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BACKGROUND

Zebrafish (Danio rerio) represent an alternative vertebrate model for developmental neurotoxicity testing, but without a standardized protocol for larval behavioral assays, comparison of results among laboratories is challenging.

We conducted an extensive literature review to evaluate the consistencies and transparency among protocols

(published in *Neurotoxicol Teratol.*, PMID:36758822, see QR code below).

LITERATURE SEARCH STRATEGY Literature gathering: Abstract Sifter (Baker et al. 2017) review for zebrafish larval behavior studies (61 chemicals screened by our laboratory, Jarema et al. 2022) **BROAD SEARCH TERMS** SPECIFIC SEARCH TERMS "chemical name OR CAS" AND "zebrafish and chemical name +OR CAS" AND " zebrafish and Duplicate abstracts pehavior or locomotor) and develop*," "zebrafish neurotox*," OR "zebrafish" removed. n=799 and (swim or swimming or locomotion)" (n=2,688 abstracts) (n=478 abstracts) Level 1 screening: Title and Abstract Abstracts removed due to not meeting larval Three larval zebrafish behavior experts divided and screened zebrafish assav criteria. n=2.194 abstracts to collect publications focusing on developmental larval zebrafish behavior assavs Duplicate publications (i.e. tested more than one Abstracts screened, n=2,367 chemical) or publications that used a different chemical CAS number removed n=7 Level 2 screening: Full text Publications removed due to explicitly not meeting Six larval zebrafish behavior experts divided and reviewed full the following criteria: text publications (two reviewers per text) and included/excluded Age at time of testing, n=14 publications based on the following criteria. Chemical exposure window/duration, n=14 Did not include a light to dark transition, n=28 Publications screened, n=94 Multiple criteria, n=6 Chemical introduced between 0-3 days post fertilization Chemical exposure duration of at least 24 hours 5-7 days post fertilization larvae tested for behavior Behavior protocol included at least one light to dark photoperiod transition Acclimation phase prior to behavior testing Included publications: Publications that met all criteria (explicitly stated or not stated).

Full text critiqued by two reviewers with 51

from each publication

SCAN ME

unique methodological variables extracted

(n=31 publications covering 36

chemicals)



Inconsistencies in Variable Reporting and Methods in Larval Zebrafish Behavioral Assays

BN Hill^a, KN Britton^b, DL Hunter^c, JK Olin^c, M Lowery^c, JM Hedge^c, BR Knapp^a, KA Jarema^d, Z Rowson^a, S Padilla^c

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OF REVIEWED PUBLICATIONS

