

NEW Apolipoprotein E/beta-Amyloid (ApoE/A β) Complex ELISA

Biosensis is proud to offer the first commercially available ApoE/amyloid- β (ApoE/A β) complex ELISA kit.

- This ELISA can be used to accurately and consistently measure the extent of **ApoE/A β** complex in **human CSF**, brain tissue extracts and human transgenic mouse tissue samples.
- Now you can assay with **high sensitivity** and accuracy and get your results in less than **4hrs!**
- This is the second of a family of critical **Alzheimer's Disease biomarker** assays to be released by Biosensis for neurological disease research

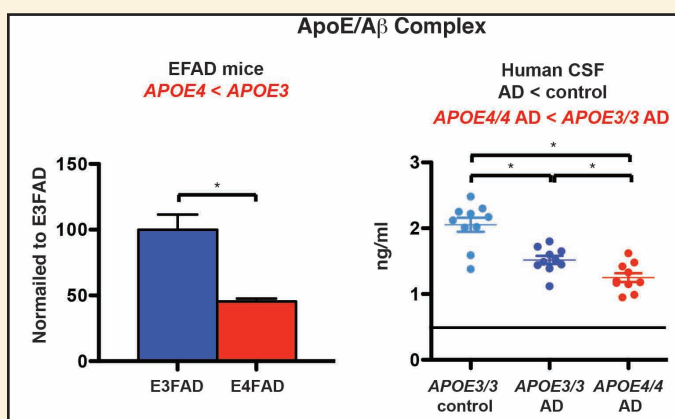


Figure shows levels of soluble apoE/A β complex are lower and oA β are higher with Alzheimer's disease and APOE4 in vivo.

Soluble levels of apoE/A β in the hippocampus of 6-month old EFAD mice and in human CSF as measured by ELISA. * $p < 0.05$, using one-way ANOVA followed by Tukey's post hoc analysis. Adapted from Youmans, KL et al (2012) *J Biol Chem*. PMID 22423893 and Tai LM et al. (2014) *Mol Neurodegen*.

PMID: 24386905.

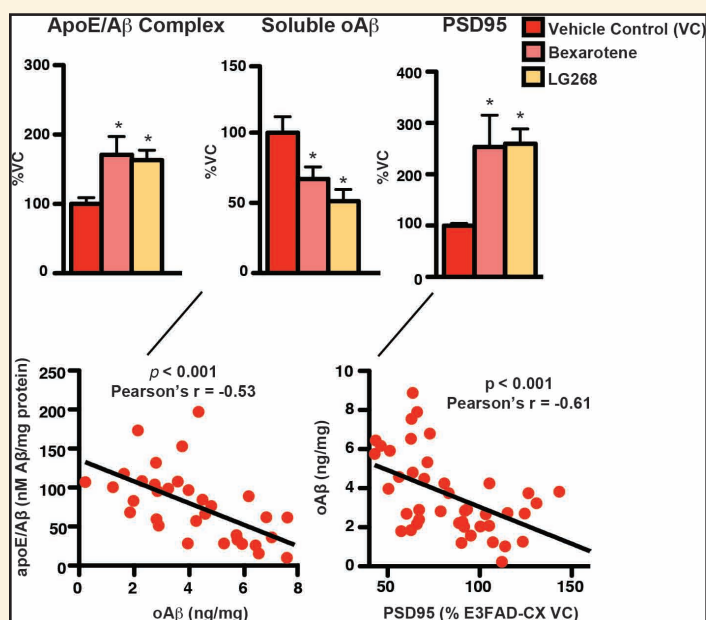


Figure RXR agonist treatment increases apoE/A β complex and decreases oA β levels in E4FAD mice. E4FAD mice were treated with RXR agonists (Bexarotene, LG268) or vehicle control (VC) from 5.75-6M by daily oral gavage. Levels of soluble apoE/A β complex and oA β measured by ELISA, and PSD95 by Western blot in the E4FAD hippocampus (top). Following RXR agonist treatment, levels of soluble oA β and apoE/A β complex are inversely correlated, as well as levels of oA β and PSD95 (Bottom). * $p < 0.05$ vs. VC, using one-way ANOVA followed by Tukey's post hoc analysis. Spearman's correlation analysis conducted between oA β and apoE/A β complex or PSD95 in E4FAD hippocampus. Submitted to JBC.

