

METHOD FOR THE DIAGNOSIS OF NEURODEGENERATIVE DISEASES



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Invention

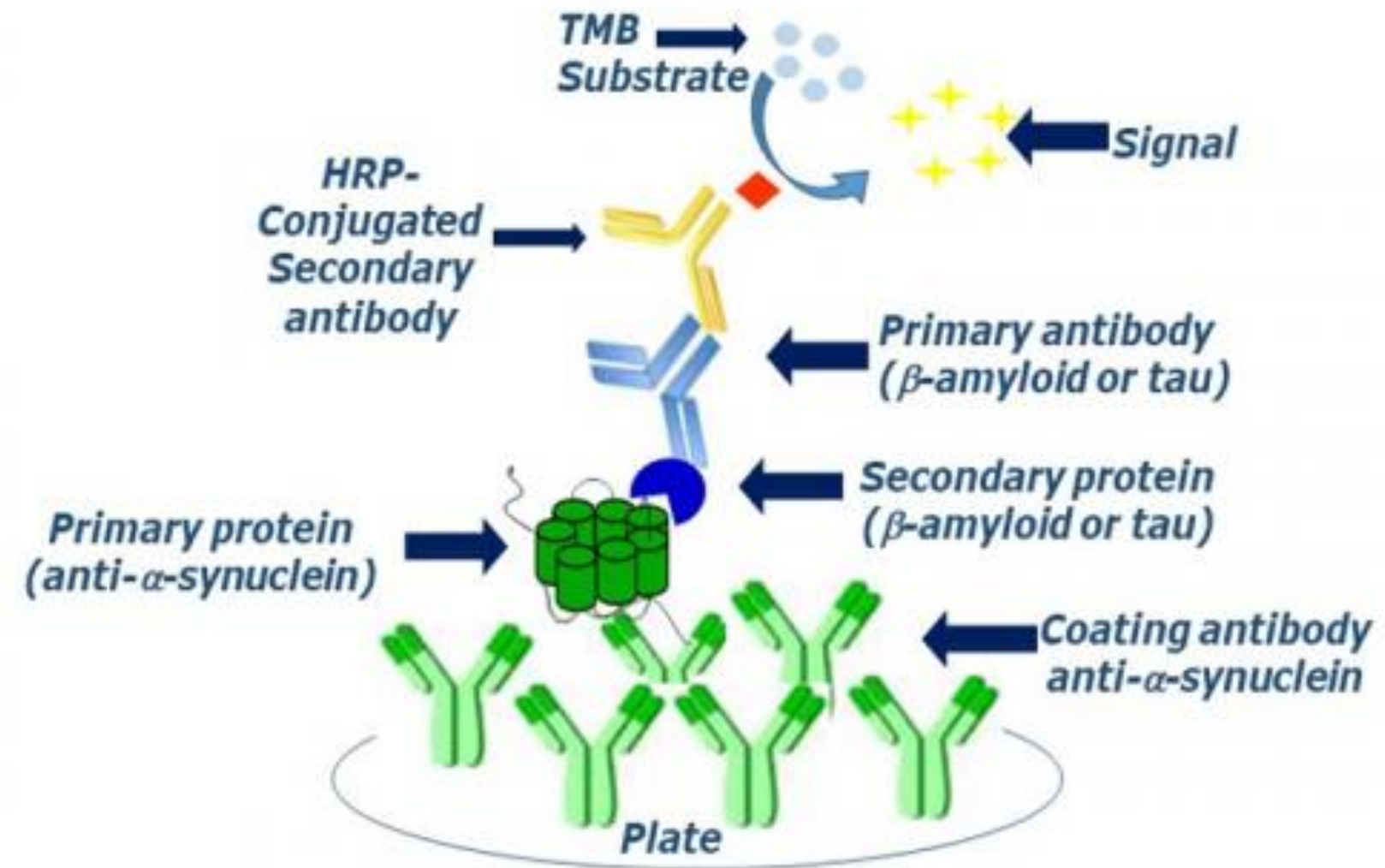


The invention describes a **method for the diagnosis of neurodegenerative diseases** based on the measurement, in a peripheral blood sample, of **α -synuclein heteromeric complexes with β -amyloid or Tau protein**. Further objects of the invention constitute an immunochemical assay for the quantitative determination of said heteromeric complexes and a diagnostic kit for performing the assay.

The advantages in using the proposed method and kit are:

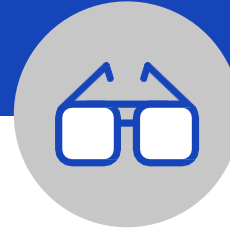
- the quantitative determination of α -synuclein heterocomplexes;
- the use of peripheral fluid (blood) instead of CSF;
- low cost compared with current diagnostic methods;
- early diagnosis by preventive screening in non-symptomatic subjects.

Drawings & pictures



The amount of α -synuclein- β -amyloid or α -synuclein-Tau complex is determined through the following steps: (1) providing a biological fluid sample; (2) contacting said sample with an antibody specific for α -synuclein; (3) contacting the sample from step (2) with an antibody specific for Tau or for β -amyloid, wherein said antibody is linked to an enzyme which is able to produce a colorimetric reaction when exposed to a suitable enzyme substrate; contacting the sample from step (3) with said enzyme substrate and measuring the color produced by enzyme-substrate reaction.

Industrial applications



The present invention aims to develop an enzyme immunoassay to determine the levels of α -synuclein complexes with β -amyloid or Tau protein in biological fluids, such as blood and, where possible, cerebrospinal fluid (CSF).

It will be possible to develop:

- **diagnostic and prognostic kits** on blood for neurodegenerative diseases.
- commercial kits for research purposes.

Possible developments



To date, results obtained by analyzing the peripheral blood of Parkinson's patients indicate that α -synuclein heteromeric complexes with β -amyloid or Tau protein are potential peripheral markers, representative of the disease. In addition, the results collected on the sample of healthy subjects suggests that the diagnostic kit can be used to monitor changes in the levels of heterocomplexes with age, including in relation to lifestyle, and thus be potentially prognostic for the development of neurodegenerative diseases.

The proposed method is currently enabling:

- define the **role of heterocomplexes in the etiopathogenesis of neurodegenerative diseases**, such as Alzheimer's, Parkinson's, and Dementia with Lewy bodies;
- develop **promising diagnostic tools and drugs for early disease diagnosis and personalized therapy**.

The inventors are interested in future collaborations to increase the technological readiness of the invention and expand the supply of diagnostic kits for neurodegenerative diseases. Licensing or transfer of the patented invention for future development and commercialization by interested companies will be taken into consideration.

For more information:



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