

## Discovery of the University of Coimbra enables important progress in the diagnosis of Multiple Sclerosis



A study led by researcher at the Center for Neurosciences and Cell Biology (CNC) at the University of Coimbra (UC), Carlos Duarte, shows that it is possible to classify a patient with Multiple Sclerosis (MS) with 80% certainty, evaluating a set of eight specific proteins.

The discovery is the result of about 15 years of research in the area of biomarkers (indicators of certain pathologies), and was only possible due to a close collaboration between the CNC, the Neurology Service of the Centro Hospitalar e Universitário de Coimbra (CHUC), the Department of Chemistry of the Faculty of Science and Technology of

the University of Coimbra (FCTUC) and the Molecular Neurobiology Laboratory of the I3S (University of Porto).

Multiple Sclerosis, an inflammatory and degenerative disease that affects the central nervous system (CNS), is difficult to diagnose, due to the diversity of symptoms, similarity to other inflammatory diseases of the CNS and the absence of specific indicators for the disease, that is, of a specific diagnostic method. About 2.5 million people worldwide suffer from MS, and in Portugal it is estimated that the disease affects more than 8 thousand people.

In this study, samples of cerebrospinal fluid (CSF) from patients with Multiple Sclerosis and from patients with other inflammatory diseases of the central nervous system were used. The CSF is a fluid present between the skull and the brain and also in the spinal cord, which acts as a shock absorber, serving as protection. Furthermore, it contains a large number of molecules produced, released and processed from the CNS, which makes this liquid a unique window for the study of diseases of the nervous system.

In a first phase of the investigation, using these biological samples, in a laboratory context, **«a group of proteins was identified that allowed to correctly distinguish 80-90% of samples from MS patients. Subsequently, after an exhaustive statistical analysis, eight proteins obtained a prominent place, since, when evaluated together, they allowed the classification and categorization of patients with Multiple Sclerosis with 80% confidence. These eight proteins now define a new panel of biomarkers for MS»**, explain Carlos Duarte, study coordinator and full professor at FCTUC, and Ivan Salazar, first author of the study and researcher at CNC-UC.

The results, published in the [Journal of Neuroinflammation](#), conclude the researchers, **«are a significant advance in the development of new diagnostic, or prognostic, strategies**

for Multiple Sclerosis. Furthermore, they also contribute to the evaluation of new therapeutic strategies for this disease».

This study was supported by the National Multiple Sclerosis Society (USA), Biogen (USA) and the Foundation for Science and Technology (FCT) (Portugal).

The article is available [here](#).

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