Appendix 1.

Complete results of literature review including all publications that presented results of serum and CSF NMDAR IgG autoantibody testing in patients with definite anti-NMDAR encephalitis.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Reference / Testing Location (SCImago Rank of 271) | Paired samples (n) | Age (median [range]) | M:F | NMDAR antibody testing |
| Serum +: CSF + | Technique / Test Site |
| Gresa-Arribas et al., 20141University of Pennsylvania (14) | 250 | unknown | unknown | 232:250 | 2 / R |
| Wang et al., 20152Peking Union Medical College Hospital (166) | 43 | 23 [9 - 39] | 19:24 | 27:43 | 1 / L |
| Saito et al., 20173Kanazawa University Hospital (192) | 37 | unknown | unknown | 17:37 | 1 / L |
| Aungsumart et al., 2019 4Prasat Neurological Institute (NL) | 31 | 19 [IQR: 15 - 31] | 12:19 | 21:31 | 2 / L |
| Ding et al., 20185Nanfang Hospital (158) | 24 | Mean: 40 (SD: 18) | 10:14 | 18:24 | 1 / L |
| Ge et al., 20166 | 20 | unknown | unknown | 20:20 | U / U |
| Erazo et al., 20167 University of Pennsylvania (14) | 13 | 6 [1 - 16] | 9:4 | 13:13 | U / R |
| Maat et al., 20138Erasmus Medical Center (24) | 12:15 | 25 [5 – 56] | 2:13 | 9:12 (0) | 1 / R ★ |
| Mahadevan et al., 20169NIMHANS (NL) | 11 | unknown | unknown | 11:11 | 1 / L |
| Liba et al., 201610 | 9 † | 13 [7 - 26] | 1:8 | 9:9 | 1 / U 🟁 |
| Ramirez et al., 201511San Luis Potosi City Reference Hospitals (NL) | 8 | unknown | unknown | 8:8 | U / L |
| Holzer et al., 201312 | 7 | 22 [17 - 58] | 1:6 | 7:7 | U / U |
| Gao et al., 201413 | 7 | Female: [19 - 31], Male: 52 [47 - 58] | 2:5 | 6:7 | U / U |
| Candia et al., 201514 | 6 | [5 - 16] | 0:6 | 6:6 | U / U\* |
| Pruss et al., 201015 | 6 | 22.5 [18 - 31] | 0:6 | 5:6 | 2 / U 🟁 |
| Song et al., 201316 | 5:6 | unknown | unknown | 5:5 (0) | U / U 🟁 |
| Zhou et al., 201417 | 5 | unknown | unknown | 5:5 | U / U |
| Suhs et al., 201518Hannover Medical School (NL) | 5:7 † | [23 - 57] | 0:7 | 4:5 (1) | 1 / L ★ |
| Zoccarato et al., 201719 | 4 | [7 - 27] | 3:1 | 4:4 | 1 / U |
| Kataoka et al., 201720University of Pennsylvania (14) | 3 | 29 [18 - 46] | 1:2 | 3:3 | 2 / R ★ |
| Bashiri et al., 201721 | 3 | [10 mo - 5] | 0:3 | 3:3 | U / U 🟁 |
| Bastos et al., 201322 | 3 | [13 - 34] | 0:3 | 3:3 | U / U |
| Gastaldi et al., 201623Oxford University Hospitals (68) | 3:5 | unknown | unknown | 3:3 | 2 / R ★ |
| Nosadini et al., 201324 | 3 | unknown | unknown | 3:3 | 1 / U |
| Su et al., 201525 | 3 | unknown | 2:1 | 3:3 | U / U 🟁 |
| Zandi et al., 201526Oxford University Hospitals (68) | 5:8 | unknown | unknown | 5:5 (3) | 2 / R ★ |

