**Editorial**
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# Role of Biomarkers in Diagnosis of Multiple Sclerosis

**Marcella Faria***

*Department of Molecular Biology, University of Cologne, Germany*

## Editorial

Multiple Sclerosis (MS) is a central nervous system inflammatory-neurodegenerative disease with significant inter- and intraindividual heterogeneity. However, the use of clinical and imaging biomarkers does not currently allow for individual characterization and prediction. Because of the causal pathomechanisms, complementary, quantifiable molecular biomarkers emerge from immunology and neurobiology and can excellently complement other disease characteristics.

Because validation and transfer of molecular biomarkers takes time, only a few have been routinely used in clinical practice. This review discusses the characteristics of an ideal MS biomarker as well as the challenges of developing new biomarkers. Furthermore, clinically relevant and promising biomarkers from blood and cerebrospinal fluid are presented, which can be used for MS diagnosis and prognosis, as well as assessing therapy response and side effects.

MS is a chronic autoimmune disease that causes inflammatory demyelination and neurodegeneration in the Central Nervous System (CNS). The disease is highly variable in terms of radiological and histopathological changes, clinical appearance and progression, and therapy response. As a result, it is critical to define specific disease features that aid in diagnosis and prognosis, as well as allow for an assessment of therapeutic response and risk of side effects. Currently, the lesion load in the CNS as determined By Magnetic Resonance Imaging (MRI) and clinical characteristics, such as relapse rate and disability progression, play the most important roles [1-3].

Molecular biomarkers, on the other hand, are easily quantifiable and can be used to supplement MRI and clinical features. Because of the causal pathomechanisms, biomarkers for MS are derived from immunology and neurobiology. Although the importance of molecular biomarkers has grown in recent years, their validation is a time-consuming process, so only a few biomarkers have been routinely used in clinical practise. However, the number of potential biomarkers in various stages of testing is encouraging. This review discusses the characteristics of an ideal MS biomarker as well as the challenges of developing new biomarkers [4].

A sample from the patient is required for the detection of molecular biomarkers. In MS, the body fluids blood and CSF [5], which have different benefits and drawbacks, are particularly useful. Because blood collection is a less invasive procedure, the validation of new molecular biomarkers should investigate whether serum or plasma detection is as effective as CSF detection.

A biomarker's value stems from its ability to predict or act as a surrogate for a patient's clinical state. In this review, we look at how different biomarkers across multiple domains can be used to define a clinical state in patients with multiple sclerosis (MS). When viewed in this light, the importance of various biomarkers in understanding the patient with MS becomes clear.

## Conflict of Interest

None.

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***Address for Correspondence:** Marcella Faria, Department of Molecular Biology, University of Cologne, Germany, E-mail: MarcellaFaria125@gmail.com.*



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