**Supplemental material**

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| exp Autoantibodies/ OR autoantibod\*.mp. OR exp Antibodies/ OR. antibod\*.mp. |
| **AND** |
| exp Encephalitis/ OR enceph\*.mp. OR brain inflammation.mp. |
| **AND** |
| exp Receptors, AMPA/ OR (ampa1\* or ampa2\* or ampa-1\* or ampa-2\* or ampa 1\* or ampa 2\* or alfa-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid 1\*).mp. OR exp Receptors, GABA-B/ OR (gaba-b\* or gaba b\* or gabab\* or gamma-aminobutyric acid b\* or gamma-aminobutyric acid-b\*).mp OR exp Receptors, Dopamine D2/ OR dopamine D2\*.mp. OR (dipeptidyl-peptidase-like protein 6\* or DPPX\*).mp. OR glycine receptor\*.mp. OR exp Receptors, Metabotropic Glutamate/ OR (receptors, metabotropic glutamate\* or mGluR1\* or mGluR5\*).mp. OR exp Receptors, Nicotinic/ OR (Receptors, Nicotinic\* or acetylcholine receptors, nicotinic\* or nACh-receptor\* or nACh-R\* or nACh receptor\*).mp. OR (ANNA\* or anti-neuronal nuclear\*).mp. OR exp Receptors, N-Methyl-D-Aspartate/ OR (Receptors, N-Methyl-D-Aspartate\* or receptors, n-methylaspartate\* or NMDA\* or NMDAR\* or NMDA-R\*).mp. OR exp Calcium Channels/ OR (vdcc\* or voltage dependent calcium channels\* or voltage-dependent calcium channels\* or vgcc\*).mp. OR exp Potassium Channels, Voltage-Gated/ OR (k+ channels, voltage-gated\* or kv potassium channels\* or Potassium Channels, Voltage- Gated\* or LGI1\* or Caspr2\* or VGKC\*).mp. OR Amphiphysin\*.mp. OR (Adenylate Kinase 5\* or Adenylate-Kinase 5\* or AK5\*).mp. OR (Collapsin Response Mediator Protein 5\* or CRMP5\* or CRMP-5\* or CRMP 5\*).mp. OR exp Glutamate Decarboxylase/ OR (glutamic acid decarboxylase 65\* or GAD65\* or GAD 65\* or GAD-65\* or acid decarboxylase 65, glutamic\*).mp. OR (hu\* or anti-hu\*).mp. OR (Anti-Ma 2\* or Ma 2\* or Ma-2\* or Anti-Ma1\* or Ma 1\* or Ma-1\*).mp. OR (Homer 3\* or Homer-3\* or Homer3\*).mp. OR (Purkinje cell cytoplasmic\* or PCA-2\* or PCA 2\* or PCA2\* or PCA-1\* or PCA 1\* or PCA1\* or Yo\* or anti-Yo\*).mp. OR (Ri\* or anti-Ri\*).mp. OR (SRY-related HMG-box 1\* or SOX1\* or SOX-1\* or SOX 1\*).mp. OR (Tr\* or anti-Tr\*).mp. OR (Hashimoto's encephal\* or Hashimoto encephal\* or SREAT\* or Steroid-responsive encephalopathy associated with autoimmune thyroiditis\* or Steroid responsive encephalopathy associated with autoimmune thyroiditis\* or steroid responsive encephal\* or steroid-responsive encephal\*).mp. OR (thyroid Peroxidase\* or thyroidperoxidase\* or thyroid-peroxidase\* or antithyroid peroxidase\*or anti-thyroid peroxidase\* or anti-thyroidperoxidase\* or anti-thyroid-peroxidase\* or antithyroid-peroxidase\* or anti thyroid peroxidase\* or anti thyroidperoxidase\* or anti-TPO\* or anti TPO\* or TPO\*).mp. OR (thyroglobulin\* or TG\* or anti-thyroglobulin\* or antithyroglobulin\* or anti-TG\* or anti TG\*).mp. OR (thyrotropin receptor\*, tsh receptor\* or thyroid stimulating hormone receptor\* or anti-thyrotropin\* or antithyrotropin\* or anti thyrotropin\* or anti-TSH\* or anti TSH\* or TRAK\*).mp. OR exp Aquaporin 4/ OR (aqp4\* or aqp-4\* or aqp 4\* or aquaporin 4\* or aquaporin-4\*).mp. OR exp Myelin-Oligodendrocyte Glycoprotein/ OR (Myelin-Oligodendrocyte Glycoprotein\* or Myelin Oligodendrocyte Glycoprotein\* or MOG\*).mp. OR (Zic4\* or Zic 4\* or Zic-4\*).mp. OR IgLON5\*.mp. OR (ARHGAP26\* or GTPase activating protein 26).mp. |
| **AND** |
| exp Psychotic Disorders/ OR (psychotic\* or schizo\* or delusion\* or catatonic\* or catatonia\* or psychos\* or paranoid\* or paranoia\* or depersonalization\* or derealization\*).mp. OR exp Depressive Disorder/ OR exp Bipolar Disorder/ OR (Bipolar Disorder\* or bipolar psych\* or manic\* or mania\*).mp. OR exp Obsessive-Compulsive Disorder/ OR (Obsessive-Compulsive\* or OCD\* or anankastic\*).mp. OR exp Anxiety Disorders/ OR anxiety\*.mp. OR exp Delirium/ OR Delirium\*.mp. OR exp Dementia/ OR (Dementia\* or amentia\*).mp. OR OR exp Cognition Disorders/ OR (cognition disorder\* or MCI\* or cognitive impairment\* or cognitive dysfunction\* or cognitive-decline\* or mental deterioration\*).mp. OR (dysexecutive\* or executive dysfunction\*).mp. OR exp Mood Disorders/ OR (affective\* or mood\* or depressive\* or depression\* or melancholia\* or dysphoric\*).mp. OR exp Depressive Disorder, Major/ OR exp Depression/ OR exp Depressive Disorder, Treatment-Resistant/ OR exp Affective Disorders, Psychotic/ OR exp Attention Deficit Disorder with Hyperactivity/ OR (ADHD\* or ADDH\* or ADD\* or Attention Deficit\* or Hyperactiv\* or Hyperkinetic\* or Minimal Brain Dysfunction\* or MBD\*).mp. OR exp Tic Disorders/ OR exp Tourette Syndrome/ OR (tic-disorder\* or Tourette\*).mp. OR exp Autistic Disorder/ OR (Autism\* or autistic\*).mp OR exp "Sleep Initiation and Maintenance Disorders"/ OR (("Sleep Initiation and Maintenance Disorders\*") or insomnia\*).mp. OR exp Mental Disorders/ OR (mental disorder\* or psychiatric\* or behavioral disorder\*).mp. OR exp Paranoid Disorders/ OR exp Schizophrenia/ OR exp Schizophrenia, Catatonic/ OR exp Schizophrenia, Disorganized/ OR exp Schizophrenia, Paranoid/ OR exp Shared Paranoid Disorder/ OR exp Delusional Parasitosis/ OR exp Schizophrenia, Childhood/ |

