Ephrin-B1/Fc Chimera, mouse Ephrin-B2/Fc Chimera, human Ephrin-B3/Fc Chimera.				
FGF acidic	human	.232-FA-025	<i>E. coli</i>	.25 µg
	bovine	.132-FA-025	Natural	.25 µg
FGF basic (146 aa)	human	.233-FB-025	<i>E. coli</i>	.25 µg
FGF basic (157 aa)	human	.234-FSE-025	<i>E. coli</i>	.25 µg
FGF basic	bovine	.133-FB-025	Natural	.25 µg
FGF-4	human	.235-F4-025	<i>E. coli</i>	.25 µg

Proteins

Analyte	Species	Catalog #	Source	Size(s)
FGF-5	human	.237-F5-050/250	<i>E. coli</i>	.50 µg/250 µg
FGF-6	human	.238-F6-025	<i>E. coli</i>	.25 µg
FGF-7/KGF	human	.251-KG-010/050	<i>E. coli</i>	.10 µg/50 µg
FGF-8b	mouse	.423-F8-025	<i>E. coli</i>	.25 µg
FGF-8c	mouse	.424-FC-025	<i>E. coli</i>	.25 µg
FGF-9	human	.273-F9-025	<i>Sf 21</i>	.25 µg
FGF-10	human	.345-FG-025	<i>E. coli</i>	.25 µg
FGF-17	human	.319-FG-025	<i>E. coli</i>	.25 µg
FGF-18	human	.667-FG-025	<i>E. coli</i>	.25 µg
FGF R1α (IIIb)/Fc Chimera	human	.655-FR-050	NS0	.50 µg
FGF R1α (IIIc)/Fc Chimera	human	.658-FR-050	NS0	.50 µg
FGF R1β (IIIb)/Fc Chimera	human	.765-FR-050	NS0	.50 µg
FGF R1β (IIIc)/Fc Chimera	human	.661-FR-050	NS0	.50 µg
FGF R2α (IIIb)/Fc Chimera	human	.663-FR-050	<i>Sf 21</i>	.50 µg
FGF R2α (IIIc)/Fc Chimera	human	.712-FR-050	NS0	.50 µg
FGF R2β (IIIb)/Fc Chimera	human	.665-FR-050	<i>Sf 21</i>	.50 µg
	mouse	.708-MF-050	<i>Sf 21</i>	.50 µg
FGF R2β (IIIc)/Fc Chimera	human	.684-FR-050	NS0	.50 µg
	mouse	.716-MF-050	NS0	.50 µg
FGF R3α (IIIc)/Fc Chimera	human	.766-FR-050	NS0	.50 µg
	mouse	.710-MF-050	NS0	.50 µg
FGF R4/Fc Chimera	human	.685-FR-050	NS0	.50 µg
Follistatin	human	.669-FO-025	<i>Sf 21</i>	.25 µg
Follistatin 288	mouse	.769-FS-025	<i>Sf 21</i>	.25 µg
sFRP-3	human	.192-SF-010	NS0	.10 µg
	mouse	.592-FR-010	NS0	.10 µg
GDF-5	mouse	.853-G5-050	<i>E. coli</i>	.50 µg
GDF-6	mouse	.855-G6-050	<i>E. coli</i>	.50 µg
GDF-7	mouse	.779-G7-010	<i>E. coli</i>	.10 µg
GDF-8	mouse	.788-G8-010	NS0	.10 µg
GDNF	human	.212-GD-010/050	NS0	.10 µg/50 µg
	rat	.512-GF-010/050	<i>Sf 21</i>	.10 µg/50 µg
GFRα-1/Fc Chimera	rat	.560-GR-100	NS0	.100 µg
GFRα-2/Fc Chimera	human	.613-FR-100	NS0	.100 µg
	mouse	.429-FR-100	NS0	.100 µg
GFRα-3/Fc Chimera	human	.670-FR-100	<i>Sf 21</i>	.100 µg
Inhibin A	human	.624-IN-025	CHO	.25 µg
	rat	.544-IN-010	CHO	.10 µg
Inhibin B	human	.677-IB-010	CHO	.10 µg
MAG/Fc Chimera	rat	.538-MG-100	NS0	.100 µg
Mer/Fc Chimera	human	.891-MR-100	<i>Sf 21</i>	.100 µg
Midkine	human	.258-MD-010/050	<i>E. coli</i>	.10 µg/50 µg
Netrin-1	chicken	.128-N1-025	NS0	.25 µg
Netrin-2	chicken	.127-N2-025	NS0	.25 µg
Neuropilin-1/Fc Chimera	rat	.566-N1-025	<i>Sf 21</i>	.25 µg
		566-NNS-025	NS0	.25 µg

Lipid-modified Sonic Hedgehog

Sonic hedgehog (Shh) is required for patterning in the developing central nervous system, somite and limb. It is produced as a 47-49 kDa secreted holoprotein that is autocatalytically cleaved to yield a 19 kDa N-terminal fragment that accounts for all known hedgehog biological activity (residues 25-198 in mouse Shh) and a 29-31 kDa C-terminal fragment that contains the autoprocessing machinery.¹⁻³ Shh acts as both a short range, contact-dependent inducer and a long range, diffusible morphogen. A lipid tether is critical for the short range biological activity of this molecule by restricting the tissue localization of the Shh signal. The lipid tether consists of cholesterol, which is concomitantly attached to the C-terminus of the 19 kDa fragment during autoproteolysis, and palmitic acid, which is attached to the N-terminal Cys residue (Cys25 in mouse Shh).⁴

Cholesterol modification of Shh is essential for mediating long range signaling.^{5,6} A freely diffusible form of Shh (s-ShhNp) that is cholesterol modified, multimeric and biologically potent forms a gradient across the anterior-posterior axis of the chick limb.⁵ RT-PCR experiments confirm that Shh activity observed in the anterior and central fragments of limb tissue is not due to upregulation of endogenous Shh mRNA, thus suggesting that s-ShhNp diffuses from its site of synthesis providing long range patterning information. Cholesterol modification of Shh also influences Shh-mediated patterning of mouse digits.⁶ Comparison of biological activity of Shh with or without cholesterol indicates similar activity levels, however, signaling is restricted (*i.e.* posterior localization) with the cholesterol-lacking form of Shh.⁶