Target	Species Reactivity	Range	Code (2-Plate)	Code (1-Plate)
NEW ApoE/A β Complex	Hu, Ms, Rat	1.56 - 100%	BEK-2224-2P	BEK-2224-1P

NEW Oligomeric A β (oA β) ELISA

Biosensis is proud to announce the release of its exclusive Oligomeric Amyloid beta (oA β) ELISA built upon the anti-amyloid beta monoclonal MOAB-2. This is the first oligomeric amyloid beta ELISA to take advantage of MOAB-2's high specificity and avidity for beta amyloid peptides and combine it in a proprietary formulation that allows for the detection of amyloid beta oligomers and complexes present in mouse and human CSF and brain tissue extracts.

- Biosensis retains **exclusive worldwide** rights for MOAB-2 based immunoassays.
- This is the first of a family of critical **Alzheimer's Disease biomarker** assays to be released by Biosensis for neurological disease research.
- Biosensis' oA β ELISA provides extremely **low backgrounds**, a broad dynamic range and great reproducibility.

Use it for transgenic animal and disease tissue research:

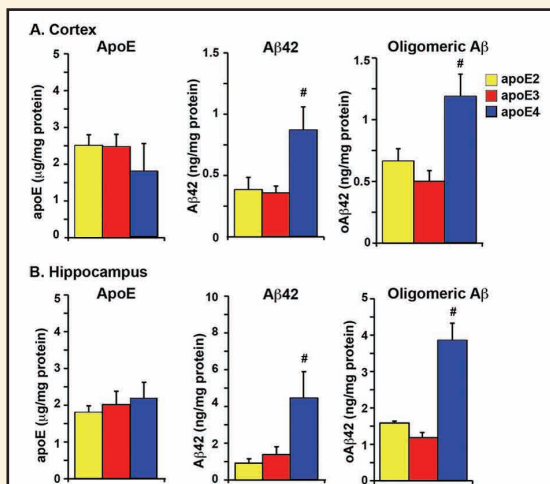


Figure: Soluble A β 42 and soluble oligomeric A β levels are higher in E4FAD mice compared with E2FAD and E3FAD mice. ApoE, A β 42, and oA β in the TBS/soluble extraction fraction of the (A) cortex and (B) hippocampus in 6-month EFAD mice measured by ELISA. Data are expressed as mean \pm SEM and were analyzed by one-way ANOVA followed by Tukey's multiple comparison post-hoc analysis. #p < 0.05 vs. apoE2 and apoE3.

Youmans, KL et al (2012) Journal Biological Chemistry, 287(50): 41774-86. PubMed ID: 23293020

Use it for human CSF research:

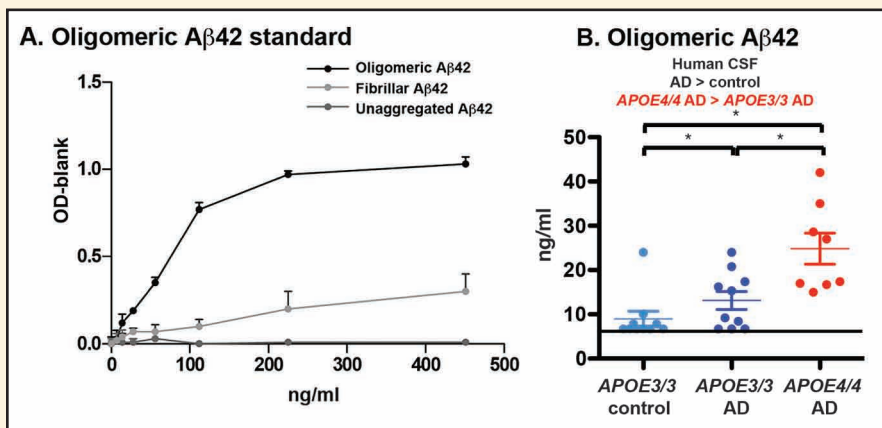


Figure: Oligomeric A β , A β 42 in human CSF. (A) Standard curve for oligomeric A β ELISA: 0-500 ng/ml of oligomeric-, fibrillar- and unaggregated-A β 42 preparations. (B) oA β measured in the CSF from age matched control subjects (APOE3/3) and AD patients (APOE3/3 and APOE4/4)... Data are expressed as mean \pm SEM, analyzed by one-way ANOVA followed by Tukey's multiple comparison post-hoc analysis. p < 0.05. L.O.D = Limit of detection.

Tai LM et al (2013) The Journal of Biological Chemistry, 288(8): 5914-5926. PubMed ID: 23293020.

