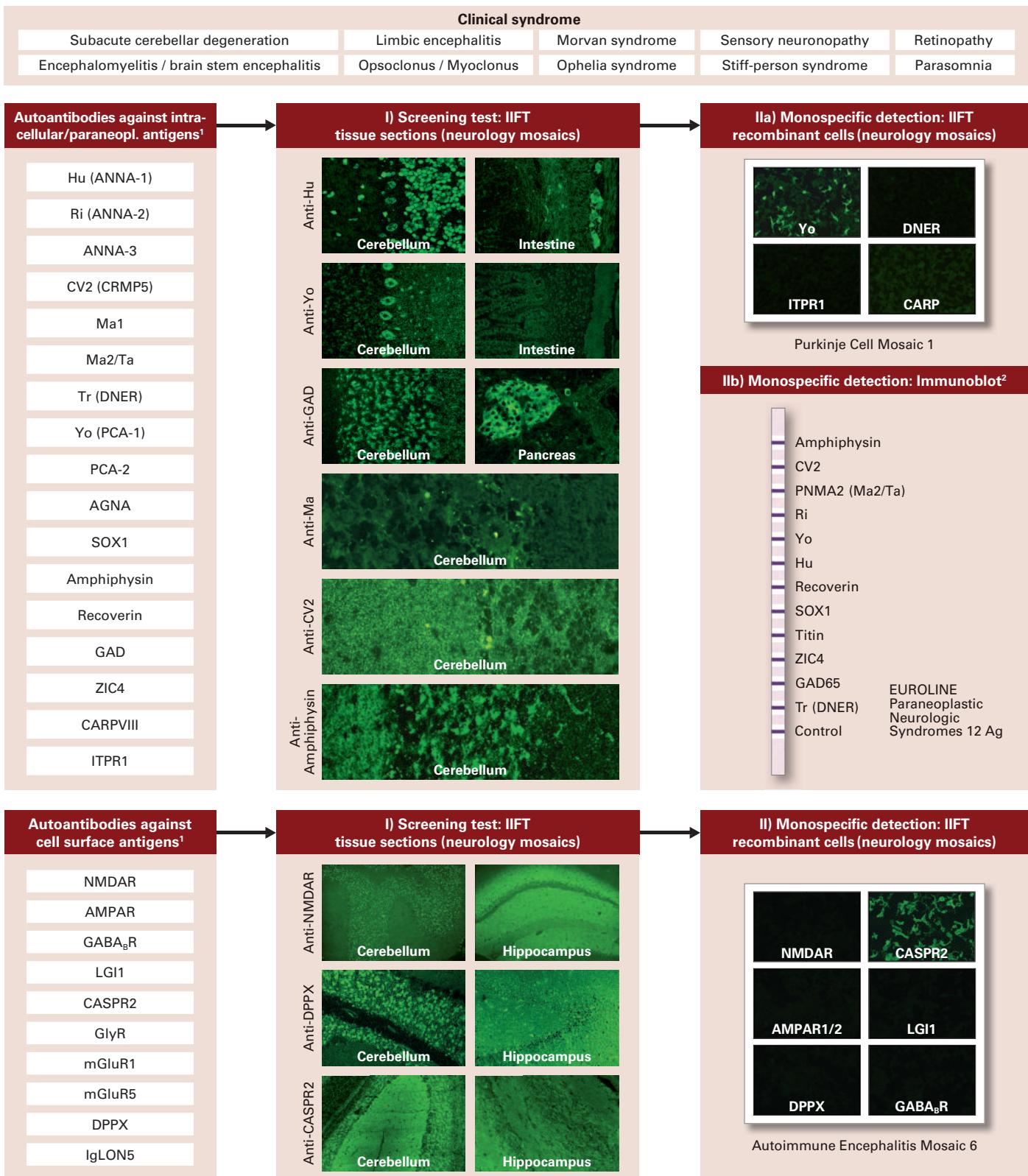




Strategy for the determination of autoantibodies in autoimmune syndromes of the nervous system