References

1. Lee, J. *et al.* (1994) *Science* **266**:1528.
2. Bumcrot, D.A. *et al.* (1995) *Mol. Cell. Biol.* **15**:2294.
3. Porter, J.A. *et al.* (1995) *Nature* **374**:363.
4. Pepinsky, R.B. *et al.* (1998) *J. Biol. Chem.* **273**:14037.
5. Zeng, X. *et al.* (2001) *Nature* **411**:716.
6. Lewis, P.M. *et al.* (2001) *Cell* **105**:599.

BACE

β -secretases have been implicated in the formation of the 4 kDa amyloid β -peptide ($A\beta$) found within amyloid plaques of Alzheimer's disease. $A\beta$ is formed by the cleavage of β -amyloid precursor protein (β -APP) at its NH_2 -terminus by a β -secretase, leaving a membrane bound fragment, C99. C99 can then be further cleaved by a γ -secretase to release $A\beta$ from the membrane.

Although many candidates have been described over the years for β -secretase, until now there has been little convincing evidence. Vassar *et al.*¹ recently reported a candidate for the β -secretase involved in $A\beta$ formation. The protein, called β -site APP-cleaving enzyme (BACE), exhibits all the properties expected for β -secretase. BACE had not previously been recognized as an aspartic protease, since its activity is not inhibited by pepstatin. BACE has an optimum activity at pH 4.5. Cell studies have indicated that β -secretase activity occurs in endosomal/lysosomal compartments, golgi-derived vesicles, and the endoplasmic reticulum. BACE immunostaining can be found mainly in the golgi and endosomes, with little staining in the endoplasmic reticulum and lysosomes. This is consistent with studies indicating that β -secretase activity is found within acidic subcellular compartments.

Most peripheral tissues have low expression levels of BACE mRNA. In brain tissue, however, there is a uniformly higher expression of BACE mRNA. BACE expression is higher in neurons than in glia implicating neurons as the main source of $A\beta$ deposited in amyloid plaques. Overexpression of BACE results in increased β -secretase cleavage of APP at known β -secretase positions.

Reference

1. Vassar, R. *et al.* (1999) *Science* **286**:735.

Proteins

Analyte	Species	Catalog #	Source	Size(s)
Neuropilin-2/Fc Chimera	rat	.567-N2-025	NS0	.25 μ g
Neurturin	human	.387-NE-025	<i>E. coli</i>	.25 μ g
β-NGF	human	.256-GF-100	NS0	.100 μ g
	rat	.556-NG-100	<i>Sf</i> 21	.100 μ g
NGF R/Fc Chimera	human	.367-NR-050	<i>Sf</i> 21	.50 μ g
Noggin/Fc Chimera	mouse	.719-NG-050	NS0	.50 μ g
NT-3	human	.267-N3-005/025	<i>Sf</i> 21	.5 μ g/25 μ g
NT-4	human	.268-N4-005/025	<i>Sf</i> 21	.5 μ g/25 μ g
Pleiotrophin	human	.252-PL-050/250	<i>Sf</i> 21	.50 μ g/250 μ g
SMDF	human	.378-SM-025	<i>Sf</i> 21	.25 μ g
Shh (N-terminal peptide)	mouse	.461-SH-025	<i>E. coli</i>	.25 μ g
SCF	human	.255-SC-010/050	<i>E. coli</i>	.10 μ g/50 μ g
	mouse	.455-MC-010/050	<i>E. coli</i>	.10 μ g/50 μ g
SCF R	human	.332-SR-050	<i>Sf</i> 21	.50 μ g
Latent TGF-β1	human	.299-LT-005/025	CHO	.5 μ g/25 μ g
TGF-β1	human	.100-B-001/010	Natural	.1 μ g/10 μ g
	human	.240-B-002/010	CHO	.2 μ g/10 μ g
	porcine	.101-B1-001/010	Natural	.1 μ g/10 μ g
TGF-β1.2	human	.304-B3-001	<i>Sf</i> 21	.1 μ g
TGF-β2	human	.302-B2-002/010	NS0	.2 μ g/10 μ g
	porcine	.102-B2-001	Natural	.1 μ g
TGF-β3	human	.243-B3-002/010	<i>Sf</i> 21	.2 μ g/10 μ g
TGF-β5	amphibian	.245-B5-002/010	<i>Sf</i> 21	.2 μ g/10 μ g
TGF-β sRII	human	.241-R2-025	NS0	.25 μ g
TGF-β RII/Fc Chimera	human	.341-BR-050	NS0	.50 μ g
	mouse	.532-R2-050	NS0	.50 μ g
TGF-β sRIII	human	.242-R3-100	NS0	.100 μ g
LAP (TGF-β1)	human	.246-LP-025	<i>Sf</i> 21	.25 μ g
TrkB	human	.397-TR-050	NS0	.50 μ g
TrkB/Fc Chimera	human	.688-TK-100	NS0	.100 μ g
TrkC/Fc Chimera	human	.373-TC-050	NS0	.50 μ g
TROY/TNFRSF19/Fc Chimera	mouse	.723-TR-100	<i>Sf</i> 21	.100 μ g
Twisted Gastrulation (TSG)	mouse	.756-TG-050	NS0	.50 μ g

Receptor Detection Kits

Fluorokine® – Cytokine Receptor Detection Kits

Analyte	Species	Catalog #	Label	Size
SCF	human	.NFKLO	.Biotin	.100 Tests
	mouse	.NFMKLO	.Biotin	.100 Tests
TGF- β 1	human	.NFTG0	.Biotin	.100 Tests