	Target	Species reactivity	Sensitivity	Range	Code (2-Plate)	Code (1-Plate)
NEW	oAβ (Oligomeric A β complex)	Hu, Ms, Rat	10 pg/ml	10 pg/ml - 1,000 pg/ml	BEK-2215-2P	BEK-2215-1P

NEW NGFR/p75ECD *Rapid*[™] ELISA Kits

The Enigmatic p75NTR Neurotrophin Receptor

"They seek him here, they seek him there. Those Researchers seek him everywhere.... That damned elusive p75NTR!" (With apologies to Baroness Emmuska Orczy, *The Scarlet Pimpernel*).

p75NTR, beta Amyloid peptide and Alzheimer's disease:

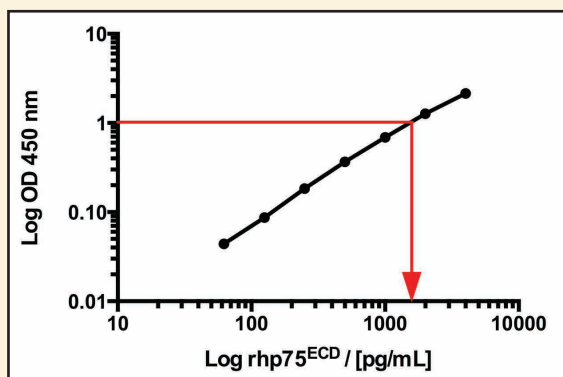
The intriguing finding that the neurotoxic effects of amyloid beta peptide are at least partially mediated by p75NTR is now understood to occur via a complex of the receptor with the Death Receptor-6 (DR6) protein Hu et al 2013 (PMID: 23559013). This finding provides yet another option for drug development in Alzheimer's disease.

p75NTR as a biomarker:

The first indication that p75NTR could function as a useful biomarker of disease or trauma was published 26 years ago by DiStefano and Johnson, 1988 (PMID: 2465632). A recent publication has progressed these early observations by showing a very strong correlation between p75NTR and disease progression in ALS (Amyotrophic Lateral Sclerosis) patients. Shepherd et al 2014 (PMID: 24475283). This bodes well for both early diagnosis and drug development potential for p75NTR.

p75NTR in pain signaling:

While NGF stimulation of TrkA is well known to trigger pain in sensory neurons (and antibodies to NGF are a potent treatment for many types of pain), Lewin and Nykjaer 2014 (PMID: 24494677) have critically reviewed the evidence for a pro-NT / p75NTR / sortilin complex, and proposed a possible role in both pain and sensory neuropathies.



◀ Standard curve of our new NGFR/p75ECD *Rapid*[™] ELISA Kit: Human (Catalog # BEK-2219-2P).

This standard curve generated in our laboratories is for demonstration purposes only, but can be used as a guide to expected performance. A standard curve should be generated for each assay.

	Target	Species reactivity	Sensitivity	Range	Code (2-Plate)	Code (1-Plate)
NEW	NGFR/p75ECD <i>Rapid</i> [™]	Hu	30 pg/ml	62.5 pg/ml - 4000 pg/ml	BEK-2219-2P	BEK-2219-1P
NEW	NGFR/p75ECD <i>Rapid</i> [™]	Ms	20 - 40 pg/ml	62.5 pg/ml - 4000 pg/ml	BEK-2220-2P	BEK-2220-1P

