The Final EUTOXRISK Symposium 21

Insecticides that function like nicotine

Are they safe for humans?

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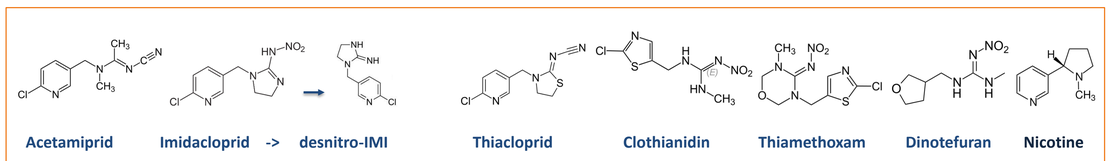
Coordinated by: DTU, UKN, SU

Regulatory context: Pesticides

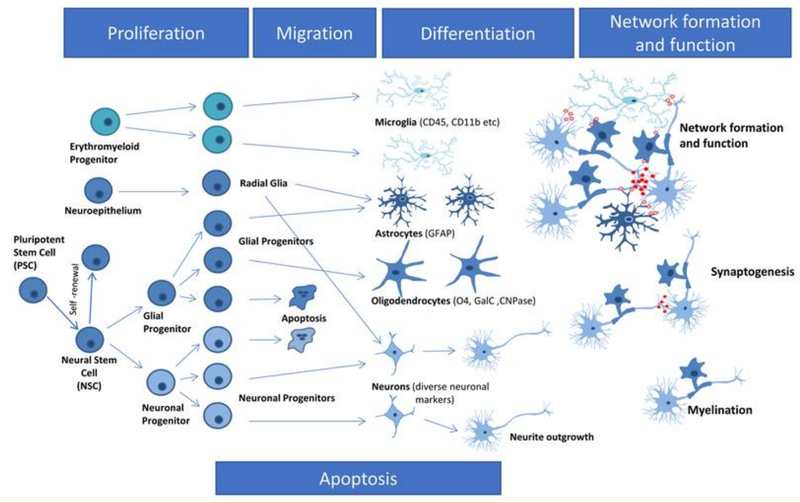
Are neonicotinoid pesticides hazardous to the developing nervous system?

- Neonicotinoids are designed to target insect receptors
- They are taken up by crops preventing insects to eat the plants
- Usage in Europe is declining due to restrictions to protect pollinators
- Globally, extensive use - the compounds are found as residues in crops
- Concern has been raised that they may act like nicotine affecting the developing brain



Fundamental neurodevelopmental processes relevant for DNT

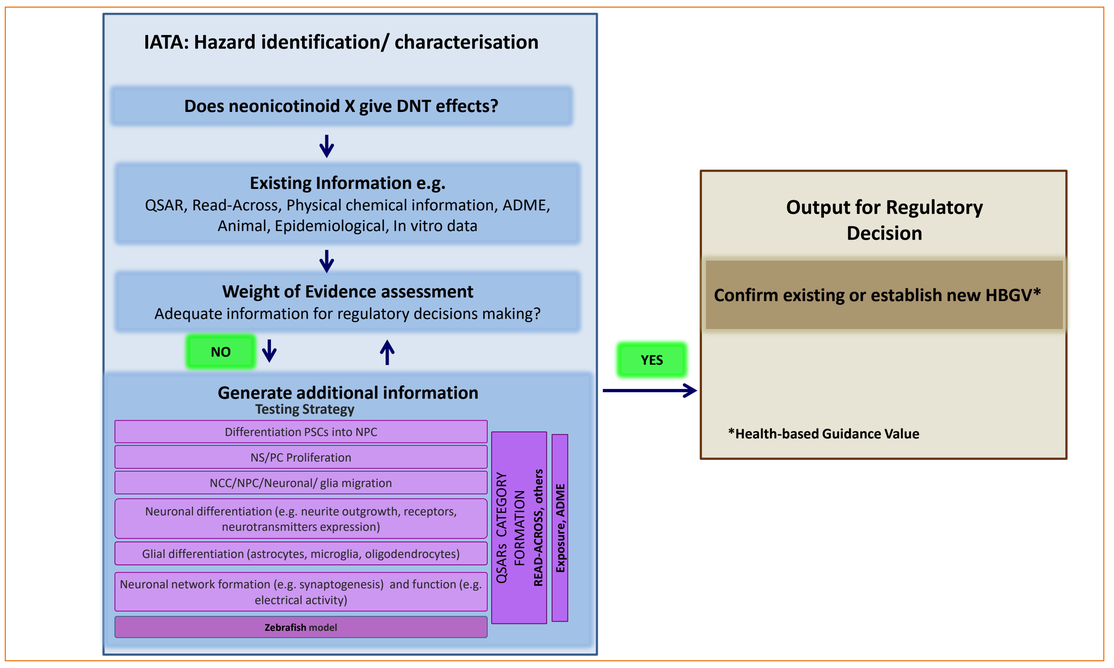
It is assumed that DNT toxicants exert their toxicity by disturbing at least one of these processes



(Bal-Price A et al. ALTEX. 2018;35(3):306-352. doi: 10.14573/altex.1712081. Epub 2018 Feb 23. Erratum in: ALTEX. 2019;36(3):506. PMID: 29485663.

Overview of the Case Study Approach

- Review existing knowledge on neonicotinoids and their effect on the developing brain
- Weigh the evidence: can we conclude, with sufficient confidence, what would be acceptable human exposures?
- Generate new information if needed: use alternative methods to animal studies. Weigh evidence again.
- Conclusion on acceptable human exposures



Regulatory Impact of the Case Study

- The case study has tested a number of neonicotinoids in different neuronal cell assays
- The data, together with other data generation, is facilitating the development of an OECD guidance for the use of non-animal methods for testing developmental neurotoxicity applicable in various chemicals regulations
- Case studies on two compounds have been submitted to the OECD to exemplify the use of the new approaches in risk assessment of chemicals

OECD

COMING SOON

Guidance on the application and interpretation of in vitro developmental neurotoxicity assays

Case study: a**cetamiprid**

Case study: **imidacloprid** and **desnitro-imidacloprid**

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www.eu-toxrisk.eu/