

## BÜHLMANN Anti-MAG & Anti-Ganglioside Autoantibody ELISAs - oltre 80 Pubblicazioni: i test più citati per Anticorpi anti-neurali

### BÜHLMANN GanglioCombi™ ELISAs

- **Toscano G et al., 2020**; Guillain-Barré Syndrome Associated with SARS-CoV-2 (Letter to the editor); NEJM; April 27, 2020
- **Delmont E et al., 2019**; Relevance of anti-HNK-1 Antibodies in the management of anti-MAG neuropathies. J Neurol; published online 14 May, 2019; <https://doi.org/10.1007/s00415-019-09367-0>
- **Choi K-D et al., 2019**; Characteristics of a single oculomotor nerve palsy associated with anti-GQ1b antibody; J Neurol 266: 476–479
- **Yohn L et al., 2019**; Clinical characterization of anti—GQ1b antibody syndrome in Korean children. J Neuroimmunology 15(330): 170-173
- **Lee S U et al., 2019**; Anti-ganglioside antibody associated acute unilateral vestibulopathy. J Neurol 266(1): 250-252
- **Sohn SY and Kim J K, 2018**; Neutropenia Following Intravenous Immunoglobulin Administration in a Patient with Multifocal Motor Neuropathy with Conduction Block. J Neurol Neurophysiol 8:409. doi:10.4172/2155-9562.1000409
- **Franciotta D et al., 2018**; Anti-ganglioside antibodies: experience from the Italian Association of Neuroimmunology external quality assessment scheme. Clin Chem Lab Med: 56(11): 1921-1925
- **Legast GM et al., 2017**; Guillain-Barré and Miller Fisher Overlap Syndrome Mimicking Alimentary Botulism. J Clin Neurol 13(4): 442-443
- **Han T H et al., 2017**; Transient Lower Bulbar Palsy with Elevated Serum anti-GM1 and Anti-GD1b Antibodies during Aripiprazole Treatment. Pediatr Neurol 66: 96-99.
- **Herrendorff R et al., 2017**; Selective in vivo removal of pathogenic anti-MAG autoantibodies, an antigen specific treatment option for anti-MAG neuropathy. PNAS, [www.pnas.org/cgi/doi/10.1073/pnas.1619386114](http://www.pnas.org/cgi/doi/10.1073/pnas.1619386114)
- **Anaya J-M et al., 2017**; A comprehensive analysis and immunobiology of autoimmune neurological syndromes during the Zika virus outbreak in Cúcuta, Colombia. Journal of Autoimmunity 77: 123-138
- **Spatola M et al., 2016**; Serum and CSF GQ1b antibodies in isolated ophthalmologic syndromes. Neurology 86:1780-1784
- **Cao-Lormeau V. M. et al., 2016**; Guillain-Barré Syndrome outbreak associated with Zika virus infection in French Polynesia: a case-control study. Lancet 387(10027); 1531-1539 (incl supplement).

“BÜHLMANN GanglioCombi è stato utilizzato come test di prima scelta per identificare nuove forme post-infettive nella sindrome di Guillain-Barré come quelle associate ai Zika virus.”

- **Kollewe K et al., 2015:** Anti-Ganglioside Antibodies in Amyotrophic Lateral Sclerosis Revisited. PLoS One, **10**(4): e0125339.

“BÜHLMANN GanglioCombi è stato utilizzato nel discriminare tra neuropatie motorie multifocali (MMN, trattabili) e patologie spesso simili nei sintomi come la sclerosi laterale amiotrofica (SLA, non trattabile). Questa è la più grande coorte di pazienti con SLA investigata fino ad oggi e dimostra che la frequenza di anticorpi anti-Gangliosidi non è diversa da quella dei donatori di sangue apparentemente sani.”

#### Poster:

- **Delmont E et al., 2017:** Value of anti-HNK-1 Antibodies in anti-MAG Neuropathies: an analysis of 144 sera  
Poster presented at 2017 PNS Annual Meeting in Sitges (ES)

“Gli anticorpi anti-MAG hanno buona sensibilità e specificità per rilevare la neuropatia anti-MAG. In particolare, concentrazioni di anticorpi anti-HNK-1 sono correlati all'attività della malattia ”

- **Chalah M.A. et al, 2016:** A comparison of four commercial tests for detecting anti-ganglioside antibodies in patients with well-characterized dysimmune peripheral neuropathies.  
Poster presented at “International Congress on Autoimmunity, Leipzig (GE).

