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Mitochondria in chemical-induced toxicity

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List of Publications

Multiparametric assessment of mitochondrial respiratory inhibition in HepG2 and RPTEC/TERT1 cells using a panel of mitochondrial targeting agrochemicals.

W. van der Stel¹, G. Carta¹, J. Eakins, S. Darici, J. Delp, A. Forsby, S. Hougaard Bennekou, I. Gardner, M. Leist, E.H.J. Danen, P. Walker, B. Van de Water, P. Jennings

¹ Authors contributed equally

Archives of Toxicology, 2020, <https://doi.org/10.1007/s00204-020-02849-5>

Mapping the cellular response to electron transport chain inhibitors reveals selective signaling networks triggered by mitochondrial perturbation

W. van der Stel, H. Yang, N.G. Vrijenhoek, J.P. Schimming, G. Callegaro, G. Carta, S. Darici, J. Delp, A. Forsby, A. White, S. le Dévédec, M. Leist, P. Jennings, J. Beltman, B. van de Water, E. H.J. Danen

Archives of Toxicology, 2021, doi: 10.1007/s00204-021-03160-7

Mitochondrial fragmentation through OPA1-cleavage in response to ETC inhibition is driven by a combination of reduced ATP and increased MMP

W. van der Stel, H. Yang, S. le Dévédec, B. van de Water, J.J. Beltman, E.H.J. Danen
Cell Biology and Toxicology, 2021, Submitted

Dynamic modeling of mitochondrial membrane potential upon exposure to mitochondrial inhibitors

H. Yang, **W. van der Stel**, R. Lee, C. Bauch, S. Bevan, P. Walker, B. van de Water, E.H.J. Danen, J.J. Beltman

Frontiers in Pharmacology, 2021, <https://doi.org/10.3389/fphar.2021.679407>

New approach methods (NAMs) supporting read-across: two neurotoxicity AOP-based IATA case studies

W. van der Stel, G. Carta, J. Eakins, J. Delp, I. Suciu, A. Forsby, A. Cediél-Ulloa, K. Attoff, F. Troger, H. Kamp, I. Gardner, B. Zdrzil, M. Moné, G.F. Ecker, M. Pastor, J.C. Gomes, A. White, E.H.J. Danen, M. Leist, P. Walker, P. Jennings, S. Hougaard Bennekou, B. van de Water

ALTEX, 2021, <https://doi.org/10.14573/altex.2103051>

Case study on the use of integrated approaches to testing and assessment for identification and characterisation of parkinsonian hazard liability of deguelin by an aop-based testing and read across approach: Series on Testing and Assessment No. 326

W. van der Stel, S. Hougaard Bennekou, G. Carta, J. Eakins, J. Delp, A. Forsby, H. Kamp, I. Gardner, B. Zdradil, M. Pastor, J.C. Gomes, A. White, T. Steger-Hartman, E.H.J. Danen, M. Leist, P. Walker, P. Jennings, B. van de Water
OECD platform, 2020, URL: <https://orbit.dtu.dk/en/publications/case-study-on-the-use-of-integrated-approaches-to-testing-and-ass-2>

Case study on the use of integrated approaches to testing and assessment for mitochondrial complex-iii-mediated neurotoxicity of azoxystrobin - read-across to other strobilurins: Series on testing and assessment no. 327

S. Hougaard Bennekou, **W. van der Stel**, G. Carta, J. Eakins, J. Delp, A. Forsby, H. Kamp, I. Gardner, B. Zdradil, M. Pastor, J.C. Gomes, A. White, T. Steger-Hartman, E.H.J. Danen, M. Leist, P. Walker, P. Jennings, B. van de Water
OECD platform, 2020, URL: <https://orbit.dtu.dk/en/publications/case-study-on-the-use-of-integrated-approaches-to-testing-and-ass>

Development of a Neurotoxicity Assay That Is Tuned to Detect Mitochondrial Toxicants

J. Delp, M. Funke, F. Rudolf, A. Cediél, S. Hougaard Bennekou, **W. van der Stel**, G. Carta, P. Jennings, C. Toma, I. Gardner, B. van de Water, A. Forsby, M. Leist
Achieves of Toxicology, 2019, DOI: 10.1007/s00204-019-02473-y

Identification of mitochondrial toxicants by combined in silico and in vitro studies – A structure-based view on the adverse outcome pathway

F. Troger, J. Delp, M. Funke, **W. van der Stel**, C. Colas, M. Leist, B. van de Water, G.F. Ecker
Computational Toxicology, 2020, <https://doi.org/10.1016/j.comtox.2020.100123>

Neurotoxicity and underlying cellular changes of 21 mitochondrial respiratory chain inhibitors

J. Delp, A. Cediél-Ulloa, I. Suciú, P. Kranaster, B. van Vugt-Lussenburg, V. Kos, **W. van der Stel**, G. Carta, S. Bennekou, P. Jennings, B. van de Water, A. Forsby, M. Leist
Archives of Toxicology, 2021, <https://doi.org/10.1007/s00204-020-02970-5>

Physiologically relevant estrogen receptor alpha pathway reporters for single cell imaging-based carcinogenic hazard assessment of estrogenic compounds

B. Duijndam, A. Goudriaan, T. van den Hoorn, **W. van der Stel**, S. le Dévédec, P. Bouwman, J.W. van der Laan, B. van de Water
Toxicological Sciences, 2021, <https://doi.org/10.1093/toxsci/kfab037>

A quantitative AOP of mitochondrial toxicity based on data from three cell lines

T. Cleo, W. Gao, J. Delp, G. Carta, **W. van der Stel**, M. Leist, P. Jennings, B. van de Water, F. Bois

Toxicological Sciences, 2021, Submitted

Evaluation of an imaging-based in vitro screening platform for estrogenic activity with OECD reference chemicals

B. Duijndam, M. Tedeschi, **W. van der Stel**, T. van den Hoorn, B. van der Burg, P. Bouwman, J.W. van der Laan, B. van der Water

Toxicology in Vitro, 2021, Submitted

A systematic high throughput transcriptomics and phenotypic screening approach to classify the pro-oxidant mode-of-action of a large class of phenolic compounds

L.J.M. Bischoff, J.P. Schimming, **W. van der Stel**, M. Niemeijer, S. Escher, G. Callegaro, S.J. ter Braak, J.P. Langenberg, D. Noort, B. van de Water

Ready for submission

About the author

Wanda van der Stel was born in Dordrecht, on the 4th of October 1991. She completed her VWO diploma with a major in Natuur en Techniek plus Gezondheid (Nature & Technique and Nature & Health) with an additional subject of art at the Stedelijk Dalton Lyceum. At the Leiden University she obtained her bachelor and master degree in Bio-Pharmaceutical Sciences. During her master program she contributed to the research assessing TNF α signaling dynamics in drug induced liver injury (DILI) at the division of Drug Discovery and Safety (DDS) at the Leiden Academic Center of Drug Research (LACDR). Her second internship was at the DKFZ in Heidelberg, Germany, continuing the research in the field of DILI, but now assessing the effects of liver toxicants on the transcription and translocation of IL6 and downstream signaling components. During her literature study she summarized the current knowledge in the field of vaccine administration in the battle of eradication of polio. After acquiring her master degree, she started as a PhD under the supervision of Prof. Erik Danen and Prof. Bob van de Water and assessing *High throughput approaches to unravel key events in mitochondrial adverse outcome pathways*. Currently, she is employed as post-doctoral researcher in the lab of Bob van de Water to set up a high throughput Crispr screening facility.