Technology Offer

N-Acetyl Glucosamine as a Biomarker of Multiple Sclerosis Disease Course

Ref. No.: CH731

Background

Multiple sclerosis (MS) with worldwide 2.5 million patients is a common chronic autoimmune disease of the nervous system associated with demyelination of neurons. Most diagnosed patients have the relapsing-permitting form (RRMS) of MS. Relapses are defined as subacute deterioration of neurological symptoms. Patients remit days to weeks after relapse and either recover completely or left with residual disability. In some patients, the MS converts to a progressive form (secondary progressive form) characterized by irreversible progressive neurological disability independent from relapses. 10-20% patients show a progressive MS from the beginning (primary progressive MS). So far no biomarkers are known which can discriminate between relapsing-remitting and progressive form of MS. For the progressive form no effective therapies are on the market. A biomarker able to early discriminate between the two MS forms would help to early identify MS patients with the progressive form and save these patients from ineffective and potentially harmful therapies.

Technology

In patients with MS a correlation of serum N-Acetylglucosamine (GlcNAc) concentration with the subtype of MS could be demonstrated. In two independent cohorts, patients previously diagnosed with progressive MS had reduced GlcNAc serum concentrations in the range of 350 – 475 nM compared to patients previously diagnosed with relapse-remitting MS (RRMS) having an averaging serum-GlcNAC level of 600 nM and compared to healthy controls (N=66) who show GlcNAc concentrations around 700nM. Furtheron, a lower GlcNAc serum level could be shown to be associated with a worse clinical disability: with worse EDSS (Expanded Disability Status Scale score) and worse MSFC (Multiple Sclerosis Functional Composite score). Imaging data of the brain show that lower GlcNAc serum levels are associated with more severe global brain atrophy. Likewise, lower GlcNAc serum levels were associated with more severe retinal axonal degeneration measured with OCT.

Benefits

- ✓ First potential serum biomarker to discriminate between relapsing-permitting and progressive form of MS
- ✓ Speeding diagnosis
- ✓ Saving patients from ineffective and potentially harmful therapies

Application

Discriminating progressive form of MS from relapsing - permitting MS

Commercial Opportunity

Searching for a licensing or developing partner

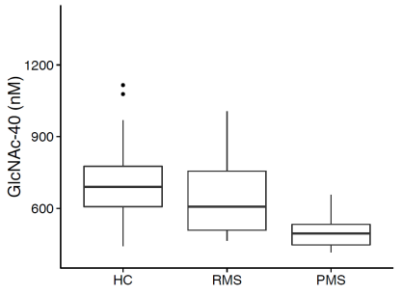

Fig. 1: Mean serum N-Acetylglucosamine concentration in a first cohort of subjects including healthy controls (HC) (N= 66), relapsing-remitting MS subjects (RMS) (N= 33) and progressive subtype MS subjects (PMS) (N= 21)

Key words

Multiple sclerosis, biomarker, N-Acetyl Glucosamine, GlcNAc, mass spectrometry, relapsing-remitting form, progressive form of MS, differential diagnosis

Developmental Status

Patient data

IP Status

US Provisional (01/2015)
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Patent Owner

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