“BÜHLMANN GanglioCombi ELISA è stato confrontato con altri test presenti sul mercato evidenziando migliori prestazioni che lo qualificano come il test di elezione per l'applicazione quotidiana nella routine clinica.”

- **Mani B et al., 2010:** The Frequency of anti-Ganglioside Antibodies in Blood Donors Compared to Control Groups and Guillain-Barré Syndrome Patients. Poster presented at DAS, Dresden (GE).
- **Wurster U et al., 2009:** Ganglioside Antibodies in Amyotrophic Lateral Sclerosis. Poster presented at “9<sup>th</sup> Dresden Symposium on Autoantibodies”, Dresden (GE).

#### Ulteriori fonti che citano i test BÜHLMANN GanglioCombi® ELISA / Autoanticorpi anti-GM1 ELISA

- **Kenina V et al., 2015:** Clinical Impact and Relevance of Antiganglioside Antibodies Test Results. Proc. Latvian Acad. Sci., Section B, 69(5): 223-227
- **Uysalol M. et al., 2013:** A Rare Form of Guillain-Barré Syndrome: A Child Diagnosed with Anti-GD1a and Anti-GD1b Positive Pharyngeal-Cervical-Brachial Variant. Balkan Med J; **30**:337-341
- **Lei T et al., 2012:** Anti-ganglioside antibodies were not detected in human subjects infected with or vaccinated against 2009 pandemic influenza A (H1N1) virus. Vaccine **30**: 2605-2610
- **Sharma M B et al., 2011:** The presence of Mycoplasma pneumoniae infection and GM1 ganglioside antibodies in Guillain-Barré syndrome. J Infect Dev Countries **5**(6): 459-464

## BÜHLMANN anti-MAG Autoantibodies ELISA

- **Boscarino M et al., 2020:** Spinal Cord Impairment in anti-MAG Neuropathy: Evidence from Somatosensory Evoked Potentials. *Brain Sci.* **10**(282); 1-10
- **Colchester N T H et al., 2020:** Chemoimmunotherapy with rituximab, cyclophosphamide and prednisolone in IgM paraproteinaemic neuropathy: evidence of sustained improvement in electrophysiological, serological and functional outcomes. *Haematologica* **2020** [Epub ahead of print]
- **Pascual-Goñi E et al., 2019:** Clinical and laboratory features of anti-MASG neuropathy without monoclonal gammopathy. *Sci Rep* **16**; 9(1):6155. doi 1038/s41598-019-42545-8
- **Matà S et al., 2019:** Anti-MAG IgM: differences in antibody tests and correlation with clinical findings. *Neurol Sci* **41**(2); 365-372
- **Svahn J et al., 2018:** Anti-MAG antibodies in 202 patients: clinicopathological and therapeutic features. *J Neurol Neurosurg Psychiatry* **89**: 499-505.  

*“I Pazienti con neuropatie anti-MAG sono stati raggruppati in diverse categorie sulla base del titolo di Anti-MAG ottenuto con il test BÜHLMANN ELISA. Nel 31.5% dei pazienti è stata monitorata la risposta clinica a Rituximab per 6 mesi e/o durante il periodo di follow-up a 7-12 mesi e correlata con un titolo di anticorpi anti-MAG  $\geq$  10 000 BTU.”*
- **Garg N et al., 2018:** Anti-MAG neuropathy: role of IgM antibodies, the paranodal junction and juxtaparanodal potassium channels. *Clin Neurophysiol* **129**(10): 2162-2169  
doi: 10.1016/j.clinph.2018.07.021. Epub 2018 Aug 10.
- **Briani C et al., 2018:** Obinuzumab, a new anti-CD20 antibody, and Chlorambucil are active and effective in anti-MAG antibody polyneuropathy. *Eur J Neurol* **26**(2): 371-375
- **Falzone YM et al., 2018:** Functioning and quality of life in patients with neuropathy associated with anti-MAG antibodies; *J Neurol.* **265**(12): 2927-2933
- **D'Sa S et al., 2017:** Investigation and Management of IgM and Waldenström-associated peripheral neuropathies: recommendations from the IWWM-8 consensus panel. *Brit J Haematol* **176**(5): 728-742
- **Campagnolo M et al., 2017:** IgM MGUS and Waldenstrom-associated anti-MAG neuropathies display similar response to rituximab therapy. *J Neurol Neurosurg Psychiatry* **88**(12): 1094-1097
- **Nobile-Orazio E et al., 2017:** Comparing treatment options for chronic inflammatory neuropathies and choosing the right treatment plan. **17**(8): 755-765.
- **Lozeron P et al., 2016:** Is distal motor/or sensory demyelination a distinctive feature of anti-MAG neuropathy? *J. Neurol* **263**: 1761-1770