ELISA Development Products

DuoSet® ELISA Development Systems

Analyte	Species	Catalog #	Range	Size
Angiogenin	human	.DY265	.7.8-500 pg/mL	.1 Kit
BDNF	human	.DY248	.39.1-2500 pg/mL	.1 Kit
CNTF	human	.DY257	.31.2-2000 pg/mL	.1 Kit
GDNF	human	.DY212	.31.2-2000 pg/mL	.1 Kit
β -NGF	human	.DY256	.31.2-2000 pg/mL	.1 Kit
	rat	.DY556	.15.6-1000 pg/mL	.1 Kit
NT-3	human	.DY267	.31.2-2000 pg/mL	.1 Kit
NT-4	human	.DY268	.31.2-2000 pg/mL	.1 Kit
TGF- β 1	human	.DY240	.31.2-2000 pg/mL	.1 Kit
TGF- β 2	human	.DY302	.31.2-2000 pg/mL	.1 Kit
TGF β 3	human	.DY243	.31.2-2000 pg/mL	.1 Kit
TGF- β 1 DuoSet Diluent		.DY997		.1 Vial

Each DuoSet contains sufficient reagents for approximately 15 plates

Secretase Activity Assays

These kits may be applicable for monitoring or comparing specific secretase activities between different tissue sources as well as in identifying possible inhibitors of these enzymes. They may also be useful in determining the role of secretases in Notch processing and signaling during embryonic development.

Product	Catalog #	Size
α -Secretase	.FP001	.1 Kit
β -Secretase	.FP002	.1 Kit
γ -Secretase	.FP003	.1 Kit

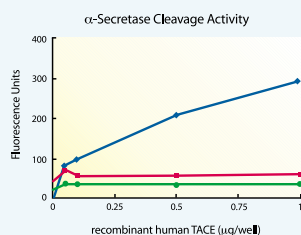


Figure 1. Recombinant TACE exclusively cleaves the α -secretase substrate (blue) and is unable to cleave the β - and γ -substrate (red and green, respectively).

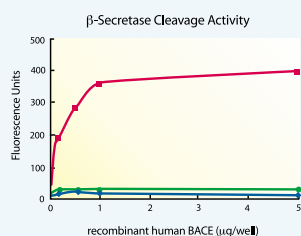


Figure 2. Recombinant BACE exclusively cleaves the β -substrate sequence (red), demonstrating no activity on either the α - or γ -substrate (blue and green, respectively).

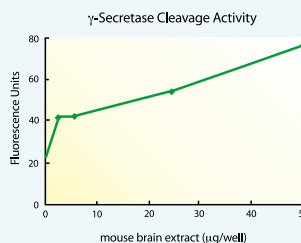


Figure 3. Exposure to mouse brain extract (*i.e.* a tissue known to contain γ -secretase activity) results in cleavage activity for the γ -substrate sequence (green).

Secretase Activity Assays

The hallmark of Alzheimer's disease is the deposition of a 4 kDa amyloid beta peptide ($A\beta$) of either 40 or 42 amino acids in length¹⁻³ that is derived from the amyloid precursor protein (APP). $A\beta$ peptide is formed as a result of the cleavage action of at least 2 enzymes known as β -secretase and γ -secretase. An additional α -secretase activity has also been described. The cleavage domains of APP that are targeted by these enzymes are membrane proximal, thus suggesting that the secretases are likely also membrane bound proteins. The metalloproteases TACE/ADAM17 and ADAM10 exhibit α -secretase activity,⁴ while β -secretase activity has been attributed to the pepstatin-insensitive enzyme BACE.^{5,6} Although the identity of γ -secretase remains elusive, a number of candidates have been proposed, including presenilin-1 and presenilin-2.⁷

In figures 1-3, we provide evidence for the substrate specificities of the α -, β -, and γ -secretases. The cleavage activity associated with each of these three secretases was monitored using caged fluorescent reporter (EDANS-DABCYL) substrates that encompass the three distinct secretase cleavage sites of the APP protein. Recombinant enzymes were the source of α - and β -secretase activities, while mouse brain, a tissue rich in secretase activity, was the source of the γ -secretase activity. The lack of cross-reactivity in enzymatic action for each of the different substrate sequences selected made it possible to follow the three distinct secretase activities.

References

- Castano, E.M. and B. Frangione (1988) *Lab. Invest.* **58**:122.
- Roher, A.E. *et al.* (1993) *Proc. Natl. Acad. Sci. USA* **90**:10836.
- Iwabuto, T. *et al.* (1994) *Neuron* **13**:45.
- Buxbaum, J.D. *et al.* (1998) *J. Biol. Chem.* **273**:27765.
- Vassar, R. *et al.* (1999) *Science* **286**:735.
- Yan, R. *et al.* (1999) *Nature* **402**:533.
- Haass, C. and B. De Strooper (1999) *Science* **286**:916.

Antibodies

Key to Applications and Catalog Number Codes

Applications

AB - Adhesion Blockade
BI - Binding Inhibition
BRL - Blockade of Receptor-Ligand Interaction
ELISA C = ELISA Capture
ELISA D = ELISA Detection
FC - Flow Cytometry

IF - Immunofluorescence
IHC - Immunohistochemistry
IP - Immunoprecipitation
Neut - Neutralization
WB - Western Blot

Catalog Number Codes

AB - Protein A or G Purified Polyclonal
AF - Antigen Affinity-purified Polyclonal
BAF - Biotinylated Antigen Affinity-purified Polyclonal
BAM - Biotinylated Monoclonal
FAB - Fluorochrome-conjugated Monoclonal
MAB - Monoclonal