Paraneoplastic neurologic syndromes (PNS) and autoimmune encephalitides

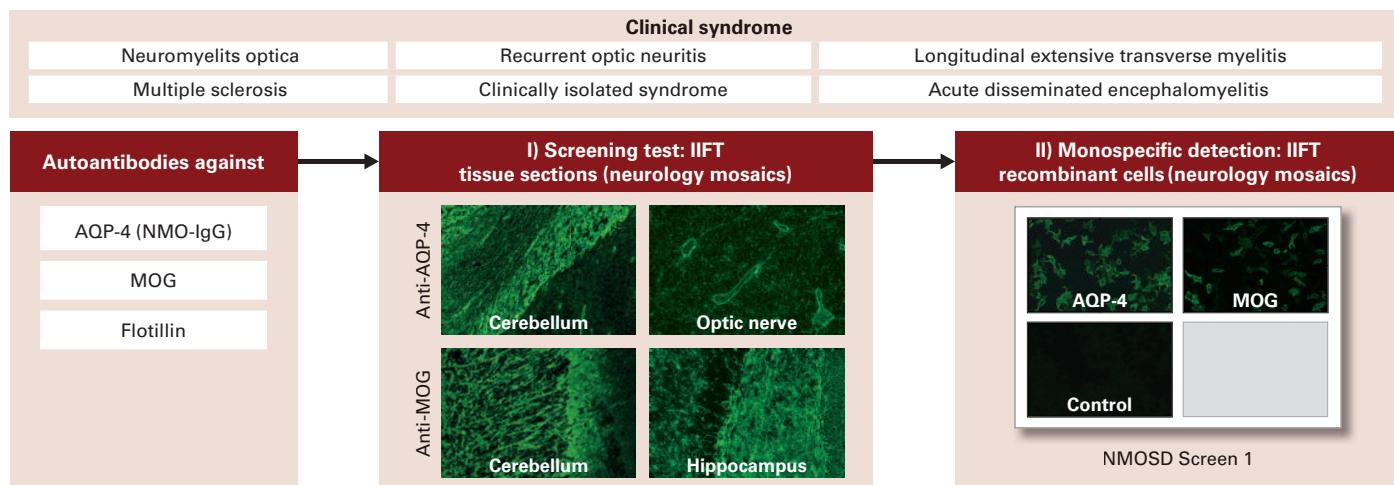


¹ Ideally, both serum and cerebrospinal fluid should be analysed. ² In paraneoplastic neurologic syndromes with onconeural autoantibodies, it is necessary to perform autoantibody detection using two independent analytical techniques (immunohistochemistry and immunoblot) simultaneously or successively (Graus et al. 2004, J Neurol Neurosurg Psychiatry 75, 1135-1140).

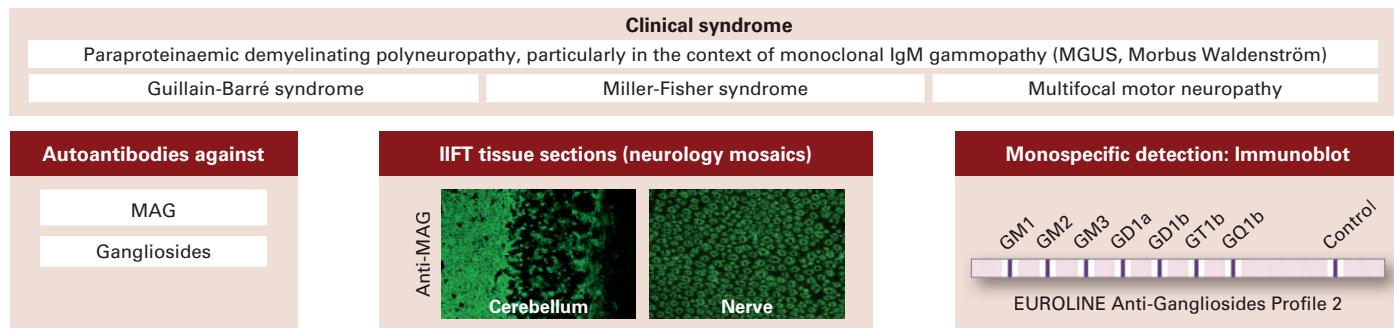
AGNA: Anti-glia nuclear antibodies AMPAR: Glutamate receptor (type α -amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid) ANNA: Anti-neuronal nuclear antibodies CARP: Carbonic anhydrase-related protein VIII CASPR2: Contactin-associated protein 2 DNER: Delta- and notch-like epidermal growth factor-related receptor DPPX: Dipeptidyl-aminopeptidase-like protein 6 GABA_AR: Glutamate receptor (type γ -aminobutyric acid) GAD: Glutamic acid decarboxylase GlyR: Glycine receptor IIFT: Indirect immunofluorescence test ITPR1: Inositol 1,4,5-triphosphate receptor type 1 LGI1: Leucine-rich glioma-inactivated protein 1 mGluR1/5: Metabotropic glutamate receptor 1/5 NMDAR: Glutamate receptor (type N-methyl-D-aspartate) PCA: Purkinje cell autoantibodies ZIC4: Zinc finger protein 4



