



Targeting health risks in food



CASCADE – 200 scientists against 100 000 chemicals

Chemicals in our food are a pressing problem; the world production is 400 times higher now than in 1930. Many of them end up in food, finally reaching humans. The CASCADE Network of Excellence therefore focus on human health, in particular hormone disrupting effects (so called endocrine disruption).

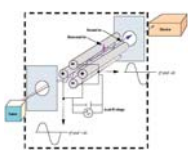
Our aim is to protect consumer. We do this by providing scientific facts that serves as foundation for new and better legislation, facts that we achieve through highly qualified research using our own test models combined with advanced risk assessment.

CASCADE research is focused on effects of endocrine disruptors (ED) on nuclear receptors (NRs), e.g. receptors for estrogens, androgens and thyroid hormone. Chemicals that alter the function of the endocrine system and cause adverse effects are suspected to influence developing foetus, fertility, obesity, diabetes and cancer.

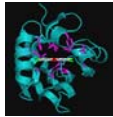
Research methods

More than 20 different analytic test models and systems

Analytical methods



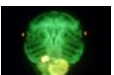
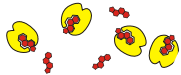
Virtual screening
NR-ligand interactions



In vitro receptor binding and reporter cell lines



Reporter animal models



Frog tadpoles

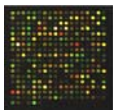


Zebrafish



Mouse

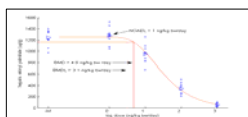
Biomarkers of exposure



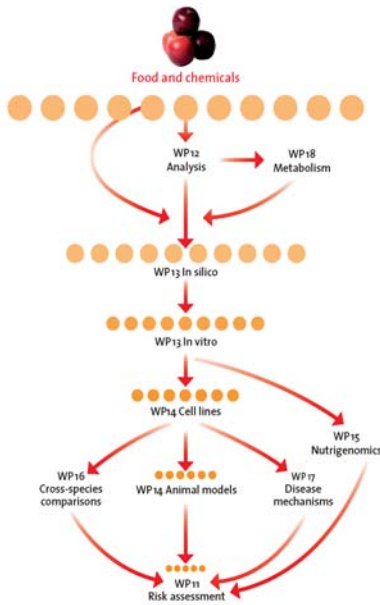
Disease mechanisms



Risk assessment



Integrated hierarchical test system



This test system will help to:

- Prioritise chemicals for further testing – reduce animals tests
- Understand mechanism of action of ED
- Reveal endpoints (affected tissues)
- Provide input for risk assessment

Proof-of-principle project

A sharp test of the developed integrated hierarchical test system. Two food items, bread and baby food, are analysed for ED activity.

Baby food

- * Breast feeding is declining in Europe
- * Commercial infant food baskets not investigated for nuclear receptor modulatory activity
- * Infants more susceptible for nutritional exposure



Bread

- * Highly relevant for European consumers
- * Contains putative nuclear receptor modulators such as
 - cadmium: contaminant and ER agonist
 - lignans: natural ingredient and ER modulator



We bring back the results to the European consumers!

Read more about our achievements in dissemination of results, research and risk assessment at our web site: www.cascadenet.org

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