					VALIDATED APPLICATIONS			
Antibody	Species	Catalog #	Label	Size	WB	IHC	Neut	Other
Activin A	human	AF338		100 µg	✓	✓	✓	
		BAF338	Biotin	50 µg	✓	✓		
		MAB3383		500 µg	✓			
		MAB3381		500 µg	✓	✓	✓	
Activin C	mouse	AF489		100 µg	✓			
	mouse	BAF489	Biotin	50 µg	✓			
Pro-Activin	human	MAB668		500 µg	✓	✓		
Activin RIA	human	AF637		100 µg	✓	✓		
		BAF637	Biotin	50 µg	✓	✓		
		MAB637		500 µg	✓	✓		
Activin RIB	human	AF222		100 µg	✓	✓		
	human	BAF222	Biotin	50 µg	✓	✓		
Activin RIIA	human	AF340		100 µg	✓	✓		BRL
	human	BAF340	Biotin	50 µg	✓	✓		
Activin RII B	human	AF339		100 µg	✓			BRL
	human	BAF339	Biotin	50 µg	✓			
	human	MAB3392		500 µg	✓			
Activin RII	human	MAB3391		500 µg	✓			
Agrin	rat	AF550		100 µg	✓		✓	
	rat	BAF550	Biotin	50 µg	✓			
ALK-1	human	AF370		100 µg	✓			
		BAF370	Biotin	50 µg	✓			
	mouse	AF770		100 µg	✓			
			BAF770	Biotin	50 µg	✓		
ALK-7	rat	AF577		100 µg	✓			
		BAF577	Biotin	50 µg	✓			
Angiogenin	human	AB-265-NA		1 mg	✓		✓	
		AF265		100 µg	✓			
		BAF265	Biotin	50 µg	✓			ELISA D
		MAB265		500 µg	✓			ELISA C
APP⁺¹	human	AF850		50 µg	✓			
BDNF	human	AF248		100 µg	✓	✓		
		BAF248	Biotin	50 µg	✓	✓		
		BAM648	Biotin	50 µg	✓			ELISA D
		MAB248		500 µg	✓	✓		ELISA C
		MAB648		500 µg	✓			
		MAB848		500 µg			ELISA C	
BMP-2	human	MAB3551		500 µg	✓			
BMP-2/4	human	AF355		100 µg	✓	✓		
		BAF355	Biotin	50 µg	✓	✓		
		MAB355		500 µg	✓			
BMP-4	human	MAB757		500 µg	✓		✓	

Antibodies

Antibody	Species	Catalog #	Label	Size	VALIDATED APPLICATIONS				
					WB	IHC	Neut	Other	
BMP-5	human	AF615		100 µg	✓	✓	✓		
		BAF615	Biotin	50 µg	✓	✓			
		MAB715		500 µg	✓				
BMP-6	human	AF507		100 µg	✓		✓		
		BAF507	Biotin	50 µg	✓				
		MAB507		500 µg	✓		✓		
BMP-7	human	AF354		100 µg	✓				
		MAB354		500 µg	✓				
BMPR-IA	human	AF346		100 µg	✓				
		BAF820	Biotin	50 µg	✓				
BMPR-IB	human	AF505		100 µg	✓				
		BAF505	Biotin	50 µg	✓				
		MAB505		500 µg	✓				
BMPR-II	human	AF811		100 µg	✓	✓			
Cadherin-8	human	AF188		100 µg	✓				
E-Cadherin	human	BTA 1		100 µg	✓	✓		AB	
		BTA 4		100 µg	✓			AB	
	mouse	AF748		100 µg	✓	✓			
		BAF748	Biotin	50 µg	✓	✓			
	human	BTA 3		100 µg	✓			AB	
		BTA 2		100 µg	✓	✓			
N-Cadherin	human	BTA 7		400 µg	✓	✓			
	chicken	BTA 6		100 µg	✓	✓		AB	
P-Cadherin	mouse	BTA 5		100 µg	✓	✓		AB	
P-, E-, N-Cadherin	human	BTA 8		400 µg	✓	✓			
VE-Cadherin	human	BAF938	Biotin	50 µg	✓				
CFTR (C-terminus)	human	MAB25031		50 µg	✓	✓		IP	
CFTR (R domain)	human	MAB1660		50 µg	✓	✓		IP, IF	
CNTF	human	AB-257-NA		1 mg	✓		✓		
		AF-257-NA		100 µg	✓		✓		
		BAF257	Biotin	50 µg	✓			ELISA D	
		MAB257		500 µg	✓		✓		
		MAB657		500 µg	✓		✓	ELISA C	
	rat	AB-557-NA		1 mg	✓		✓		
		AF-557-NA		100 µg	✓		✓		
		BAF557	Biotin	50 µg	✓			ELISA D	
		MAB557		500 µg	✓		✓	ELISA C	
		CNTF Rα	human	AF-303-NA		100 µg	✓		✓
BAF303	Biotin			50 µg	✓				
rat/human	AF-559-NA			100 µg	✓		✓		
	BAF559		Biotin	50 µg	✓				
Contactin	human		AF904		100 µg	✓			
			BAF904	Biotin	50 µg	✓			
DAN	mouse	AF755		100 µg	✓			BRL	
		BAF755	Biotin	50 µg	✓				
		MAB755		500 µg	✓		✓		
DCC	mouse	AF844		100 µg	✓			BRL	
		BAF844	Biotin	50 µg	✓				

