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Universiteit Leiden



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**Title:** The use of transcriptomics data in detecting non-genotoxic carcinogens

**Issue Date:** 2016-10-04

# Stellingen

behorend bij het proefschrift

## The use of transcriptomics data in detecting non-genotoxic carcinogens

1. Besides contributing to the reduction of animal testing, *in vitro* genotoxicity tests also can reduce the number of 'false positives' results (this thesis)
2. The need to obtain insight into modes of action of test chemicals strongly favors the use of the unsupervised comparison approach (this thesis)
3. Owing to their extreme diversity in modes of action the collective term "non-genotoxic carcinogen" oversimplifies their true features and therefore classifications like "immune suppressive carcinogens" or are more appropriate (this thesis)
4. The (toxic) response upon chemical exposure heavily depends on the concentration at which cells are exposed to and therefore (some) chemicals might display more modes of action (this thesis)
5. Gene expression profiles reflecting underlying modes or mechanisms of action are useful in the prediction of chemical carcinogenicity (Waters MD, Characterizing and predicting carcinogenicity and mode of action using conventional and toxicogenomics methods, *Mutat Res* 2010 705(3):184-200)
6. The fact that the liver is the most frequent target site for tumor formation in mice and rats emphasizes the importance of the presence of a hepatocyte-based *in vitro* system in the carcinogen test strategy (Gold LS, Compendium of chemical carcinogens by target organ: results of chronic bioassays in rats, mice, hamsters, dogs, and monkeys, *Toxicol Pathol* 2001 29(6):639-52)
7. Without a directive approach, the risk of getting lost in the bulk of data generated through gene expression profiling is strongly increased (Van Hummelen P and Sasaki J, State-of-the-art genomics approaches in toxicology, *Mutat Res* 2010 705(3):165-171)
8. Acceptable risk of chemical exposure is mostly determined by societal perception, thereby overruling science-based risk-assessment procedures (Van Leeuwen CJ and Vermeire TG, *Risk assessment of chemicals: An introduction*, 2007)
9. In de wetenschap dat driekwart van de gepromoveerden een carrière voortzet buiten de academische wereld, is het van groot belang dat er tijdens het promotietraject ruimte is voor oriëntatie op maatschappij en beleid (KNAW, Promoveren werkt, 2016)
10. Muziek is een krachtig middel dat onder andere ingezet kan worden om emoties op andere wijze dan via woorden tot uitdrukking te brengen.
11. Proefschriften met als doel het verminderen van proefdiergebruik zouden bij voorkeur op Werelddierendag verdedigd moeten worden.