Adverse Outcome Pathway

Toxicity pathway

Molecular Individual **Population** Cellular Tissue Organ Molecular initiating event Adverse Outcome (MIE) Intermediate key events This may occur at the Chemical induced perturbations that affect biological systems at the molecular level. One MIE may lead to multiple adverse Intermediate effects or predictive population level for associations spanning several levels of biological association. ecological outcomes, or at the individual level for human health outcomes. KEGG, REACTOME, BIOGRID, CTD, ZFIN, MGI, Zfin, Wormbase, FlyBase, PharmKGB, ToxRefDB ToxCast, Drug Matrix, TG-ToxRefDB, PheGenl, OMIM, GATES, CTD, DrugBank, HMDB CTD Association rule mining Analysis methods for Data sources making linkages Association rule mining, pathway analysis & inference Fig. 1 Overview of the AOP framework. All data sources listed here are also referenced in Table 1. Data resources containing data in the molecular to cellular levels of biological organization. Data resources containing data in the cellular to tissue levels of biological organization. Data resources containing data in the tissue to individual levels of biological organization.