

# Antigen / Neuronal antibodies - an Overview

Diagnosis/ Medical condition	Antibodies towards	Typical symptoms Diagnosis	Sample	Method	Extracellular (EC)/In- tracellular (IC) antigen	Publications	Association to cancer diagnosis	Most common can- cer diagnosis associ- ated to the antibodies	Reference	Order number on Wieslab Request Form (Package analysis)	Order number on Wieslab Request Form (Individual analysis)
Autoimmune encephalitis	AMPA R 1 & 2 (glutamatreceptor 1 and 2)	Psychiatric, cognitive symptoms	Serum (CSF)	IIF	EC	15	60-70%	Thymoma, bronchial cancer, breast cancer, SCLC	1-4	553,556,560	772
	NMDA receptor (N-methyl-D-aspartat)	Psychiatric symptoms, convulsions, dyskinesia, dystonia, autonom instability	Serum (CSF)	IIF	EC	>500	9-56%	Teratoma (ovarian, testis)	1-3,5	553,556,560	875
	GABA B R (gamma-aminobutyric acid-B receptor)	Convulsions	Serum (CSF)	IIF	EC	25	47%	SCLC (70%), neuroendocrine tumour	1-3,6	553,556,560	877
	LGI-1 (VGKC) (leucine rich glioma-inactivated protein 1)	Amnesia, convulsions, psychiatric change, dystonia	Serum (CSF)	IIF	EC	>600	20-30%	SCLC, thymoma, adenocarcinoma (kidney, thyroid, breast), prostate cancer, ovarian teratoma	1-3,7-8	553,556,560	833
	CASPR-2 (VGKC) (contactin associated protein 2)	Morvans syndrome with confusion, amnesia, insomnia, autonom dysfunction, neuromyotonia, pain	Serum (CSF)	IIF	EC	40	<40%	Tymom, SCLC	1-3,8-9	553,556,560	835
	DPPX (dipeptidyl-peptidase-likeprotein-6)	Cognitive symptoms, restlessness, hallucinations, muscle spasm, tremor. Pleocytosis in CSF. Weightloss and Diarrhea as prodromal symptoms	Serum (CSF)	IIF	EC	N.A.	N.A.	N.A.	1,23-24	553,556,560	851
	VGKC (voltage gated potassium channel complex)	Autoimmune encephalitis	Serum	RIA	EC	VGKC channel is a complex of several proteins, amongst others LGI1 and CASPR2. The analysis of anti-VGKC antibodies can thus give positive results even if the individual LGI1 / CASPR2 analyzes are negative.			8,16-20	553,560	831
Paraneoplastic syndrome	Hu (Anna-1) (anti-neuronal nuclear antibody 1)	Encephalomyelitis, autoimmune encephalitis, Brainstemencephalitis, sensory and autonomic neuropathy	Serum (CSF)	Blot/IIF	IC	>600	98%	80% SCLC	1,3,10-11	554,557,560	220
	Yo (PCA-1) (Purkinje cell cytoplasmic antibody type 1)	Subacute cerebellar ataxia, sensory and motor neuropathy	Serum (CSF)	Blot/IIF	IC	>200	98%	Ovarian carcinoma, breast cancer	1,3,10-11	554,557,560	740
	Ri (Anna-2, Nova 1) (anti-neuronal nuclear antibody 2)	Paraneoplastic opsoclonus - myoclonus, Brainstemencephalitis	Serum (CSF)	Blot/IIF	IC	61	97%	Breast cancer, gynecological cancer, SCLC	1,3,10-11	554,557,560	750
	CV2/CRMP5 (collapsing response mediator protein 5)	Motor and sensory neuropathy, chorea, autoimmune encephalitis, optic neuritis, myelitis	Serum (CSF)	Blot/IIF	IC	>100	96%	SCLC, thymoma, carcinoma (thyroid, kidney)	1,3,10-11	554,557,560	870
	Amphiphysin	Stiff person syndrome, encephalomyelitis, sensory and motor neuropathy	Serum (CSF)	Blot/IIF	IC	20	95%	SCLC, breast cancer	1,3,10-11	554,557,560,563,568	730
