SERIES #2

Let's gain

MOGmentum

a collaborative series brought to you by The Sumaira Foundation for NMO and The MOG Project

The MOG Antibody:

The Clue That Changes Everything

- MOG Antibody Disease (MOG-AD) is diagnosed through a blood test and for that reason, the MOG antibody is considered a biomarker for the disease

- Many other neuroimmune diseases such as Multiple Sclerosis (MS) are diagnosed through observations of symptoms and the effects on the body, or diagnosis through symptomatology.

- With the discovery of the MOG antibody, researchers are finding that many people who were thought to have one of these neuroimmune diseases, actually have MOG-AD after finding the antibody in their blood

- The development of the MOG antibody test has opened up a new frontier for exploring the complex inter-relationship between MOG-AD and neurological syndromes

CHARACTERIZING MOG-AD

MOG-AD can be monophasic or multiphasic

Monophasic refers to a single demyelinating event with no additional occurrences while having tested positive for the MOG antibody

A majority of monophasic patients test negative after a period of time

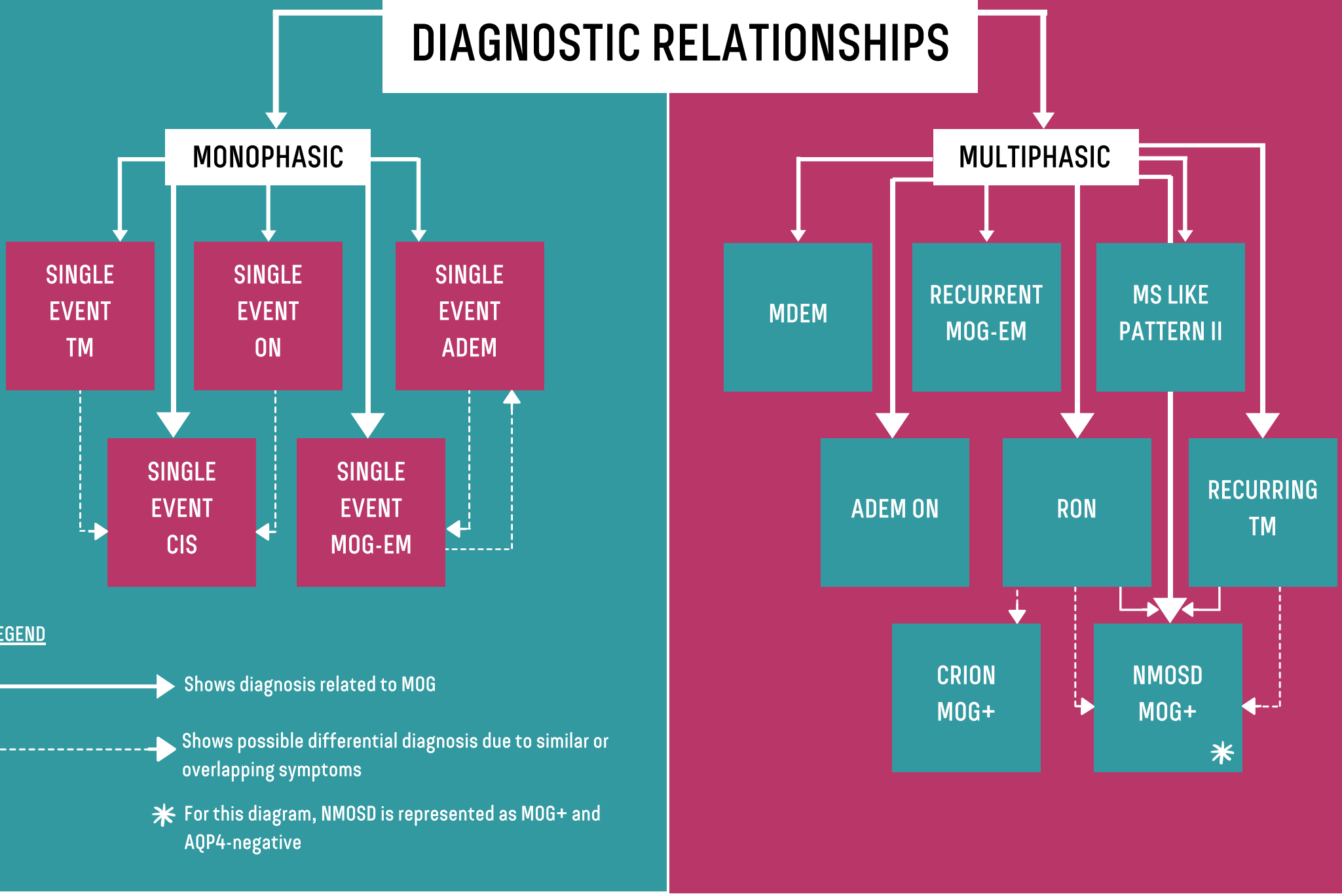
Multiphasic refers to multiple occurrences of demyelinating events while initially tested positive for the MOG antibody