**Supplemental Table 1: Search strategy.** Abbreviations: mp = title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms.

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|  | **Patients with anti-NMDA-R antibodies** | **Patients with anti-VGKC antibodies** | **Patients with anti-AMPA-R antibodies** | **Other antineuronal antibodies \*** |
| **Number of cases** (% per subgroup of patients with antibodies against cell surface antigens) | 46 (58%) | 18 (23%) | 12 (15%) | 4 (5%) |
| **Females (%):**  **Males (%)** | 26 (57%):  20 (43%) | 10 (56%):  8 (44%) | 10 (83%):  2 (17%) | 3 (75%):  1 (25%) |
| **Age ± SD in years (range)** | 29.45 ± 16.41 (from 2 to 71) | 53.22 ± 24.39 (from 7 to 91) | 59.8 ± 14.03 (from 35 to 81) | 56.25 ± 11.09 (from 42 to 69) |
| **Antibody subtypes** (% per subgroup)\* | Glu NR1: 8 (17%)  Isolated Glu NR2: 5 (11%)  Not reported: 33 (72%) | LGI1: 4 (22%)  CASPR2: 0 (0%)  Differentiation not performed/ reported: 14 (78%) |  | AQP4: 1 (25%)  DPPX: 1 (25%)  GABAA: 1 (25%)  Unknown: 1 (25%) |
| **Antibody investigation in serum/CSF (reported)** | Serum: 36 (78%)  CSF: 34 (74%) | Serum: 18 (100%)  CSF: 3 (17%) | Serum: 12 (100%)  CSF: 7 (58%) | Serum: 4 (100%)  CSF: 3 (75%) |
| **Antibody detection in serum/CSF** | Serum: 30 from 34 (88%)  CSF: 31 from 34 (91%)  Unclear: 0 (0%) | Serum: 18 from 18 (100%)  CSF: 3 from 3 (100%)  Unclear: 0 (0%) | Serum: 6 from 12 (50%)  CSF: 1 from 7 (14%)  Unclear: 6 (50%) | Serum: 3 from 4 (75%)  CSF: 3 from 3 (100%)  Unclear: 0 (0%) |
| **Syndromes** (% per subgroup)  - Schizophreniform  - Amnestic/dementia-like  - Confusional  - Depressive  - Manic  - Tic  - Sleep-disturbance  - Autistic  - Anxiety-compulsive | 26 (57%)  4 (9%)  7 (15%)  4 (9%)  3 (7%)  0 (0%)  0 (0%)  2 (4%)  0 (0%) | 2 (11%)  13 (72%)  1 (6%)  1 (6%)  0 (0%)  0 (0%)  1 (6%)  0 (0%)  0 (0%) | 0 (0%)  9 (75%)  3 (25%)  (0%)  (0%)  (0%)  (0%)  (0%)  (0%) | 1 (25%)  2 (50%)  0 (0%)  0 (0%)  0 (0%)  0 (0%)  1 (25%)  0 (0%)  0 (0%) |
| **Slight neurological symptoms** | 18 (39%) | 7 (39%) | 3 (25%) | 1 (25%) |
| **CSF overall alterations** (% of cases with reported CSF results) | 38 (from 42; 90%) | 10 (from 14; 71%) | 12 (from 12; 100%) | 4 (from 4; 100%) |
| **EEG overall alterations** (% of cases with reported EEG results) | 18 (from 30; 60%) | 7 (from 12; 58%) | 9 (from 11; 82%) | 1 (from 2; 50%) |
| **MRI overall alterations** (% of cases with reported MRI results) | 19 (from 43; 44%) | 10 (from 18; 56%) | 9 (from 12; 75%) | 3 (from 4; 75%) |
| **Tumor association overall** (% per full group) | 13 (28%) | 3 (17%) | 8 (67%) | 1 (25%) |
| **Improvement through immunomodulatory drugs in general** | 37 (from 40 treated patients; 93%) | 13 (from 15 treated patients; 87%) | 10 (from 11 treated patients; 91%) | 4 (from 4 treated patients; 100%) |