Antibodies

Antibody	Species	Catalog #	Label	Size	VALIDATED APPLICATIONS			
					WB	IHC	Neut	Other
Desert Hedgehog N-terminus	mouse	AF733		100 µg	✓	✓		
Ectodysplasin R (EDAR)	mouse	BAF745	Biotin	50 µg	✓			
EphA1	human	AF638		100 µg	✓			
		BAF638	Biotin	50 µg	✓			
EphA3	mouse	AF640		100 µg	✓	✓		
		BAF640	Biotin	50 µg	✓	✓		
EphA4	mouse	AF641		100 µg	✓	✓		
		BAF641	Biotin	50 µg	✓	✓		
EphA5	rat	AF541		100 µg	✓			
		BAF541	Biotin	50 µg	✓			
EphA6	mouse	AF607		100 µg	✓			
EphA7	mouse	AF608		100 µg	✓			
		BAF608	Biotin	50 µg	✓			
EphA8	mouse	AF454		100 µg	✓			
		BAF454	Biotin	50 µg	✓			
EphB1	rat	AF542		100 µg	✓	✓		
EphB2	mouse	AF467		100 µg	✓			
		BAF467	Biotin	50 µg	✓			
EphB3	mouse	AF432		100 µg	✓			
		BAF432	Biotin	50 µg	✓			
EphB4	mouse	AF446		100 µg	✓			
EphB6	mouse	AF611		100 µg	✓			
		BAF611	Biotin	50 µg	✓			
Ephrin-A1	mouse	AF702		100 µg	✓			
		BAF602	Biotin	50 µg	✓			
Ephrin-A2	mouse	AF603		100 µg	✓	✓		BRL
		BAF603	Biotin	50 µg	✓	✓		
		MAB458		500 µg	✓			
Ephrin-A3	human	AF359		100 µg	✓			
		BAF359	Biotin	50 µg	✓			
		MAB359		500 µg	✓			
Ephrin-A4	human	AF369		100 µg	✓			
		BAF369	Biotin	50 µg	✓			
	mouse	AF569		100 µg	✓			
		BAF569	Biotin	50 µg	✓			
Ephrin-B1	mouse	AF473		100 µg	✓			
		BAF473	Biotin	50 µg	✓			
Ephrin-B2	mouse	AF496		100 µg	✓	✓		
		BAF496	Biotin	50 µg	✓	✓		
Ephrin-B3	human	AF395		100 µg	✓	✓		
FGF acidic		AB-32-NA		1 mg	✓		✓	
		AF232		100 µg	✓		✓	
		BAF232	Biotin	50 µg	✓			
FGF basic		AB-33-NA		1 mg	✓		✓	
		AB-233-NA		1 mg	✓		✓	
		AF-233-NA		100 µg	✓		✓	
		BAF233	Biotin	50 µg	✓			

Please see page 8 for Key to Applications and Catalog Number Codes.

Antibodies

Antibody	Species	Catalog #	Label	Size	VALIDATED APPLICATIONS			
					WB	IHC	Neut	Other
FGF-4	human	AB-235-NA		1 mg	✓		✓	
		AF235		100 µg	✓		✓	
		BAF235	Biotin	50 µg	✓			ELISA D
		MAB235		500 µg	✓		✓	
		MAB635		500 µg	✓			ELISA C
FGF-5	human	AF-237-NA		100 µg	✓	✓	✓	
		BAF237	Biotin	50 µg	✓	✓		
FGF-6	human	AB-238-NA		1 mg	✓		✓	
		AF238		100 µg	✓		✓	
		BAF238	Biotin	50 µg	✓			ELISA D
		MAB238		500 µg			✓	ELISA C
FGF-7/KGF	human	AF-251-NA		250 µg	✓		✓	
		BAF251	Biotin	50 µg	✓			ELISA D
		MAB251		500 µg			✓	ELISA C
FGF-8b		AF-423-NA		100 µg	✓		✓	
		BAF423	Biotin	50 µg	✓			
FGF-8b/c		MAB323		500 µg	✓		✓	
FGF-9	human	AF-273-NA		100 µg	✓		✓	
		BAF273	Biotin	50 µg	✓			ELISA D
		MAB273		500 µg	✓		✓	ELISA C
FGF-10	human	AF345		100 µg	✓	✓		
		BAF345	Biotin	50 µg	✓	✓		
FGF-17	human	AF319		100 µg	✓		✓	
		BAF319	Biotin	50 µg	✓			
FGF-18	human	AF667		100 µg	✓		✓	
		BAF667	Biotin	50 µg	✓			
		MAB667		500 µg	✓		✓	
FGF-19	human	AF969		100 µg	✓			
		BAF969	Biotin	50 µg	✓			
		MAB669		500 µg	✓		✓	
Follistatin	human	AF669		100 µg	✓		✓	
		BAF669	Biotin	50 µg	✓			
		MAB669		500 µg	✓	✓		
sFRP-3	human/mouse	AF192		100 µg	✓			
		BAF192	Biotin	50 µg	✓			
	mouse	AF592		100 µg	✓			
Gas 6	human	AB885		1 mg	✓			BRL
	mouse	AF986		100 µg	✓			
		BAF986	Biotin	50 µg	✓			
GDF-1	mouse	AF858		100 µg	✓			
GDF-5	mouse	AF853		100 µg	✓	✓		
		BAF853	Biotin	50 µg	✓	✓		
		MAB853		500 µg	✓	✓		
		BAM853	Biotin	50 µg	✓	✓		
GDF-8	mouse	AF788		100 µg	✓	✓		
GDF-9	mouse	AF739		100 µg	✓	✓		
		BAF739	Biotin	50 µg	✓	✓		