- **Magy L. et al., 2015:** Heterogeneity of Polyneuropathy Associated with Anti-MAG Antibodies. J Immunol Res 2015; Article ID 450391

“BÜHLMANN anti-MAG ELISA viene definito come test quantitativo affidabile per differenziare le Neuropatie anti-MAG in tipica neuropatia anti-MAG e titoli elevati di anticorpi anti-MAG e Neuropatie CIDP-simili, risultati negativi in immunofluorescenza (IF) e bassi titoli di BTU.”

- **Stork A. C. J. et al., 2014:** Prevalence, specificity and functionality of anti-ganglioside antibodies in neuropathy associated with IgM monoclonal gammopathy. J Neuroimmunol **268**(1-2): 89-94

“Aumento della sensibilità e discriminazione mediante la misurazione contemporanea di anticorpi anti-MAG e gangliosidi, in pazienti con neuropatie demielinizzanti e anticorpi monoclonali IgM (IgM-PNP).”

- **Willison H. J. et al., 2011:** Use of antibody testing in nervous system disorders. European Handbook of Neurological Management: volume 1, 2<sup>nd</sup> edition; chapter **6**: 75-80

“L'articolo valuta il servizio e la qualità della prestazione erogata per un test di autoanticorpi clinicamente utile in neurologia. La metodologia ELISA è una tecnica ampiamente utilizzata per la determinazione di anticorpi anti-glicolipidi e anti-MAG ed “ha una buona standardizzazione.”

- **Kuijf M. et al., 2009:** Detection of anti-MAG antibodies in polyneuropathy associated with IgM monoclonal gammopathy. Neurology **73**(9) 688-695

“Eccellente differenziazione tra soggetti sani e pazienti con Neuropatia demielinizzante, gammopatia monoclonale con immunoglobuline M (IgM) (IgM-PNP) con area sotto la curva di 0,84”

- **Renaud S. et al., 2003:** Rituximab in the treatment of polyneuropathy associated with anti-MAG antibodies. Muscle Nerve **27**(5): 611-615

“Il monitoraggio del trattamento con Rituximab è uno strumento importante per la gestione del paziente. Durante un trattamento efficace, la misurazione degli autoanticorpi anti-MAG mediante il test BÜHLMANN mostra una riduzione significativa che consente il follow-up dei pazienti in terapia.”

#### Poster:

- **Castelani F et al., 2019:** Ibrutinib in Neuropathy with anti-Myelin-Associated Glycoprotein (MAG) Antibody. “Peripheral Nerve Society” (PNS) Annual Meeting **2019** in Genova (IT)
- **Greco N et al., 2019:** Small Fiber involvement in anti-MAG demyelinating neuropathy – data from a small cohort. Peripheral Nerve Society” (PNS) Annual Meeting **2019** in Genova (IT)
- **Herrendorff R et al., 2018:** Novel treatment opportunity for anti-myelin-associated glycoprotein neuropathy. Poster presented at 2018 “Peripheral Nerve Society” (PNS) Annual Meeting in Baltimore, MY (USA)
- **Delmont E et al., 2017:** Value of anti-HNK-1 Antibodies in anti-MAG Neuropathies: an analysis of 144 sera. Poster presented at 2017 “Peripheral Nerve Society” (PNS) Annual Meeting in Sitges (ES)

“Gli anticorpi anti-MAG hanno buona sensibilità e specificità per rilevare la neuropatia anti-MAG. In particolare, concentrazioni di anticorpi anti-HNK-1 sono correlati all'attività della malattia ”

- **Camdessanché JP et al., 2017:** Therapeutic Management in 202 Patients. Poster presented at 2017 “Peripheral Nerve Society” (PNS) Annual Meeting in Sitges, (ES)
- **Neil J et al., 2017:** Do anti-MAG titers have a good correlation with clinical status in IgM anti-MAG Neuropathy? Poster presented at 2017 “Peripheral Nerve Society” (PNS) Annual Meeting in Sites, (ES)

