

(In Progress)

Thyroid Hormone Assessment: Implications for Developmental and Reproductive Toxicology

Thursday, May 9 – Friday, May 10, 2019
Washington, DC

Co-Organized by:



HESI DART Technical
Committee

European Teratology
Society



Recent updates to OECD developmental/reproductive toxicology guidelines and other regulatory guidelines and guidance require the measurement of thyroid hormone levels in the blood of mammalian laboratory species during development. Preliminary analyses indicate that there is a wide variability across laboratories in the methods being used to measure thyroid hormones in young rodents, as well as in the success of obtaining reliable data. Even though publicly available regulatory guidelines and guidance address study design, they allow varied approaches to thyroid hormone measurement in rodents, and an optimal study design or logical approach to thyroid hormone testing in young rodents has not yet been established in a regulatory testing context. Validity, accuracy, sensitivity and reproducibility of the assays are issues of concern. It is not clear to what extent variability in the data can be attributed to methodological issues or to innate biological variability.

This workshop aims to:

- (1) Present the state-of-the-science on thyroid hormone assessments, specifically as it relates to preclinical methods and data collection, and identify gaps and knowledge as it relates to regulatory DART testing,
- (2) Provide clarification and guidance regarding the collection (timing and methods), assessment (standardization and validation), and interpretation of thyroid hormone data (as it relates to adversity) for regulatory toxicology and risk assessment,
- (3) Discuss and come to consensus on recommendations on how to improve data interpretation/understanding of thyroid changes and their relationship to adverse outcomes

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PRELIMINARY AGENDA

DAY 1, THURSDAY MAY 9, 2019

Session 1: Setting the stage

8:30 – 8:40 Welcome & workshop charge
Sue Makris, US EPA

8:40 – 9:10 Overview and development of thyroid hormone system and comparative endocrinology
Mary Gilbert, US EPA

9:10 – 9:40 Histopathology and consequence of adverse effects
Brent Walling, Charles River

9:40 – 10:10 Clinical Perspectives
Robin Peeters, Erasmus University

10:10 – 10:30 Break

Session 2: Methodologies & Interpretation

10:30 – 11:00 Animal methods and updates on guideline requirements
Sue Marty, Dow

11:00 – 11:30 Thyroid hormone perturbation and neurodevelopmental toxicity in animal studies
Ellen Hessel, RIVM

11:30 – 12:00 OECD's AOP wiki – state of the science
TBD

12:00 – 12:30 *In Vitro* and other non-mammalian alternative/complimentary assays
TBD

12:30 – 1:15 Lunch

10:45 – 11:00 Overview of global thyroid activities
Manon Beekhuijzen, Charles River

1:15 – 1:45 HESI-ETS survey results
Pragati Coder, Charles River & Susan Makris, US EPA

Session 4: Breakout Groups

1:45 – 2:00 Breakout group instructions/break

2:00 – 4:15 Groups are charged with identifying key data gaps and research needs, recommendations and future directions as it relates to:

- 1) Specimen collection, assay methodologies, sample analysis and reporting
- 2) Data interpretation, regulatory aspects and risk assessment

4:15 – 4:30 Wrap-up

(In Progress)

DAY 2, FRIDAY MAY 10, 2019

8:30 – 8:35 **Welcome: Day 1 Recap and Charge for Day 2**

8:35 – 10:30 **Session 5: Break-out group report-back**

10:30 – 10:45 Break

Session 6: Panel discussion on critical gaps in knowledge and tests to improve interpretation of thyroid changes

10:45 – 11:15 European Perspectives

ECHA - TBD

EFSA - TBD

Nina Hallmark, Bayer

11:15 – 11:45 North American Perspectives

US EPA – TBD

Bethany Hannas, Corteva

Jennifer Foreman, ExxonMobil

Miyun Tsai-Turton, US FDA

LaRonda Morford, Lilly

11:45 – 12:15 Asian Perspectives

Tamoya Yamada, Sumitomo Chemical

Hiroaki Aoyama, Institute for Environmental Toxicology (on behalf of Japanese Food Safety Commission)

Session 7: Looking ahead

12:15 – 12:45 Discussion of research needs and recommendations: Output from global perspectives and break-out groups

12:45 – 1:00 Closing remarks & next steps

Susan Makris, US EPA and Pragati Coder, Charles River