Future MOG antibody tests may fluctuate in positivity

The MOG antibody is present in the blood during observations of many central nervous system autoimmune events and therefore can be implicated in a variety of neuroimmune conditions

A MOG Antibody Disease Diagnostic Relationship Map best describes the relationships between all disorders in which the MOG antibody is implicated

MOG ANTIBODY DISEASE DIAGNOSTIC RELATIONSHIPS



GLOSSARY

ADEM | Acute disseminated encephalomyelitis
ADEM ON | Single event ADEM followed by recurrent ON
CIS | Clinically isolated system of focal or polyfocal demyelinating lesions without encephalopathy
CRION | Chronic recurrent inflammatory optic neuropathy
MDEM | Multiphasic acute disseminated encephalomyelitis
MOG-EM | MOG encephalomyelitis including meningo-encephalitis and brainstem encephalitis all with or without optic neuritis
MOG+ | Positive for myelin oligodendrocyte glycoprotein antibodies
Monophasic | Single demyelinating event with no additional occurrences while testing MOG+
Multiphasic | Multiple occurrences of demyelinating events while initially testing MOG+
MS Like Pattern II | Multiple sclerosis-like symptoms (Pattern II is a rare subtype of MS)
NMOSD | Neuromyelitis optica spectrum disorder
ON | Optic neuritis
RON | Recurrent optic neuritis
TM | Transverse myelitis