Antibodies

Antibody	Species	Catalog #	Label	Size	VALIDATED APPLICATIONS			
					WB	IHC	Neut	Other
GDNF	human/rat	AB-212-NA		1 mg	✓		✓	
		AF-212-NA		100 µg	✓	✓	✓	
	BAF212	Biotin	50 µg	✓	✓		ELISA D	
	MAB212		500 µg	✓		✓	ELISA C	
GFRα-1	rat	AF560		100 µg	✓	✓		BRL
		BAF560	Biotin	50 µg	✓	✓		
		MAB560		500 µg	✓			
GFRα-2	human	AF613		100 µg	✓			BRL
	human/mouse	BAF613	Biotin	50 µg	✓			
		AF429		100 µg	✓	✓		BRL
GFRα-3	human	BAF429	Biotin	50 µg	✓	✓		
		AF670		100 µg	✓	✓		
	human	BAF670	Biotin	50 µg	✓	✓		
		MAB6701		500 µg	✓			
Inhibin A	human	MAB6241		500 µg	✓	✓		BRL
		MAB6242		500 µg	✓			
Inhibin B (β_B subunit)	rat	AF544		100 µg	✓			
	human	MAB677		500 µg	✓		✓	
		MAB6771		500 µg	✓			
Jagged 1	rat	AF599		100 µg	✓			FC
		BAF599	Biotin	50 µg	✓			
LAMP	human	AF873		100 µg	✓			
Lefty	human/mouse	AF746		100 µg	✓			
		BAF746	Biotin	50 µg	✓			
LFA-1 (α chain)	human	BCA1		200 µg		✓		FC, AB, IF
	mouse	BSA5		200 µg		✓		FC, IP, AB
	rat	BSA3		200 µg		✓		FC, IP, AB
LFA-1 (β chain)	human	BCA5		200 µg	✓	✓		FC, IF, Cell-cell Adhesion
	rat	BSA4		200 µg		✓		FC, IP, AB
	human	BCA2		200 µg		✓		FC, IP, IF
Mac-1α (CD11b)	human	BCA2		200 µg		✓		FC, IP, IF
MAG	rat	AF538		100 µg	✓	✓		
		BAF538	Biotin	50 µg	✓	✓		
		MAB538		500 µg	✓		✓	
Mer	human	AF891		100 µg	✓			
		MAB891		500 µg	✓			
		MAB8911		500 µg	✓			
	mouse	AF591		100 µg	✓			
		BAF591	Biotin	50 µg	✓			
Midkine	human	AF-258-PB		100 µg	✓			
		BAF258	Biotin	50 µg	✓			
MuSK	rat	AF562		100 µg	✓			
		BAF562	Biotin	50 µg	✓			
Netrin-1	chicken	AF128		100 µg	✓			
Netrin-2	chicken	MAB127		500 µg	✓			
Neuregulin-3	mouse	AF753		100 µg	✓			
		BAF753	Biotin	50 µg	✓			
Neuritin	human	AF283		100 µg	✓			
		MAB283		500 µg	✓			

Please see page 8 for Key to Applications and Catalog Number Codes.

Antibodies

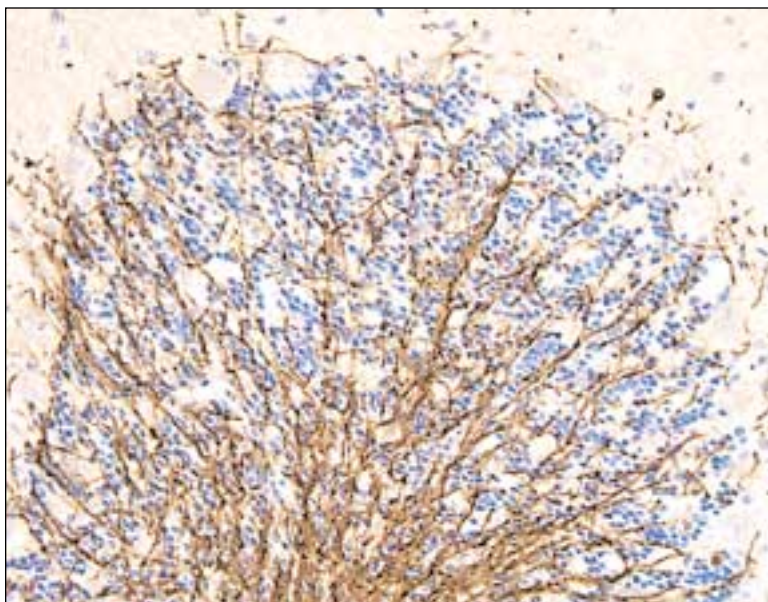
Antibody	Species	Catalog #	Label	Size	VALIDATED APPLICATIONS			
					WB	IHC	Neut	Other
Neuropilin-1	rat	AF566		100 µg	✓			BRL
		BAF566	Biotin	50 µg	✓			
Neuropilin-2	rat	AF567		100 µg	✓			
		MAB567		500 µg	✓			
Neurturin	human	AF387		100 µg	✓			BRL
	mouse/human	BAF387	Biotin	50 µg	✓			
		AF477		100 µg	✓			BRL
β-NGF	human	BAF477	Biotin	50 µg	✓			
		AB-256-NA		1 mg	✓		✓	
		AF-256-NA		100 µg	✓	✓	✓	
	rat	BAF256	Biotin	50 µg	✓			ELISA D
		MAB256		500 µg	✓		✓	ELISA C
		AF-556-NA		100 µg	✓	✓	✓	ELISA C
NGF R	human	BAF556	Biotin	50 µg	✓	✓	ELISA D	
NT-3	human	AF367		100 µg	✓			
		AF-267-NA		100 µg	✓	✓	✓	
		BAF267	Biotin	50 µg	✓	✓		ELISA D
NT-4	human	MAB267		500 µg	✓		✓	ELISA C
		AF-268-NA		100 µg	✓	✓	✓	
		BAF268	Biotin	50 µg	✓	✓		ELISA D
OCAM	mouse	MAB268		500 µg	✓			ELISA C
		AF778		100 µg	✓			
		BAF778	Biotin	50 µg	✓			
Orexin A	human/mouse/rat	MAB763		500 µg		✓	Dot Blot	
p150,95 α chain (CD11c)	human	BCA3		200 µg		✓	FC, IP, IF	
Pleiotrophin	human	AF-252-PB		250 µg	✓			
		BAF252	Biotin	50 µg	✓			
Presenilin-1 NTF	human	AF149		100 µg	✓	✓		
SCF	human	AB-255-NA		1 mg	✓		✓	
		AF-255-NA		100 µg	✓		✓	
		BAF255	Biotin	50 µg	✓			ELISA D
		MAB655		500 µg	✓			ELISA C
	mouse	AB-455-NA		1 mg	✓		✓	
		AF-455-NA		100 µg	✓		✓	ELISA C
		BAF455	Biotin	50 µg	✓			ELISA D
		MAB455		500 µg	✓		✓	
SCF R	human	AF332		100 µg	✓	✓	✓	
		BAF332	Biotin	50 µg	✓	✓		
Shh C-terminal peptide	mouse	AF445		100 µg	✓	✓		
		BAF445	Biotin	50 µg	✓	✓		
Shh N-terminal peptide	mouse	AF464		100 µg	✓	✓		
SMDF	human	AF378		100 µg	✓		✓	
		BAF378	Biotin	50 µg	✓			
SPARC	human	AF941		100 µg	✓			
	mouse	AF942		100 µg	✓			
TGF-β Pan Specific		AB-100-NA		1 mg	✓		✓	