ELISA Kits - Additional kits for Neurological Disease

	Target	Species Reactivity	Sensitivity	Range	Code (2-Plate)	Code (1-Plate)
	Abeta / ApoJ (Clusterin)	Hu, Ms, Rat			<i>Coming soon</i>	<i>Coming soon</i>
	Abeta 1-40, Monomeric	Hu, Ms, Rat			<i>Coming soon</i>	<i>Coming soon</i>
	Abeta 1-42, Monomeric	Hu, Ms, Rat			<i>Coming soon</i>	<i>Coming soon</i>
NEW	Alpha-2 Macroglobulin	Hu	< 20 pg/ml	625 pg/ml - 40,000 pg/ml	BEK-2300-2P	BEK-2300-1P
	Cathepsin B	Hu	< 5 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2163-2P	BEK-2163-1P
NEW	Cathepsin D	Hu	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2301-2P	BEK-2301-1P
NEW	Cathepsin D	Ms	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2302-2P	BEK-2302-1P
NEW	CNTF	Rat	< 10 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2303-2P	BEK-2303-1P
NEW	Clusterin (ApoJ)	Hu	< 20 pg/ml	0.78 ng/ml - 50 ng/ml	BEK-2304-2P	BEK-2304-1P
NEW	Clusterin (ApoJ)	Ms	< 10 pg/ml	312 pg/ml - 20,000 pg/ml	BEK-2305-2P	BEK-2305-1P
NEW	C-Reactive Protein	Hu	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2306-2P	BEK-2306-1P
NEW	C-Reactive Protein	Ms	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2307-2P	BEK-2307-1P
	Cystatin-C	Hu	< 10 pg/ml	312 pg/ml - 20,000 pg/ml	BEK-2145-2P	BEK-2145-1P
	Cystatin-C	Ms	< 10 pg/ml	312 pg/ml - 20,000 pg/ml	BEK-2190-2P	BEK-2190-1P
NEW	Cystatin-C	Rat	< 10 pg/ml	312 pg/ml - 20,000 pg/ml	BEK-2308-2P	BEK-2308-1P
	ICAM-1	Hu	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2023-2P	BEK-2023-1P
	ICAM-1	Ms	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2024-2P	BEK-2024-1P
	IL-1, beta	Hu	< 0.15 pg/ml	1.56 pg/ml - 100 pg/ml	BEK-2158-2P	BEK-2158-1P
	IL-1, beta	Ms	< 1 pg/ml	7.8 pg/ml - 500 pg/ml	BEK-2151-2P	BEK-2151-1P
NEW	IL-1, beta	Rat	< 1 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2309-2P	BEK-2309-1P
NEW	IL-6, receptor alpha	Hu	< 10 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2310-2P	BEK-2310-1P
	IL-8	Hu	< 1 pg/ml	15.6 pg/ml - 1,000 pg/ml	BEK-2044-2P	BEK-2044-1P
NEW	Lumican	Hu	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2311-2P	BEK-2311-1P
NEW	Lumican	Ms	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2312-2P	BEK-2312-1P
NEW	Lumican	Rat	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2313-2P	BEK-2313-1P
	MMP-9	Hu	< 5 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2073-2P	BEK-2073-1P
	MMP-9	Ms	< 20 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2074-2P	BEK-2074-1P
NEW	Neuropilin-1	Ms	< 20 pg/ml	780 pg/ml - 50,000 pg/ml	BEK-2314-2P	BEK-2314-1P
NEW	Neuropilin-1	Rat	< 20 pg/ml	780 pg/ml - 50,000 pg/ml	BEK-2315-2P	BEK-2315-1P
	Phosphorylated NF-H	Hu, Ms, Rat			<i>Coming soon</i>	<i>Coming soon</i>
NEW	Prolactin	Hu	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2316-2P	BEK-2316-1P
NEW	Prolactin	Ms	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2317-2P	BEK-2317-1P
NEW	Rage	Hu	< 10 pg/ml	78 pg/ml - 5,000 pg/ml	BEK-2318-2P	BEK-2318-1P
NEW	Rage	Ms	< 10 pg/ml	78 pg/ml - 5,000 pg/ml	BEK-2319-2P	BEK-2319-1P
NEW	Rage	Rat	< 10 pg/ml	78 pg/ml - 5,000 pg/ml	BEK-2320-2P	BEK-2320-1P

ELISA Kits - Addititonal kits for Neurological Disease (Continued)

	Target	Species reactivity	Sensitivity	Range	Code (2-Plate)	Code (1-Plate)
	α Synuclein	Hu, Ms, Rat			Coming soon	Coming soon
	α Synuclein Phospho-Ser ¹²⁹	Hu, Ms, Rat			Coming soon	Coming soon
	Tau, Hyper-phosphorylated	Hu, Ms, Rat			Coming soon	Coming soon
NEW	Thrombomodulin	Hu	< 10 pg/ml	62.5 pg/ml - 4,000 pg/ml	BEK-2321-2P	BEK-2321-1P
NEW	Thrombomodulin	Ms	< 10 pg/ml	62.5 pg/ml - 4,000 pg/ml	BEK-2322-2P	BEK-2322-1P
	TNF, alpha	Hu	< 1 pg/ml	15.6 pg/ml - 1,000 pg/ml	BEK-2100-2P	BEK-2100-1P
	TNF, alpha	Rat	< 1 pg/ml	15.6 pg/ml - 1,000 pg/ml	BEK-2101-2P	BEK-2101-1P
	TNF, alpha	Ms	< 1 pg/ml	15.6 pg/ml - 1,000 pg/ml	BEK-2102-2P	BEK-2102-1P
	UPA	Hu	< 5 pg/ml	62.5 pg/ml - 4,000 pg/ml	BEK-2105-2P	BEK-2105-1P
	VCAM-1	Hu	< 10 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2106-2P	BEK-2106-1P
	VCAM-1	Ms	< 5 pg/ml	156 pg/ml - 10,000 pg/ml	BEK-2107-2P	BEK-2107-1P