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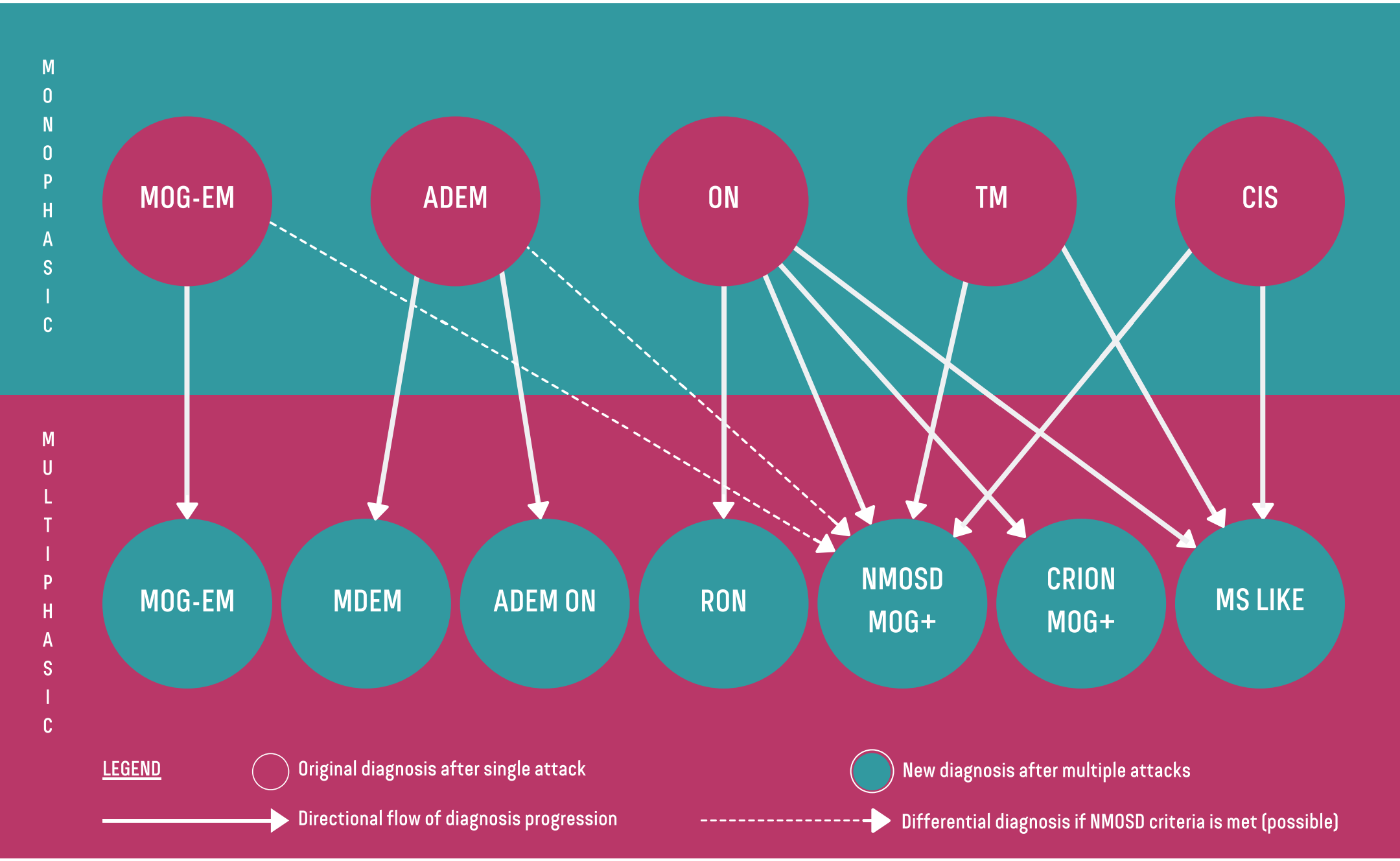
What if you have a SECOND ATTACK?

- A diagnosis given after a single attack may not be a patient's final diagnosis

- A second attack can change their diagnosis

- A MOG Antibody Disease Linked Diagnosis Progression Map best describes how a diagnosis can progress to a new diagnosis when a patient has more than one attack

MOG ANTIBODY DISEASE LINKED DIAGNOSIS
PROGRESSION: MONOPHASIC TO MULTIPHASIC



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FINAL THOUGHTS

- The medical community is learning about this disease in real time

- It is up to us to advocate for ourselves and our loved ones to forge the definition of this disease so that diagnosis can be prompt and accurate

- If you have one of these neurological syndromes, ask your doctor whether you should be tested for the MOG Antibody