**Supplemental Table 2: Findings in patients with established antineuronal antibodies.** Abbreviations: CSF, cerebrospinal fluid; EEG, electroencephalography, MRI, magnetic resonance imaging.

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|  | **Patients with exclusively psychiatric/ neurocognitive syndromes** |
| **Number of cases** (% per subgroup) | 99 from 145 included patients (68%) |
| **Females (%): Males (%)** | 65 (66%): 34 (34%) |
| **Age ± SD in years (range)** | 45.62 ± 22.57 (from 6 to 91 years) |
| **Antibody subtypes** (% per subgroup)\* | Abs against cell surface antigens: 51 (52%)   * Anti-NMDA-R: 28 (55%) * Anti-VGKC: 11 (22%) \*\*   - LGI1: 3 (6%)   * Anti-AMPA: 9 (18%) * Anti-GABAA: 1 (2%) * Anti-DPPX: 1 (2%) * Unknown: 1 (2%)   Abs against intracellular antigens: 13 (13%)   * Anti-GAD65: 1 (7%) * Anti-Ma1/2: 3 (23%) * Anti-Ri: 2 (15%) * Anti-Hu: 1 (7%) * Anti-AK5: 5 (38%) * Anti-BRSK2: 1 (7%)   Hashimoto encephalopathy/SREAT: 35 (35%)   * Anti-TPO: 14 (40%) * Anti-TG: 1 (3%) * Anti-TPO+TG: 19 (54%) |
| **Antibody investigation in serum/CSF** | Serum: 95 (96%)/ CSF: 53 (54%) |
| **Antibody detection in serum/CSF** | Serum: 80 from 95 (84%)/CSF: 37 from 53 (70%)/Unclear: 6 (6%) |
| **Syndromes** (% per subgroup) | Schizophreniform: 29 (29%)  Amnestic/dementia-like: 48 (48%)  Confusional: 10 (10%)  Depressive: 5 (5%)  Manic: 5 (5%)  Tic: 1 (1%)  Sleep-disturbance: 0 (0%)  Autistic: 0 (0%)  Anxiety-compulsive: 1 (1%) |
| **CSF overall alterations** (% of cases with reported CSF results) | 67 (from 86; 78%) |
| **EEG overall alterations** (% of cases with reported EEG results) | 42 (from 69; 61%) |
| **MRI overall alterations** (% of cases with reported MRI results) | 52 (from 94; 55%) |
| **Tumor association overall** (% per full group) | 21 (from 99; 21%) |
| **Improvement through immunomodulatory drugs in general** | 79 (from 85; 93%) |

**Supplemental Table 3: Clinical and additional findings of patients with isolated psychiatric or neurocognitive syndromes.** Abbreviations: CSF, cerebrospinal fluid; EEG, electroencephalography, MRI, magnetic resonance imaging.