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Anti-Glc(alpha 1,4)Glc(alpha)-specific serum antibodies in patients with multiple sclerosis for use in disease management

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There is an unmet need to develop specific biomarkers for multiple sclerosis (MS) to improve the management of patients and the monitoring of the effectiveness of treatment. Our objective was to identify anti-glycan antibodies that can serve as biomarkers. We have screened serum from 107 patients with relapsing-remitting MS (RRMS) against a library of glycans on a glycan chip, and have found significantly higher levels of IgM antiGlc(alpha 1, 4)Glc(alpha) antibodies (anti-GAGA4 antibodies) than in 77 control patients suffering from other neurological diseases ($p < 0.0001$) and other autoimmune disease ($p = 0.03$), and higher levels than in 20 patients with primary progressing MS (PPMS, $p = 0.06$). We suggest that the level of anti-GAGA4 antibodies is a specific biomarker for RRMS, with potential clinical utility for MS prognosis and disease management.