### Ulteriori fonti che citano il test ELISA per autoanticorpi anti-MAG di BÜHLMANN

- **Herrendorff R et al., 2017:** Selective in vivo removal of pathogenic anti-MAG autoantibodies, an antigen specific treatment option for anti-MAG neuropathy. PNAS, [www.pnas.org/cgi/doi/10.1073/pnas.1619386114](http://www.pnas.org/cgi/doi/10.1073/pnas.1619386114)
- **Baron M et al., 2017:** Plasma exchanges for acute neurological deterioration in patients with IgM anti-myelin-associated glycoprotein (anti-MAG) neuropathy. Journal of Neurology , **264**(6): 1132-1135
- **Doneddu P E et al., 2017:** Deterioration of tremor after treatment with rituximab in anti-MAG neuropathy (Letter to the Editor) Journal of the Neurological Sciences **373**: 344-345
- **Gesquière-Dando A et al., 2017:** Are electrophysiological features related to disability in patients with anti-MAG neuropathy? Clinical Neurophysiology **47**: 75-81
- **Gazzola S et al., 2017:** Predictive factors of efficacy of rituximab in patients anti-MAG neuropathy; Journal of the Neurological Sciences **377**: 144-148
- **Fatehi F et al., 2017:** Motor unit number index (MUNIX) in patients with anti-MAG neuropathy; Clinical Neurophysiology. doi: <http://dx.org/10.1016/j.clinph.2017.04.022>
- **Campagnolo M et al., 2017:** IgM MGUS and Waldenstrom-associated anti-MAG neuropathies display similar response to rituximab therapy. J Neurol Neurosurg Psychiatry **88**(12): 1094-1097
- **Gomez A and Hoffman J E, 2016:** Anti Myelin-Associated-Glycoprotein Antibody Peripheral Neuropathy Response to Combination Chemoimmunotherapy With Bendamustine/Rituximab in a Patient With Biclinal IgM  $\kappa$  and IgM  $\lambda$ : Case Report and Review of the Literature. Clin Lymphoma Myeloma Leuk **16**(7): e101-108.
- **Stork A C J et al., 2016:** Classical and lectin complement pathway activity in polyneuropathy associated with IgM monoclonal gammopathy. J Neuroimmunol **290**: 76-79
- **Ferfaglia R I et al., 2016:** Long-term efficacy of rituximab in IgM anti-myelin-associated glycoprotein neuropathy: RIMAG follow-up study. J Peripher Nerv Syst **21**(1): 10-14
- **Campagnolo M et al., 2015:** Polyneuropathy with anti-sulfatide and anti-MAG antibodies: clinical, neurophysiological, pathological features and response to treatment. J Neuroimmunol **281**: 1-4
- **Stork A C J et al., 2014:** Clinical phenotype of patients with neuropathy associated with monoclonal gammopathy: a comparative study and a review of the literature. J Neurol **261**(7): 1389-1404
- **Sala E et al., 2014:** Acute neurological worsening after Rituximab treatment in patients with anti-MAG neuropathy. J Neurol Sci **345**(1-2):224-227