	Ma2/Ta (anti-paraneoplastic Ma2, PNMA2)	Autoimmun encephalitis, Brainstem-encephalitis, hypotalamusencephalitis	Serum (CSF)	Blot/IIF	IC	55	96%	Breast cancer, testicular cancer, SCLC	1,3,10-11	554,557,560	790
	Tr (Trotter - purkinjecell)	Encephalomyelitis, cerebellar degeneration	Serum (CSF)	IIF	IC	28	89%	Hodgkins lymphoma, breast cancer, ovarian cancer, SCLC, thymoma	42,43	554,560	760
	SOX 1 (AGNA anti-gliol-nuclear antibody)	Paraneoplastic neuropati, LEMS, ataxia, neuropathy	Serum	Blot	IC	N.A.	N.A.	SCLC	28-29	554,560	737
	ZIC 4 (Zinc finger of the cerebellum 4)	Paraneoplastic cerebellar degeneration	Serum (CSF)	Blot	IC	N.A.	N.A.	SCLC	1,3,10-11	554,560	742
	Recoverin	CAR (cancer associerad retinopati)	Serum (CSF)	Blot		N.A.	N.A.	Malignant melanoma, SCLC	39	554,560,569	736
	Titin	Myastenia Gravis	Serum (CSF)	Blot		N.A.	N.A.	Thymoma	40,41	554,560,543	965
	GAD (Glutamic Acid Decarboxylase 65 & 67, (Pankreas 65 & Brain 65 & 67)	Stiff person syndrome (60%), cerebellar degeneration, autoimmune encephalitis, epilepsy, Diabetes Mellitus Typ 1	Serum	ELISA/ IIF	IC	N.A.	8%	Thymoma, cancer (kidney, breast, colon)	14-15	554,557,560,563,568	89
Less frequent antibody specificities											
Anna-3 (purkinjecell)	Sensory and motor neuropathy with or without Ataxia	Serum (CSF)	IIF	IC	N.A.	Has been described	SCLC, carcinoma (breast, lung, esophagus)	39	562	874	
CARP VIII (purkinjecell/protein)	Cerebellar degeneration	Serum (CSF)	IIF	IC	N.A.	Has been described	SCLC, breast cancer, malignant melanoma	21-22	562	854	
Glycine receptor	Stiff person syndrome, progressive encephalomyelitis with rigidity and myoclonus (PERM)	Serum (CSF)	IIF	EC	N.A.	10%	N.A.	3,10-11	562,568	838	
HOMER 3 (homer scaffolding protein 3)	Subacute cerebellar ataxi	Serum (CSF)	IIF		N.A.	N.A.	N.A.	25	562	855	
IgLON 5 (IgLON family member 5)	Encephalitis and neurodegeneration – abnormal sleeping pattern (parasomnia), obstructive sleep apnea, abnormal walking pattern, dysarthria, dysphagia, ataxia, chorea	Serum (CSF)	IIF	EC	N.A.	N.A.	N.A.	24,26	562	852	
ITPR 1 (Inositol 1,4,5-Trisphosphate Receptor, Type 1)	Subakut cerebellar ataxia	Serum (CSF)	IIF	IC	N.A.	N.A.	N.A.	27	562	856	
PCA-2 (Purkinje cell cytoplasmic antibody type 2)	Encephalomyelitis, cerebellar degeneration	Serum (CSF)	IIF	IC	N.A.	Has been described	Breast cancer, ovarian cancer, SCLC	40	562	761	
VGCC (voltage gated calcium channel complex)	Neuropathy, LEMS, cerebellar dysfunction	Serum (CSF)	RIA		N.A.	50-60%	SCLC (50-60%), Lymphoma	1,3,10-11	562,563	845	

NA - Data "not available"  
CSF - Cerebrospinal fluid  
RIA - Radioimmunoassay  
IIF - Immunoflouescens (transfected cells)

Blot - Western immunoblot  
ELISA - Enzyme-linked immunosorbent assay  
EC - Plasma membrane antigen-antibodies  
IC - Neuronal & Cytoplasmic antibodies

SCLC - Small cell lungcarcinoma  
LEMS - Lambert-Eaton myasthenic syndrom  
PERM - Progressive encephalomyelitis with rigidity and myoclonus