Proteins in migration

A new animal model gives insights into mechanisms

Bonn, Germany, May 24th, 2013 – In Parkinson's disease, the protei become progressively affected as the disease develops and advanc result from spreading of the protein (or abnormal forms of it) alon for Neurodegenerative Diseases (DZNE) in Bonn have developed a brain spreading and provides important clues on the mechanisms in the lower rat brain and were able to trace the spreading of this p development of ways to halt or slow down disease development in scientific journal "EMBO Molecular Medicine".

Parkinson's disease is a disorder of the nervous system. It typically ma uncontrollable trembling of the limbs, as well as non-motor symptoms, i

At the present, no cure exists for Parkinson's disease, although sympto agonists, can alleviate patients' motor impairment. Parkinson's is the se after Alzheimer's disease; it is estimated that 100,000 to 300,000 patier alone.

In a small percentage of cases, Parkinson's disease is due to genetic a majority of patients, however, the cause of the disease remains unknow disease is likely promoted by both environmental and genetic risk facto with sporadic Parkinson's disease is the progressive accumulation of ir German neurologist, Friedrich Lewy, and are therefore called Lewy bodi

"A major discovery in the late 90's was that Lewy bodies are formed wh says Di Monte. "Since then, it was also found that aggregates of alpha-s patients' brains during the course of the disease".

Pathology studies from human brains show that the deposits usually sta named "medulla oblongata". In subsequent disease stages, alpha-synuc

(more rostral) brain regions, including the midbrain and cortical areas.

“This spreading appears to follow a typical pattern based on anatomical hypothesized that alpha-synuclein or abnormal forms of it can be transf there was no way of targeting the medulla oblongata to reproduce this s neuronal passage of the protein or its aggregates. We have now develo

From the neck into the brain

The researchers’ concept is based on reproducing alpha-synuclein spre brain. The blueprint was transported by specifically engineered viral par protein passed along these fibres into the medulla oblongata, where trar

“We have good reasons to believe that the medulla oblongata is a prima specifically in this part of the brain. The medulla oblongata is difficult to This is a long nerve stretching from the abdomen via the neck to the me medulla oblongata,” Di Monte explains.

A migrating protein

The researchers monitored the production and localization of human alp particles. As predicted, the exogenous protein was synthesized only wi human alpha-synuclein was observed also in brain areas more and mor passage of the protein along specific nerve tracts and was accompanie synuclein.

The study, sponsored in part by the Blanche A. Paul Foundation, bears progressive spreading of pathological alpha-synuclein in Parkinson’s di synuclein within a specific brain region.

“Overproduction of alpha-synuclein accompanies a variety of conditions Parkinson’s disease.” concludes Di Monte. “Thus, our results suggest a protein and its pathological accumulation.”

Insight into the early stages of Parkinson's

The new model mimics events that likely occur in the early stages of al
manifestations. "It will therefore become a valuable tool to investigate e
intervention would have a greater probability to prevent or halt the spre

Original publication

Caudo-rostral Brain Spreading of α-Synuclein through Vagal Connectio
Ayse Ulusoy, Raffaella Rusconi, Blanca I. Pérez-Revuelta, Ruth E. Mus
(2013), DOI: 10.1002/emmm.201302475

Abstract

Contact

Prof. Dr. Donato Di Monte
Group Leader
German Center for Neurodegnerative Diseases, Bonn
+49 228 43302-650
donato.dimonte(at)dzne.de

Dr. Marcus Neitzert
Press and Public Relations
German Center for Neurodegnerative Diseases
+49 228 43302-271
marcus.neitzert(at)dzne.de

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