ELISA Kits - Growth Factors

Growth Factors

There is a multitude of growth factors that have been found to have protective effects on neuronal sub-populations. For instance, glial-derived neurotrophic factor (GDNF), insulin-like growth factor-I (IGF-I) and vascular endothelial growth factor (VEGF) are trophic factors that support the survival of motor neurons. Consequently, altered growth factor levels are associated with motor neuron degeneration and amyotrophic lateral sclerosis pathogenesis.

The table below shows a selection of Biosensis ELISA kits to quantify growth factors in body fluids. For a complete list of our products, please visit www.biosensis.com.

	Target	Species reactivity	Sensitivity	Range	Code (2-Plate)	Code (1-Plate)
NEW	GDNF <i>Rapid</i> [™]	Hu, Ms, Rat	4 pg/ml	7.8 pg/ml - 500 pg/ml	BEK-2222-2P	BEK-2222-1P
	GDNF	Hu	< 4 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2166-2P	BEK-2166-1P
	GDNF	Rat	< 4 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2020-2P	BEK-2020-1P
	IGF1	Ms	< 5 pg/ml	62.5 pg/ml - 4,000 pg/ml	BEK-2149-2P	BEK-2149-1P
	IGF1	Rat	< 5 pg/ml	62.5 pg/ml - 4,000 pg/ml	BEK-2150-2P	BEK-2150-1P
	IGFBP-1	Hu	< 1 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2030-2P	BEK-2030-1P
	IGFBP-1	Ms	< 3 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2031-2P	BEK-2031-1P
	IGFBP-3	Hu	< 10 pg/ml	156.2 pg/ml - 10,000 pg/ml	BEK-2032-2P	BEK-2032-1P
	VEGF	Hu	< 1 pg/ml	31.2 pg/ml - 2,000 pg/ml	BEK-2108-2P	BEK-2108-1P
	VEGF	Ms	< 2 pg/ml	15.6 pg/ml - 1,000 pg/ml	BEK-2110-2P	BEK-2110-1P
	VEGF	Rat	< 1 pg/ml	15.6 pg/ml - 1,000 pg/ml	BEK-2109-2P	BEK-2109-1P

ELISA Kits

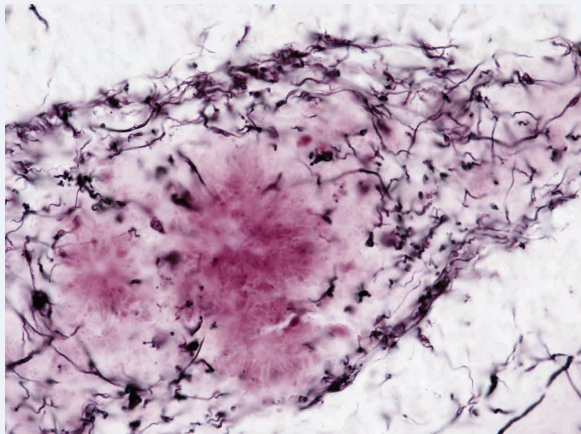
Now Available: GDNF *Rapid*[™] ELISA Cat# BEK-2222-2P

Tracing Reagents - Black-Gold II Myelin Staining Kits

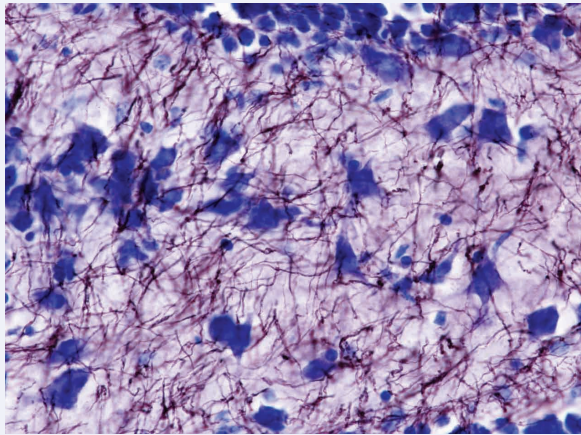
Black-Gold® II RTD™ Myelin Staining Kits

For staining normal and pathological myelin or for staining myelin and amyloid plaques.