Antibodies

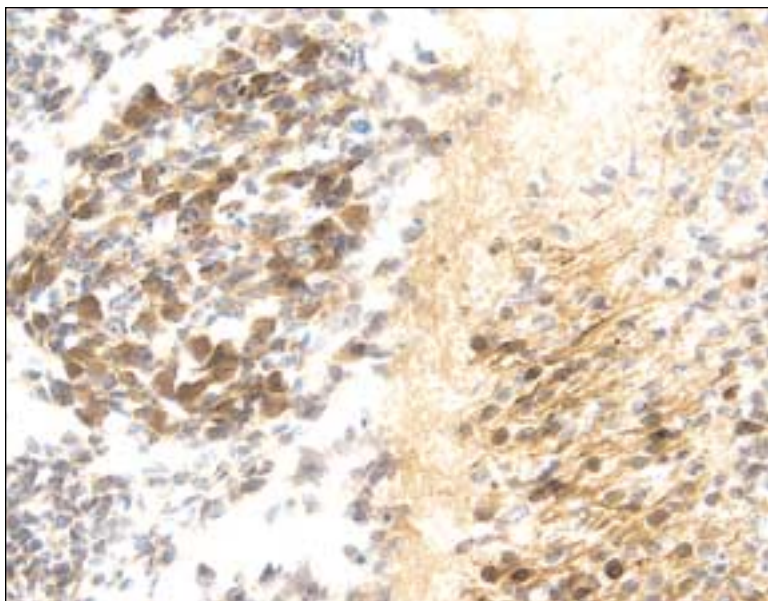
Antibody	Species	Catalog #	Label	Size	VALIDATED APPLICATIONS			
					WB	IHC	Neut	Other
LAP (TGF-β1)	human	AB-246-NA		1 mg	✓	✓	✓	
		AF-246-NA		100 µg	✓	✓	✓	
		BAF246	Biotin	50 µg	✓	✓		
		MAB246		500 µg	✓		✓	
		MAB2461		500 µg	✓			ELISA C
		BAM2462	Biotin	50 µg	✓			ELISA D
TGF-β1		AB-101-NA		1 mg	✓		✓	
		AF-101-NA		100 µg	✓		✓	
		BAF240	Biotin	50 µg	✓			ELISA D
		MAB240		500 µg	✓		✓	ELISA C
TGF-β2		AB-12-NA		1 mg	✓		✓	
		AB-112-NA		1 mg	✓		✓	
		AF-302-NA		100 µg	✓	✓	✓	
		BAF302	Biotin	50 µg	✓	✓		ELISA D
		MAB612		500 µg	✓	✓		ELISA C
TGF-β3		AB-244-NA		1 mg	✓		✓	
		AF-243-NA		100 µg	✓	✓	✓	
		BAF243	Biotin	50 µg	✓	✓		ELISA D
		MAB243		500 µg	✓	✓	✓	
		MAB643		500 µg	✓	✓		ELISA C
TGF-β1, 2, 3		MAB1835		500 µg	✓	✓	✓	ELISA C, BI
TGF-β5		AB-245-NA		1 mg	✓		✓	
Latent TGF-β bp1	human	MAB388		500 µg	✓			Immunoaffinity Purification
TGF-β RII	human	AF-241-NA		250 µg	✓	✓	✓	
		BAF241	Biotin	50 µg	✓	✓		
		FAB241F	FITC	100 Tests				FC
	mouse	FAB241P	PE	100 Tests				FC
		AF532		100 µg	✓			
		BAF532	Biotin	50 µg	✓			
TGF-β RIII	human	AF-242-PB		250 µg	✓			
		BAF242	Biotin	50 µg	✓			
N-Me-6,7-diOH-TIQ		MAB167		500 µg		✓		
TrkB	human	AF397		100 µg	✓			
		BAF397		50 µg	✓			
TrkC	human	AF373		100 µg	✓	✓		BRL
		BAF373	Biotin	50 µg	✓	✓		
		MAB373		500 µg	✓			
TROY/TNFRSF19	mouse	AF723		100 µg	✓			
Twisted Gastrulation (TSG)	mouse	AF756		100 µg	✓			
		MAB756		500 µg	✓			
VLA-4	human	BBA37		200 µg				AB
WNT-4	mouse	AF475		100 µg	✓	✓		
		BAF475	Biotin	50 µg	✓	✓		
WNT-5a	mouse	AF645		100 µg	✓	✓		
		BAF645	Biotin	50 µg	✓	✓		

Please see page 8 for Key to Applications and Catalog Number Codes.

Immunohistochemistry Staining



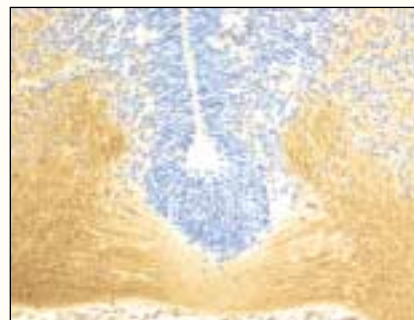
Detection of MAG in cryostat sections of rat cerebellum using goat anti-rat MAG affinity-purified antibody (Cat. # AF538) and anti-goat HRP-DAB (brown color) Cell and Tissue Staining Kit (Cat. # CTS008). Hematoxylin (blue) was used to counterstain tissue sections.