Demyelination: neuromyelitis optica spectrum diseases (NMOSD) and multiple sclerosis



Autoimmune neuropathies



AQP-4: Aquaporin-4 protein MAG: Myelin-associated glycoprotein MGUS: Monoclonal gammopathy of undetermined significance MOG: Myelin oligodendrocyte glycoprotein

EUROIMMUN product overview

Indirect immunofluorescence tests (IIFT)	Order no.	Substrate (P=primate, R=rat)
Cerebellum	FA 1111	Cerebellum ^P
Medullated nerves	FA 1120	Nerves ^P
Neurology Mosaic 1	FA 1111-1	Nerves ^P , cerebellum ^P , intestine ^P
Neurology Mosaic 2	FA 1111-2	Nerves ^P , cerebellum ^P
Neurology Mosaic 8	FA 1111-8	Nerves ^P , cerebellum ^P , intestine ^P , pancreas ^P
Neurology Mosaic 14	FA 1111-14	Nerves ^P , intestine ^P
Neurology Mosaic 16	FA 1111-16	Nerves ^P , cerebellum ^P , intestine ^P , HEp-2 cells
Neurology Mosaic 17	FA 1111-17	Cerebellum ^P , cerebrum ^P , optic nerv ^P , transfected cells (AQP-4), control transfection
NMOSD Screen 1	FA 1128-1	Transfected cells (AQP-4, MOG), control transfection
Anti-Aquaporin-4 IIFT	FA 1128-50	Transfected cells (AQP-4), control transfection
Glutamate Receptor Mosaic 3	FA 111m-3	Hippocampus ^R , cerebellum ^R , transfected cells (NMDAR), control transfection
Neurology Mosaic 22A	FA 111m-22	Cerebellum ^R , hippocampus ^R , transfected cells (CASPR2, LGI1, DPPX), HEp-2 cells
Autoimmune Encephalitis Mosaic 1	FA 112d-1	Transfected cells (NMDAR, AMPAR1, AMPAR2, CASPR2, LGI1, GABARB1/B2)
Autoimmune Encephalitis Mosaic 6	FA 112d-6	Transfected cells (NMDAR, CASPR2, AMPAR1/2, LGI1, DPPX, GABARB1/B2)
Anti-Glutamate receptor (type NMDA) IIFT	FA 112d-51	Transfected cells (NMDAR), control transfection
Glutamate Receptor (type AMPA1, type AMPA2) Mosaic	FA 112k-1	Transfected cells (AMPAR1, AMPAR2), control transfection
Anti-GABA _B receptor IIFT	FA 112l-50	Transfected cells (GABARB1/B2), control transfection
Anti-VGKC-Ass. Proteins Mosaic 1	FA 1439-1	Transfected cells (LGI1, CASPR2), control transfection
Anti-DPPX IIFT	FA 112m-50	Transfected cells (DPPX), control transfection
Anti-DNER IIFT	FA 1112-50	Transfected cells (DNER), control transfection
Anti-IgLON5 IIFT	FA 1151-50	Transfected cells (IgLON5), control transfection
Anti-Zinc finger protein ZIC4 IIFT	FA 111a-51	Transfected cells (ZIC4), control transfection
Anti-GAD65 IIFT	FA 1022-50	Transfected cells (GAD65), control transfection
Purkinje Cell Mosaic 1	FA 1113-1	Transfected cells (Yo, DNER, ITPR1, CARP)
Anti-mGluR5 IIFT	FA 112n-52	Transfected cells (mGluR5)
Anti-Flotillin (FLOT1/2) IIFT	FA 1124-50	Transfected cells (FLOT1/2)
Immunoblots	Order no.	Substrate
EUROLINE Neuronal Antigens Profile 2	DL 1111-2 G	Amphiphysin, CV2, PNMA2, Ri, Yo, Hu
EUROLINE Neuronal Antigens Profile PLUS RST	DL 1111-4 G	Amphiphysin, CV2, PNMA2, Ri, Yo, Hu, Recoverin, SOX1, Titin
EUROLINE Anti-Recoverin	DL 1111-5 G	Recoverin
EUROLINE Anti-SOX1, -Titin	DL 1111-6 G	SOX1, Titin
EUROLINE Paraneoplastic Neurologic Syndromes 12 Ag	DL 1111-7 G	Amphiphysin, CV2, PNMA2, Ri, Yo, Hu, Recoverin, SOX1, Titin, ZIC4, GAD65, Tr (DNER)
EUROLINE Anti-Gangliosides Profile 1	DL 1130-1 G/M	GM1, GD1b, GQ1b
EUROLINE Anti-Gangliosides Profile 2	DL 1130-2 G/M	GM1, GM2, GM3, GD1a, GD1b, GT1b, GQ1b



