Researchers closer to early detection of Parkinson's disease

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(Phys.org)—In collaboration with colleagues at Oxford, a team of researchers at Umeå University in Sweden has now further elaborated its discovery of a way to detect Parkinson's disease at an early stage, and applications in clinical care are not far away.

The project is an example of bridging the gap between basic and clinical research in care environments. The new findings are based on close cooperation between the medical chemist Ludmilla Morozova-Roche's and the neurologist Lars Forsgren's research teams at Umeå University and Jason Davis's team at Oxford University in the UK, who were primarily responsible for the chemical analyses. Their findings are now being published in the journal Chemical Science.

Parkinson's disease attacks the nervous system and, like many other diseases, is caused by proteins that lump together into so-called amyloid. Behind these new findings lies a discovery from the spring of 2011, when the Umeå scientists were able to determine endogenous antibodies against the most important amyloid protein, alpha-synuclein. These antibodies were seen as being able to function as a diagnostic marker, thereby enabling early detection of the disease.

In the new article the discovery is elaborated further in the form of a simplified way to carefully measure the content of antibodies in a blood sample. With the newly developed method – this involves electrochemical analysis of 10 microliters of blood in just a few minutes – it is possible not only to see a clear difference between individuals with

incipient Parkinson's disease and healthy controls but also to measure and establish the advance of the disease with great precision.

More information: T Bryan, X Luo, L Forsgren, L Morozova-Roche and JJ Davis. The robust electrochemical detection of a Parkinson's disease marker in whole blood sera, *Chemical Science*, DOI: 10.1039/c2sc21221h

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