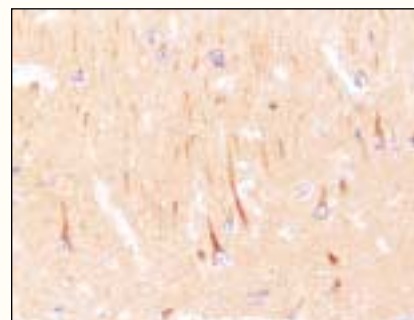
Detection of GDF-9 in 11 d.p.c. mouse embryo (section through DRG and spinal cord) using goat anti-mouse GDF-9 affinity-purified antibody (Cat. # AF739) and anti-goat HRP-DAB (brown color) Cell and Tissue Staining Kit (Cat. # CTS008). Hematoxylin (blue) was used to counterstain tissue sections.



Detection of β -NGF in paraffin-embedded human brain using goat anti-human β -NGF affinity-purified antibody (Cat. # AF-256-NA), antigen-retrieval technique (basic solution, Cat. # CTS013) and anti-goat HRP-DAB (brown color) Cell and Tissue Staining Kit (Cat. # CTS008). Hematoxylin (blue) was used to counterstain tissue sections.



Detection of GDF-8 in 10 d.p.c. mouse embryo (section through spinal cord) using goat anti-mouse GDF-8 affinity-purified antibody (Cat. # AF788) and anti-goat HRP-DAB (brown color) Cell and Tissue Staining Kit (Cat. # CTS008). Hematoxylin (blue) was used to counterstain tissue sections.



Detection of MIP-1 β in paraffin-embedded tissues of Alzheimer's human hippocampus using goat anti-human MIP-1 β affinity-purified antibody (Cat. # AF-271-NA) and anti-goat HRP-DAB (brown color) Cell and Tissue Staining Kit (Cat. # CTS008). Hematoxylin (blue) was used to counterstain tissue sections.

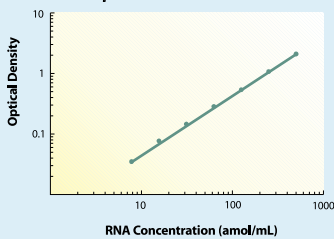
Quantikine® mRNA

Quantikine mRNA is a simple, colorimetric, microplate-based assay that quantitates gene-specific mRNA at low levels. Using an ELISA-based format, mRNA can be quantitated from cell lysate samples, total RNA, or poly(A)⁺ RNA in less than five hours. Distinct advantages over traditional methods include a non-radioactive, non-PCR based assay that is less labor intensive than conventional approaches. Additionally, multiple analytes can be processed simultaneously, making high sample throughput realistic.

Quantikine mRNA kits are comprised of two modules, a Base Kit and a Probes and Calibrator Kit. The Base Kit and Probes and Calibrator Kits can also be purchased individually for multi-analyte analysis.

Typical Results

Human TGF- β 1 Calibrator Curve



Sample	Sample amount (ng)	Expected amol/mL	Observed amol/mL
Stimulated U-937 cells	2000	-	41
	1000	20.5	19.5
	500	10.2	10.1

Table 1. Human TGF- β 1 mRNA quantitation. Human U-937 cells were stimulated with LPS (1.0 μ g/mL) for 6 hours. Total RNA was isolated using the RNeasy® Maxi Kit, diluted in serial, and analyzed using the human TGF- β 1 Quantikine mRNA kit.

RNeasy Maxi Kit is a registered trademark of Qiagen, Inc.

Molecular Biology Products

Product	Species	Catalog #	Size
cDNA Expression Arrays			
Cytokine Expression Array	human	.GA001B	.1 Kit
	mouse	.GA003	.1 Kit
Cytokine-specific Primers	human	.GAC11B	.1 Set
	mouse	.GAC14	.1 Set

Quantikine mRNA - mRNA Quantitation Kits

Quantikine mRNA Base Kit		.RN000	.1 Kit
TGF-β1 Probes and Calibrator	human	.RN240	100 Tests
TGF-β1 (includes RN000 and RN240)	human	.KRN240	.1 Kit

Primer Pairs

FGF basic	human	.RDP-32-025	.25 Tests
GFAP	mouse/rat	.RDP-149-025	.25 Tests
MAP2	human	.RDP-154-025	.25 Tests
	mouse/rat	.RDP-150-025	.25 Tests
Neuropilin-2	human/mouse/rat	.RDP-109-025	.25 Tests
β-NGF	human	.RDP-102-025	.25 Tests
	mouse/rat	.RDP-114-025	.25 Tests
NCAM	human/mouse/rat	.RDP-147-025	.25 Tests
Nestin	human	.RDP-148-025	.25 Tests
	mouse/rat	.RDP-153-025	.25 Tests
NGF R	human	.RDP-112-025	.25 Tests
	mouse/rat	.RDP-113-025	.25 Tests
Proteolipid protein/DM-20	human/mouse/rat	.RDP-152-025	.25 Tests
TGF-β1	human/mouse	.RDP-26-025	.25 Tests
TGF-β2	human	.RDP-27-025	.25 Tests
TGF-β RI/ALK-5	human/mouse/rat	.RDP-131-025	.25 Tests
VIM (vimentin)	human/mouse/rat	.RDP-151-025	.25 Tests

Probe Cocktails

FGF basic	unlabeled	human	.BPR74	.5 μ g
	biotin-labeled	human	.BPR74B	.5 μ g
	digoxigenin-labeled	human	.BPR74D	.5 μ g
β-NGF	unlabeled	human	.BPR117	.5 μ g
	biotin-labeled	human	.BPR117B	.5 μ g
	digoxigenin-labeled	human	.BPR117D	.5 μ g
TGF-β1	unlabeled	human	.BPR78	.5 μ g
	biotin-labeled	human	.BPR78B	.5 μ g
	digoxigenin-labeled	human	.BPR78D	.5 μ g



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