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Estimation of thyroid hormone, i.e. total T4 in the toxicity study according to OECD guideline No. 422

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OECD guidelines for the testing of chemicals are periodically reviewed in the light of scientific progress. OECD guideline No. 422: “Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test” was updated in 2015 by adding endocrine (total T4-thyroid hormone) disruption relevant endpoints. According to the guideline, blood samples from adult males and 13-day-old pups should be examined for serum levels of thyroid hormone (TT4). Further assessment of TT4 in blood samples from dams and 4-day-old pups is made if relevant (not specified in the guideline). In the study based on OECD guideline No. 422 a vehicle control was administered on mature male and female Wistar rats from control groups (Cmdb:Wi; outbred) via oral gavage for 28 days (males) or 51-60 days (females). Serum TT4 in the control groups determined using the ELISA was in the range of 2.041-5.096 µg/dL in males and 1.947-4.658 µg/dL in 13-day-old pups. We suggest that further measurement of TT4 in dams and 4-day-old pups in this type of study should be made if treated groups exhibit any statistically significant changes in the TT4 level (in adult males and 13-day-old pups) or the absolute/relative weight of the thyroid gland, or histopathological changes of the thyroid gland.

Biography

Małgorzata Przybyła has completed her PhD from Medical University of Silesia, Poland in 2012. She works as a Head of the Laboratory of Medical Analytics in the Department of Toxicological studies. She has participated in approximately 70 unpublished toxicological studies. She is responsible for the Planning of Toxicological studies conducted according to the Principles of Good Laboratory Practice and OECD Guidelines. She was a Member of the Local Ethics Committee for Animal Experimentation.

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