Black-Gold II is a novel haloaurophosphate complex which localizes myelin within the central nervous system. The use of Black-Gold II is tailored to studies using formalin or paraformaldehyde fixed, non-paraffin embedded, non-solvent processed tissue. The Black Gold II myelin staining kits stain large myelinated tracts dark red-brown, while the individual myelinated axons appear black. This novel tracer can be used to localize both normal and pathological myelin. Black-Gold II can demonstrate and characterize specific myelin changes associated with exposure to diverse neurotoxicants including kainic acid, domoic acid, 3-nitropropionic acid, Fluoro-Gold and isoniazid. Black-Gold II can also be combined with other histochemical markers including Nissl stains, retrogradely transported fluorescent tracers and fluorescent markers of neuronal degeneration. The advantages associated with the Black-Gold II include high resolution, high contrast, short histochemical processing time, versatility, and consistent reproducibility.



Black-Gold II staining reveals myelin pathology surrounding a Congo Red positive amyloid plaque within the dentate gyrus of an 8 month old AD-Tg mouse. 60X mag.



High magnification of the dentate gyrus of a normal mouse reveals individual Black-Gold II stained myelinated fibers and Toluadine Blue O stained polymorph cells (center) and granule cells (top). Bright field illumination, 60X mag.

Biosensis is pleased to announce the availability of two new Black Gold II RTD™ “Ready to Dilute” myelin staining kits. Available in easy to use, ready-to-dilute liquid formats, we offer a Black Gold II-Toluidine Blue O (for blue fluorescent Nissl counter stain) or Black Gold II-Congo Red (for Amyloid Plaque counter stain) staining kits.

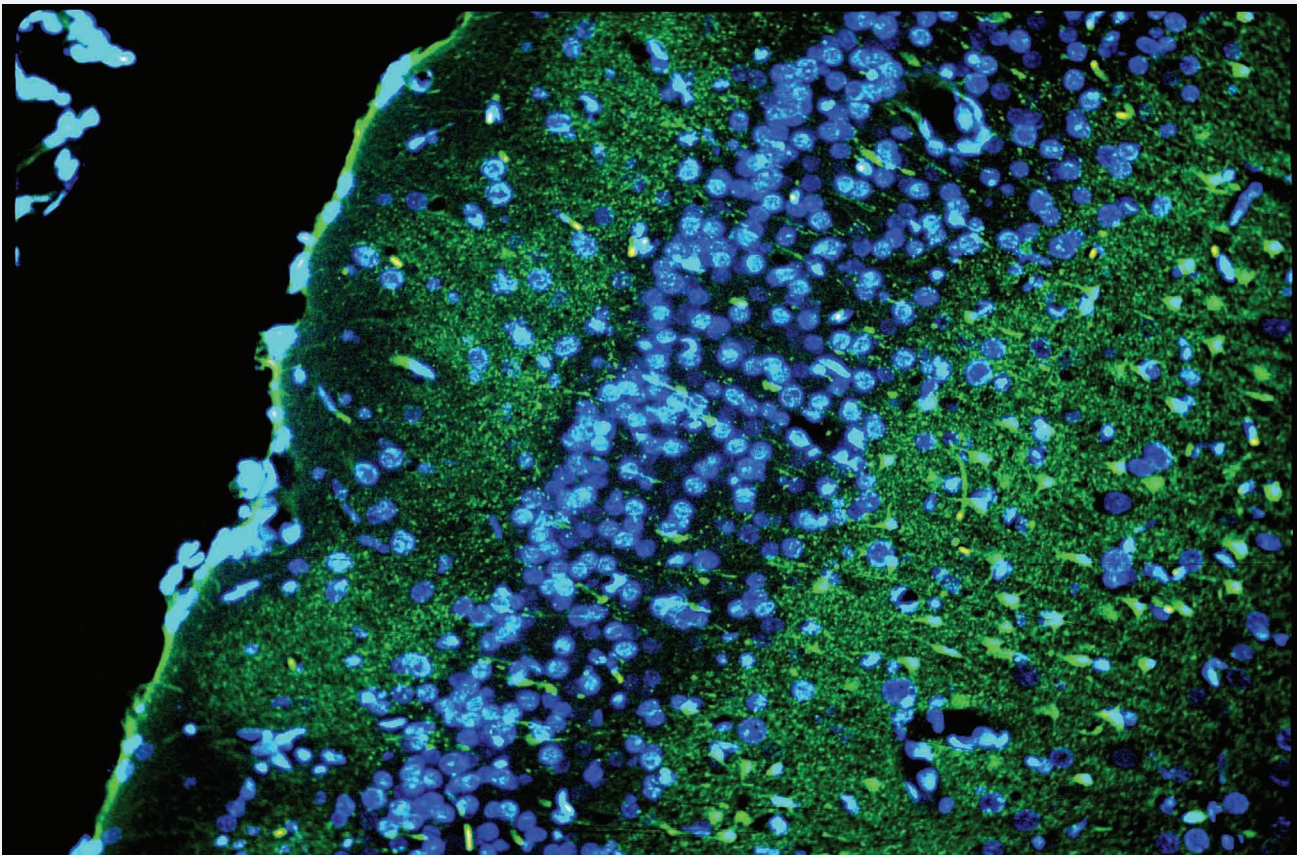
The Black Gold II - Toluidine Blue O kit allows you to localize myelin, both individual fibers and tracts, along with the option of co-localizing cell bodies via the Toluidine Blue. Black-Gold II labeled myelinated fibers appear nearly black, while Toluidine Blue O labeled cellular Nissl bodies are blue under bright field illumination.

