A peptide vaccine against Parkinson's Disease
Hoogerhout, P.

Institute for Translational Vaccinology (Intravacc), Research Department, Antonie van Leeuwenhoeklaan 9, 3721 MA Bilthoven, The Netherlands.

Research question and background
Many efforts aim at treatment of Parkinson's disease or at immunotherapy (1,2). The disease is a neurodegenerative disorder in which loss of dopaminergic neurons is a major hallmark. Neurons in decline accumulate insoluble large aggregates of the misfolded protein α-synuclein in so-called "Lewy bodies". In spite of the intracellular accumulation of α-synuclein, misfolded smaller (soluble) aggregates have also been found in blood and cerebrospinal fluid of patients. In addition, transplantation of embryonic neurons to patients have indicated that α-synuclein behaves as a prion-like protein (3).

Methods and tissues used
An immunization study with transgenic model mice, expressing human α-synuclein, has been reported (4). The mice were immunized using human α-synuclein as antigen.

Results and conclusion
The results suggest that vaccination is effective in reducing neuronal accumulation of α-synuclein and that further refinement of this approach might become also effective in treatment of Parkinson's disease and dementia with Lewy bodies (5). Intravacc has prepared experimental peptide vaccines. These vaccines have been used in preclinical studies. Since November 2014, mice sera obtained are being used for immunostaining of tissue provided by the Netherlands Brain Bank. In March 2015, analysis of the results was still in progress.