Biomarkers for neurodegeneration

Innovative ELISA test systems for the detection of biomarkers in CSF and blood

Biomarkers for synaptic integrity

Pre-/post-synaptic
Neurogranin (trunc P75)
BACE1

Biomarkers for brain pathology

Tau pathology
pTau(181)

Lewy body pathology
Alpha-Synuclein

Amyloid pathology
Beta-Amyloid (1-42)
Beta-Amyloid (1-40)
Beta-Amyloid (1-38)

Neuronal degeneration
Total-tau
pNf-H

Risk factors for neurodegenerative diseases

Apolipoprotein E
Genotype: ApoE ε2, ε3, ε4



EUROIMMUN test systems for neurodegenerative diseases

- Automatable
- Quality control samples for all tests
- Aligned protocols
- Analytically validated

Antigen detection

Product	Description	CSF	Blood	Order no.
Beta-Amyloid-(1-38)	Test kit for the quantitative determination of beta-amyloid (1-38) as an additional diagnostic tool in suspected clinical amyloid pathology of the brain.	<input type="checkbox"/>	<input type="checkbox"/>	EQ 6501-9601-L
Beta-Amyloid-(1-40)	Test kit for the quantitative determination of beta-amyloid (1-40). Can be used to calculate the beta-amyloid (1-42)/beta-amyloid (1-40) ratio as an additional diagnostic tool in suspected amyloid pathology of the brain.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EQ 6511-9601-L
Beta-Amyloid-(1-42)	Test kit for the quantitative determination of beta-amyloid (1-42) as an additional diagnostic tool in suspected clinical amyloid pathology of the brain.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EQ 6521-9601-L
Total-Tau	Test kit for the quantitative determination of total tau for the diagnosis of neuronal apoptosis.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EQ 6531-9601-L
pTau(181)	Phosphorylated tau determination is an additional diagnostic tool in suspected tauopathy in the brain of patients with neurodegenerative disorders.	<input checked="" type="checkbox"/>		EQ 6591-9601-L
BACE1	Test kit for the determination of BACE1 protein concentration.	<input type="checkbox"/>	<input type="checkbox"/>	EQ 6541-9601-L
Neurogranin-(Trunc P75)	Test kit for the quantitative determination of neurogranin (trunc P75).	<input type="checkbox"/>	<input type="checkbox"/>	EQ 6551-9601-L
Neurofilament (pNf-H)	Test kit for the quantitative determination of pNf-H (phosphorylated neurofilament heavy chain). Can be used as an additional tool for the early diagnosis of motoneuronal diseases like amyotrophic lateral sclerosis.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EQ 6561-9601
Alpha-Synuclein	Alpha-Synuclein is a measure for Lewy body pathology on the brain.	<input type="checkbox"/>	<input type="checkbox"/>	EQ 6545-9601-L
Beta-Amyloid Control Set	CSF sample set with target values. Can be used for on-site training as well as regular internal quality control of amyloid and tau measurements.	<input type="checkbox"/>		CK 6500-0502-L

■ : CE Label

□ : RUO

(hs) : high sensitive ELISA

Molecular genetic diagnostics

Product	Description	Sample material	Order no.
EUROArray APOE Direct	Test kit for molecular genetic diagnosis of Alzheimer's disease and type III hyperlipoproteinemia, as well as other diseases associated with the alleles ε2, ε3 and/or ε4 of the APOE gene.	Full blood sample	MN 5710-0803-V MN 5710-0505-V MN 5710-1005-V MN 5710-2005-V