The Black Gold II - Congo Red kit allows you to localize myelin, both individual fibers and tracts, along with the option of co-localizing amyloid plaques with the Congo Red, which appear bright red under bright field illumination.

Description	Quantity	Code
Black-Gold II Myelin Ready-to-Dilute Staining Kit with Toluidine Blue O Counter Stain	10mL	TR-100-BG
Black-Gold II Myelin Ready-to-Dilute Staining Kit with Toluidine Blue O Counter Stain (Trial size)	5mL	TR-100-BGT
Black-Gold II Myelin Ready-to-Dilute Staining Kit with Congo Red Counter Stain	10mL	TR-200-BG
Black-Gold II Myelin Ready-to-Dilute Staining Kit with Congo Red Counter Stain (Trial size)	5mL	TR-200-BGT

Black-Gold® is a registered trademark of Histo-Chem, Inc.
Photos courtesy of Dr. Larry Schmued.

Tracing Reagents - Fluoro Jade C



▲ View of the superficial layers of the cingulate cortex of a rat exposed to kainic acid. Cat# TR-100-FJ

Fluoro-Jade® C RTD™ Staining Kit

Fluoro-Jade® C, a novel marker for degenerating neurons.

The causes and effects of neuronal degeneration are of major interest to a wide variety of neuroscientists. Paralleling this growing interest is an increasing number of methods applicable to the detection of neuronal degeneration. Fluoro-Jade C, like its predecessors, Fluoro-Jade and Fluoro-Jade B, has been found to stain all degenerating neurons, regardless of specific insult or mechanism of cell death. Fluoro-Jade C exhibits the greatest signal to background ratio, as well as the highest resolution. This translates to a stain of maximal contrast and affinity for degenerating neurons. This makes it ideal for localizing not only degenerating nerve cell bodies, but also distal dendrites, axons and terminals.

The dye is highly resistant to fading and is compatible with virtually all histological processing and staining protocols. **Biosensis** is pleased to announce the availability of the new Fluoro-Jade C RTD™ “Ready to Dilute” Staining Kit. The kit provides an easy to use assortment of Fluoro-Jade C, DAPI (for blue fluorescent Nissl counter stain), sodium hydroxide and potassium permanganate, all in liquid formats and all ready-to-dilute.

After following the detailed protocol the Fluoro-Jade C labeled degenerating neurons are visualized with blue light excitation, while DAPI counter stained cell nuclei are visualized with ultra-violet illumination. The Fluoro-Jade C Staining kit can be used on all kinds of preserved tissues, including fresh-frozen, paraformaldehyde or formalin fixed, and formalin fixed, paraffin embedded tissues.

