



# Parkinson's disease: causes & cures

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Setting the basis for future health risk assessments: A case study on Parkinson disease and paraquat  
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## Abstract

The presentation provides a general overview of the methodologies used for assessing human health risk for pesticides, and EFSA initiatives for using new scientific developments. The focus is on EFSA PPR Panel opinion (2017), proposing the use of the Adverse Outcome Pathway (AOP) conceptual framework to define the biological plausibility in the evaluation of epidemiological studies. The case study investigating the plausibility of links between the exposure to paraquat, a herbicide non approved in the EU, and Parkinson disease, will be presented. The most relevant requisite is to identify a defined symptom for each disease equivalent to an Adverse Outcome for toxicants, reproducible in animal models, and possibly associable to a defined and measurable toxicological endpoint evaluated in the studies submitted for regulatory approval. For Parkinson disease, the application of the above rationale led to the identification of parkinsonian motor symptoms, i.e. the typical motor deficit observed in humans and in experimental conditions, associated with a decrease in number of dopaminergic neurons as a representative Adverse Outcome.

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Doctor in Veterinary Medicine with a PhD in Toxicology, Jose Tarazona started his professional career as Assistant Professor of Toxicology at the Complutense University in Madrid. From 1982 to 2009 Dr Tarazona was a researcher at the Spanish National Institute for Agriculture and Food Research and Technology (INIA). His scientific career was complemented with managerial responsibilities as Head of the Division of Environmental Toxicology and Director of the Department of the Environment. Author of over 250 scientific publications, editor of several reference books including the Encyclopaedia of Toxicology, from 2009 to 2013 he worked for the European Chemicals Agency (ECHA), first as Chair of the Committee for Risk Assessment and later as Scientific Chair of the Evaluation Directorate.