SOURCES

- Hacohen, Y., & Banwell, B. (2019). Treatment Approaches for MOG-Ab-Associated Demyelination in Children. Current Treatment Options in Neurology, 21(1). doi: 10.1007/s11940-019-0541-x
- Zhong, X., Zhou, Y., Chang, Y., Wang, J., Shu, Y., Sun, X., ... Qiu, W. (2019). Seizure and Myelin Oligodendrocyte Glycoprotein Antibody-Associated Encephalomyelitis in a Retrospective Cohort of Chinese Patients. Frontiers in Neurology, 10. doi: 10.3389/fneur.2019.00415
- Zhong, X., Chang, Y., Tan, S., Wang, J., Sun, X., Wu, A., ... Qiu, W. (2019). Relapsing optic neuritis and meningoencephalitis in a child: case report of delayed diagnosis of MOG-IgG syndrome. BMC Neurology, 19(1). doi: 10.1186/s12883-019-1324-4
- Narayan, R. N., Wang, C., Sguigna, P., Husari, K., & Greenberg, B. (2019). Atypical Anti-MOG syndrome with aseptic meningoencephalitis and pseudotumor cerebri-like presentations. Multiple Sclerosis and Related Disorders, 27, 30–33. doi: 10.1016/j.msard.2018.10.003
- Hacohen, Y., Wong, Y. Y., Lechner, C., Jurynczyk, M., Wright, S., Konuskan, B., ... Lim, M. (2018). Disease Course and Treatment Responses in Children With Relapsing Myelin Oligodendrocyte Glycoprotein Antibody–Associated Disease. JAMA Neurology, 75(4), 478. doi: 10.1001/jamaneurol.2017.4601
- Wynford-Thomas, R., Jacob, A., & Tomassini, V. (2018). Neurological update: MOG antibody disease. Journal of Neurology, 266(5), 1280–1286. doi: 10.1007/s00415-018-9122-2
- Chitnis, T. (2019). Pediatric Central Nervous System Demyelinating Diseases. Pediatric Central Nervous System Demyelinating Diseases, 793–814. doi: 10.1212/CON.0000000000000730
- Pauli, F. D., & Berger, T. (2018). Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disorders: Toward a New Spectrum of Inflammatory Demyelinating CNS Disorders? Frontiers in Immunology, 9. doi: 10.3389/fimmu.2018.02753
- Jarius, S., Paul, F., Aktas, O., Asgari, N., Dale, R. C., Seze, J. D., ... Wildemann, B. (2018). MOG encephalomyelitis: international recommendations on diagnosis and antibody testing. Journal of Neuroinflammation, 15(1). doi: 10.1186/s12974-018-1144-2
- Lee, H.-J., Kim, B., Waters, P., Woodhall, M., Irani, S., Ahn, S., ... Kim, S.-M. (2018). Chronic relapsing inflammatory optic neuropathy (CRION): a manifestation of myelin oligodendrocyte glycoprotein antibodies. Journal of Neuroinflammation, 15(1). doi: 10.1186/s12974-018-1335-x
- López-Chiriboga, A. S., Majed, M., Fryer, J., Dubey, D., Mckeon, A., Flanagan, E. P., ... Pittock, S. J. (2018). Association of MOG-IgG Serostatus With Relapse After Acute Disseminated Encephalomyelitis and Proposed Diagnostic Criteria for MOG-IgG–Associated Disorders. JAMA Neurology, 75(11), 1355. doi: 10.1001/jamaneurol.2018.1814
- Jurynczyk, M., Messina, S., Woodhall, M. R., Raza, N., Everett, R., Roca-Fernandez, A., ... Palace, J. (2017). Clinical presentation and prognosis in MOG-antibody disease: a UK study. Brain, 140(12), 3128–3138. doi: 10.1093/brain/awx276
- Peschl, P., Bradl, M., Höftberger, R., Berger, T., & Reindl, M. (2017). Myelin Oligodendrocyte Glycoprotein: Deciphering a Target in Inflammatory Demyelinating Diseases. Frontiers in Immunology, 8. doi: 10.3389/fimmu.2017.00529
- Hennes, E.-M., Baumann, M., Schanda, K., Anlar, B., Bajer-Kornek, B., Blaschek, A., ... Rostásy, K. (2017). Prognostic relevance of MOG antibodies in children with an acquired demyelinating syndrome. Neurology, 89(9), 900–908. doi: 10.1212/wnl.0000000000004312
- Ramanathan, S., Mohammad, S., Tantsis, E., Nguyen, T. K., Merheb, V., Fung, V. S. C., ... Dale, R. C. (2017). Clinical course, therapeutic responses and outcomes in relapsing MOG antibody-associated demyelination. Journal of Neurology, Neurosurgery & Psychiatry, 89(2), 127–137. doi: 10.1136/jnnp-2017-316880
- Krupp, L. B., Tardieu, M., Amato, M. P., Banwell, B., Chitnis, T., Dale, R. C., ... Wassmer, E. (2013). International Pediatric Multiple Sclerosis Study Group criteria for pediatric multiple sclerosis and immune-mediated central nervous system demyelinating disorders: revisions to the 2007 definitions. Multiple Sclerosis Journal, 19(10), 1261–1267. doi: 10.1177/1352458513484547
- Pittock, S., Mckeon, A., Mills, J. R., Flanagan, E., Klein, C., & Lachance, D. (2017). CNS DEMYELINATING DISEASES (AQP4 AND MOG). NEUROLOGY AT MAYO CLINIC.

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