Appendix 1 (continued)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Reference / Testing Location (SCImago Rank of 271) | Paired samples (n) | Age (median [range]) | M:F | NMDAR antibody testing |
| Serum +: CSF + | Technique / Test Site |
|  |  |
| Wright et al., 2015 27 | 2 | 2 [2] | unknown | 2:2 | U / U |
| Sankhyan et al., 2015 28 | 2 | 6 [4 - 8] | 1:1 | 2:2 | U / U |
| Aung et al., 2015 29 | 2 | 23 [23 - 23] | 1:1 | 2:2 | U / U |
| Alexopoulos et al., 2018 30Athens University Hospital (202) | 5:5 | 29 [9 mo, 58] | 0:2 | 3:3 (1) | 1 / L |
| Qin et al., 2017 31 | 2:4 | 36 [33 - 39] | 2:0 | 2:2 | U / U 🟁 |
| Qiu et al., 2018 32 | 2:4 | 49 [31 - 67] | 0:2 | 2:2 | U / U |
| Kitada et al., 2011 33 | 2 | 54 [38, 71] | 1:1 | 2:2 | 2 / U |
| Tuzun et al., 2015 34 | 2 | 63 [62 - 64] | 2:0 | 2:2 | U / U |
| Gaunt et al., 2017 35 | 1 | 7 mo | 0:1 | 1:1 | U / U |
| Crowe et al., 2014 36 | 1 | 16 mo | 0:1 | 1:1 | U / U |
| Bektas et al., 2013 37 | 1 | 19 mo | 0:1 | 1:1 | U / U 🟁 |
| Iyer et al., 2014 38 | 1 | 3 | 1:0 | 1:1 | U / U |
| Deiva et al., 2014 39 | 1 | 4 | 0:1 | 1:1 | U / U 🟁 |
| Barros et al., 2014 40Oxford University Hospitals (68) | 1 | 7 | 1:0 | 1:1 | 2 / R |
| Lee et al., 2016 41 | 1 | 7 | 0:1 | 1:1 | U / U 🟁 |
| Tamma et al., 2011 42 | 1 | 7 | 1:0 | 1:1 | U / U |
| Mitani et al., 2013 43 | 1 | 8 | 1:0 | 1:1 | U / U 🟁 |
| Cai et al., 2018 44Peking Union Medical College Hospital (166) | 1 | 9 | 0:1 | 1:1 | U / L 🟁 |
| Korenke et al., 2013 45 | 1 | 12 | 1:0 | 1:1 | U / U |
| Elango et al., 2016 46 | 1 | 13 | 0:1 | 1:1 | U / U |
| Babiker et al., 2015 47 | 1 | 15 | 0:1 | 1:1 | U / U |
| Kevere et al., 2015 48 | 1 | 15 | 0:1 | 1:1 | U / U |
| Rangseekajee et al., 2015 49 | 1 | 15 | 0:1 | 1:1 | U / U |
| Ubod et al., 2016 50 | 1 | 15 | 1:0 | 1:1 | U / U |
| Wang et al., 2016 51 | 1 | 15 | 0:1 | 1:1 | U / U 🟁 |
| Dasyam et al., 2014 52 | 1 | 17 | 0:1 | 1:1 | U / U |
| Nastase et al., 2012 53 | 1 | 18 | 0:1 | 1:1 | U / U |
| Pereira, et al. 2016 54 | 1 | 18 | 0:1 | 1:1 | U / U |

Appendix 1 (continued)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Reference / Testing Location (SCImago Rank of 271) | Paired samples (n) | Age (median [range]) | M:F | NMDAR antibody testing |
| Serum +: CSF + | Technique / Test Site |
|  |  |
| Sousa et al., 2014 55 | 1 | 18 | 0:1 | 1:1 | U / U |
| Gutierrez-Zuniga et al., 2016 56 | 1 | 19 | 0:1 | 1:1 | U / U |
| Shimoyama et al., 2016 57 | 1 | 19 | 0:1 | 1:1 | U / U |
| Fontao et al., 2016 58 | 1 | 20 | 1:0 | 1:1 | U / U |
| Liang et al., 2016 59 | 1 | 20 | 0:1 | 1:1 | U / U |
| Wang et al., 2018 60 | 1 | 20 | 0:1 | 1:1 | U / U |
| Algra et al., 2014 61 | 1 | 21 | 0:1 | 1:1 | U / U |
| Barrozo et al., 2017 62 | 1 | 21 | 1:0 | 1:1 | U / U |
| Fauzi et al., 2017 63Hospital Kuala Lumpur (NL) | 1 | 21 | 0:1 | 1:1 | 1 / L ★ |
| Salehi et al., 2018 64 | 1 | 21 | 0:1 | 1:1 | U / U |
| Tachibana et al., 2010 65 | 1 | 21 | 0:1 | 1:1 | 1 / U 🟁 |
| Vansia et al., 2016 66 | 1 | 22 | 0:1 | 1:1 | U / U |
| Amado-Rodriguez et al., 2018 67 | 1 | 23 | 0:1 | 1:1 | U / U 🟁 |
| Rehder et al., 2016 68 | 1 | 24 | 0:1 | 1:1 | U / U |
| Grewal et al., 2018 69 | 1 | 25 | 0:1 | 1:1 | U / U 🟁 |
| Anadani et al., 2014 70 | 1 | 26 | 1:0 | 1:1 | U / U |
| Shahani et al., 2014 71 | 1 | 26 | 0:1 | 1:1 | U / U |
| Shahbeigi et al., 2014 72 | 1:3 | 27 | 0:1 | 1:1 | U / U |
| Kaneko et al., 2015 73 | 1 | 28 | 0:1 | 1:1 | U / U |
| O'Donnell et al., 2017 74 | 1 | 28 | 1:0 | 1:1 | U / U |
| Li et al., 2018 75 | 1 | 29 | 0:1 | 1:1 | U / U 🟁 |
| Cesarini et al., 2018 76 | 1 | 30 | 0:1 | 1:1 | U / U |
| Hegen et al., 2016 77 | 1 | 31 | 0:1 | 1:1 | U / U 🟁 |
| Takahashi et al., 2013 78 | 1 | 31 | 0:1 | 1:1 | U / U |
| Yamamoto et al., 2013 79 | 1 | 31 | 0:1 | 1:1 | 1 / U |
| Bashir et al., 2017 80 | 1 | 32 | 0:1 | 1:1 | U / U |
| Chourasia et al., 2018 81 | 1 | 32 | 0:1 | 1:1 | U / U 🟁 |
| Munoz et al., 2015 82 | 1 | 32 | 0:1 | 1:1 | U / U |
| Park et al., 2018 83 | 1 | 33 | 0:1 | 1:1 | U / U |