- **Bridel C et al., 2014:** Multifocal motor neuropathy with high titers of anti-MAG antibodies. *J Peripher Nerv Syst* **19**(2): 180-182
- **Hospital M A et al., 2013:** Immunotherapy-based regimen in anti-MAG neuropathy: results in 45 patients. *Haematologica* **98**(12): e155-157
- **Piscosquito G et al., 2013:** Coexistence of Charcot-Marie-Tooth disease type 1A and anti-MAG neuropathy. *J Peripher Nerv Syst* **18**(2): 185-188
- **Stork A C J et al., 2013:** Rapid worsening of IgM anti-MAG demyelinating polyneuropathy during rituximab treatment. *J Peripher Nerv Syst* **18**(2): 189-192
- **Pihan M et al., 2012:** [Neuropathies associated with monoclonal IgM anti-MAG antibodies]. *Rev Med Interne*; **33**(12): 686-692
- **Maurer M A et al., 2012:** Rituximab induces sustained reduction of pathogenic B cells in patients with peripheral nervous system autoimmunity. *J Clin Invest* **122**(4):1393-1402
- **Mostafa G A et al., 2012:** Reduced serum concentrations of 25-hydroxy vitamin D in children with autism: relation to autoimmunity. *J Neuroinflammation* **17**(9): 201
- **Zara G et al., 2011:** Neurophysiological and clinical responses to rituximab in patients with anti-MAG polyneuropathy. *Clin Neurophysiol* **122**(12): 2518-2522
- **Matà S et al., 2011:** Anti-myelin associated glycoprotein antibodies recognize HNK-1 epitope on CNS. *J Neuroimmunol* **236**(1-2): 99-105
- **Larue S et al., 2011:** Non-anti-MAG DADS neuropathy as a variant of CIDP: clinical, electrophysiological, laboratory features and response to treatment in 10 cases. *Eur J Neurol* **18**(6): 899-905
- **Matà S et al., 2011:** IgM monoclonal gammopathy-associated neuropathies with different IgM specificity. *Eur J Neurol* **18**(8): 1067-1073
- **Jurici S et al., 2011:** An Autopsy Case of Amyotrophic Lateral Sclerosis with Waldenstrom Macroglobulinemia and Anti-MAG Gammopathy. *Case Rep Neurol* **3**(3): 294-400
- **Gruson B et al., 2011:** Long-term response to rituximab and fludarabine combination in IgM anti-myelin-associated glycoprotein neuropathy. *J Peripher Nerv Syst* **16**(3): 180-185.
- **Théaudin M et al., 2011:** Short and long-term effect of IVIg in demyelinating neuropathy associated with MGUS, experience of a monocentric study, *Rev Neurol (Paris)* **167**(12): 897-904
- **Delmont E et al., 2011:** Treatment with rituximab in patients with polyneuropathy with anti-MAG antibodies. *J Neurol* **258**(9): 1717-1719
- **Jaskowsky T D et al., 2007:** Further comparisons of assays for detecting MAG IgM autoantibodies. *J Neuroimmunol* **187**(1-2): 175-178
- **Steck A et al., 2006:** Anti-myelin-associated glycoprotein neuropathy. *Curr Opin Neurol*; **19**(5): 458-463

- **Renaud S et al., 2006:** High-dose rituximab and anti-MAG-associated polyneuropathy. *Neurology* **66**(5): 742-744
- **Caudie C et al., 2006:** [Diagnostic value of autoantibodies to MAG by ELISA Bühlmann in 117 immune-mediated peripheral neuropathies associated with monoclonal IgM to SGPG/SGLPG]. *Ann Biol Clin* **64**(4): 353-359
- **Kvarnström M et al., 2002:** Myelin protein P0-specific IgM producing monoclonal B cell lines were established from polyneuropathy patients with monoclonal gammopathy of undetermined significance (MGUS). *Clin Exp Immunol* **127**(2): 255-262

### BÜHLMANN anti-SGPG Autoantibodies ELISA

- **Herrendorff R et al., 2017:** Selective *in vivo* removal of pathogenic anti-MAG autoantibodies, an antigen specific treatment option for anti-MAG neuropathy. *PNAS*, [www.pnas.org/cgi/doi/10.1073/pnas.1619386114](http://www.pnas.org/cgi/doi/10.1073/pnas.1619386114)
- **Caudie C et al., 2007:** [Diagnostic value of the anti-IgM SGPG Elisa (BÜHLMANN Laboratories AG) in 147 sera with a monoclonal IgM anti-MAG/SGPG antibody-associated neuropathy]. *Ann Biol Clin (Paris)* **65**(4): 369-375

"Il test per autoanticorpi anti-SGPG ELISA di BÜHLMANN si è rivelato un test commerciale molto affidabile. E' un test per la rilevazione di neuropatie demielinizzanti mediate da anticorpi MAG / SGPG senza difficoltà tecniche ed eccellenti sensibilità (0,98) e specificità (0,98). I titoli anticorpali di Anti-SGPG risultano validi sia per la gestione che per il follow - up di Neuropatie trattate con Rituximab."

- **Bridel C et al., 2014:** Multifocal motor neuropathy with high titres of anti-MAG antibodies. *J Peripher Nerv Syst* **19**(2): 180-182
- **Kuijf M et al., 2009:** Detection of anti-MAG antibodies in polyneuropathy associated with IgM monoclonal gammopathy. *Neurology* **73**(9): 688-695