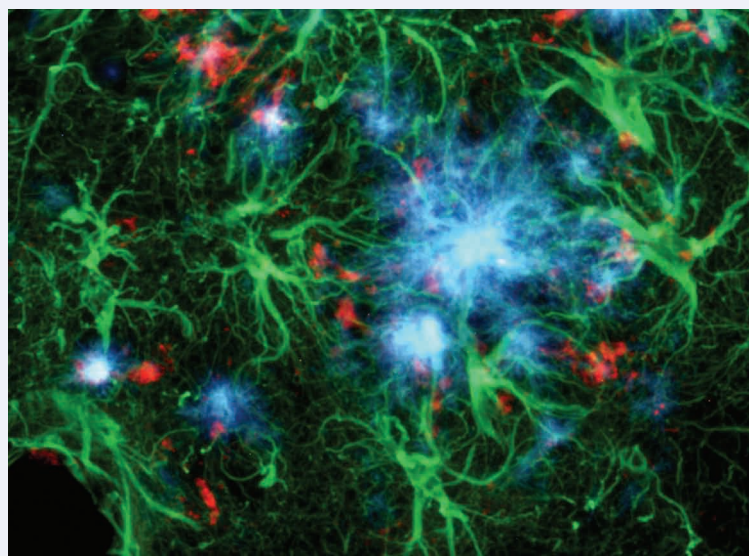
Description	Quantity	Code
Fluoro-Jade C Ready-to-Dilute Staining Kit for identifying Degenerating Neurons	40mL	TR-100-FJ
Fluoro-Jade C Ready-to-Dilute Staining Kit for identifying Degenerating Neurons (Trial size)	20mL	TR-100-FJT

Fluoro-Jade® is a registered trademark of Histo-Chem, Inc.
Photos courtesy of Dr. Larry Schmued and reprinted from Journal of Neuroscience Methods 209 (2012) 120–126.

Tracing Reagents - Amylo-Glo

Amylo-Glo

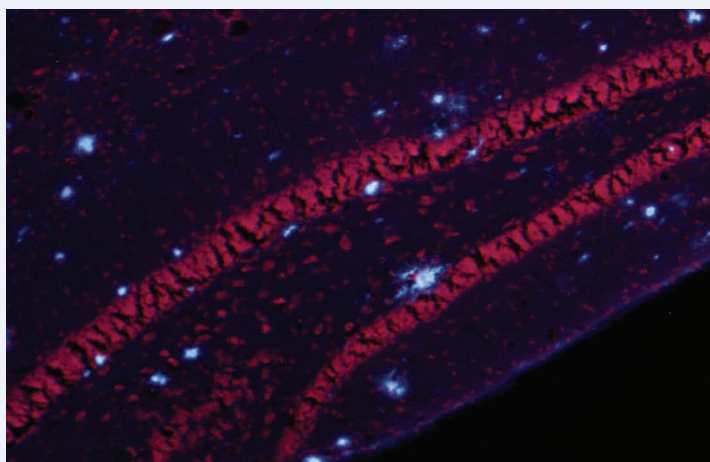
Amylo-Glo® is a novel fluorescent histochemical marker for localization of amyloid plaques in brain tissue. This novel marker has several advantages over other conventional markers such as Thioflavin S and Congo Red because of its unique chemical and spectral properties. (L. Schmued et al. (2012) J.Neuroscience Methods 209:120– 126). Biosensis is pleased to announce the availability of the new Amylo-Glo® RTD™ “Ready-to-Dilute” Staining reagent. The use of this Staining Kit results in a very bright blue UV excitable stain under physiological conditions that will not bleed through when illuminated with other filters. Its brightness makes it ideal for low magnification quantification studies, while its unique excitation/emission profile and mild staining conditions makes it ideal for a combination of multiple immunofluorescent labeling studies. Amylo-Glo® RTD™ is compatible with fresh and frozen formalin fixed immunohisto/cytochemistry and is particularly good for confocal and multiple labeling because of its high fluorescent intensity.



This triple exposure allows for the simultaneous localization of Amylo-Glo positive amyloid plaques (blue), GFAP positive hypertrophied astrocytes (green) and activated microglia (red) in the hippocampus of the AD/Tg mouse.
Cat# TR-300-AG

Biosensis' Amylo-Glo® RTD™ “Ready to Dilute” Staining reagent provides a superior visualization of amyloid plaques than other commonly used stains. Amylo-Glo® RTD™ is a brighter, longer lasting, higher definition plaque staining platform that will make quantitative plaque determination better, easier, and faster.

Amylo-Glo - Ethidium Bromide (EB) RTD Staining Kit



- ◀ Also available is the new **Amylo-Glo® - Ethidium Bromide (EB) RTD™ Staining Kit**. The EB option allows visualization of both cell bodies/nuclei (red) and plaques under UV illumination for easy visual mapping.
Cat# TR-400-AG

Description	Quantity	Code
Amylo-Glo RTD Stain (100X)	5mL	TR-300-AG
Amylo-Glo - Ethidium Bromide RTD Staining Kit (10X)	40mL	TR-400-AG