Appendix 1 (continued)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Reference / Testing Location (SCImago Rank of 271) | Paired samples (n) | Age (median [range]) | M:F | NMDAR antibody testing |
| Serum +: CSF + | Technique / Test Site |
|  |  |
| Hur et al., 2015 84 | 1 | 36 | 0:1 | 1:1 | U : U 🟁 |
| Lineberry et al., 2013 85 | 1 | 38 | 0:1 | 1:1 | U / U |
| Thomas et al., 2012 86 | 1 | 39 | 0:1 | 1:1 | U / U |
| Wagner et al., 2018 87 | 1 | 40 | 1:0 | 1:1 | U / U |
| Hung et al., 2017 88 | 1 | 44 | 1:0 | 1:1 | U / U |
| Rojc et al., 2019 89 | 1 | 47 | 1:0 | 1:1 | U / U |
| Zoccarato et al., 2013 90 | 1 | 50 | 0:1 | 1:1 | U / U |
| Power et al., 2017 91 | 1 | 52 | 0:1 | 1:1 | U / U |
| Zhou et al., 2018 92Euroimmune China (REF) | 1 | 54 | 1:0 | 1:1 | 1 / R |
| Guan et al., 2015 93Peking Union Medical College Hospital (166) | 1 | 59 | 0:1 | 1:1 | 1 / L |
| Jeraiby et al., 2016 94 | 1 | 62 | 0:1 | 1:1 | U / U 🟁 |
| Chen et al., 2014 95 | 1 | unknown | 0:1 | 1:1 | U / U |
| Kelleher et al., 2015 96 | 1:4 | Female: 55, Male: Mean: 48 (SD: 16.3) | 3:1 | 1:1 | 1 / U |
| Kukreti et al., 2015 97 | 1 | unknown | 0:1 | 1:1 | U / U 🟁 |
| Mohammad et al., 2013 98 | 1 | unknown | 1:0 | 1:1 | U / U |
| Zhang et al., 2017 99 | 1 | 18 | 0:1 | 0:1 | U / U |
| Orengo et al., 2015 100Mayo Clinic (7) / ARUP (REF) | 1 | 29 | 0:1 | 0:1 | 1 / R ★ |
| Berth et al., 2017 101 | 1 | 53 | 1:0 | 0:1 | U / U |
| Finke et al., 2014 102 | 1 | 67 | 1:0 | 0:1 | 1 / U 🟁 |
| Summary (Random Effects) |  | [7 mo - 71] | 97:222 | 532:612 |  |

With the authors / citation is listed the principal testing site / affiliated institution, and associated SCImago rank103 (where available). When relevant, the “n” for patients with paired samples indicates both the number of patients with paired CSF and serum samples (numerator), as a proportion of the total cases presented (denominator). The NMDAR autoantibody testing reports number of serum positive (numerator) compared to number of CSF positive (denominator) results. The number of patients who demonstrated positivity in serum but not CSF are included in parentheses (excluded from analyses). The median age and age range of patients presented in each study is listed unless otherwise stated. Time between CSF and serum testing, and severity of illness were not uniformly reported. No adverse events were reported secondary to blood draw or lumbar puncture. 1: Single modality testing; 2: Multimodal testing (≥2 modalities used); ARUP: Associated Regional University Pathologists, Inc.; CSF: Cerebrospinal fluid; L: Testing performed at a local/regional test site; NL: The test site was not listed in the available rankings; R: Testing performed at reference/research test site; REF: The testing center was a reference center; 🟁: Data clarification requested but not provided; ★: Data clarification requested and provided; †: Studies where more than one paired sample was obtained per patient.

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