DASS App v2.0: Implementing OECD Guideline No. 497 Updates

Kim T. To[1*], Alexandre Borrel[1], Emily Reinke[1], Nicole Kleinstreuer[2]

[1]Inotiv, Research Triangle Park, NC, USA; [2]NIH/NIEHS/DTT/NICEATM, Research Triangle Park, NC, USA

*Presenting author

The National Toxicology Program's DASS App (https://ntp.niehs.nih.gov/go/40498) is an open-source web application developed to streamline the implementation of defined approaches (DA) to predict skin sensitization hazard and potency. Here we describe release updates for DASS App v2.0, which coincide with pending updates to OECD Guideline No. 497: Defined Approaches on Skin Sensitisation. DAs are mechanistically driven non-animal test strategies that outline rules for interpreting data from multiple in vitro or in chemico tests or in silico models to derive high-confidence toxicity predictions. The DASS App features three DAs that users can apply to their uploaded data: the Two-out-of-Three (2o3), Integrated Testing Strategy (ITS), and Key Event 3/1 Sequential Testing Strategy. The pending OECD Guideline update defines additional assays and model options suitable for the 2o3 and ITS DAs. With the score-based ITS DA, users can choose from various assay-specific scoring schemes (previously limited to the direct peptide reactivity assay and human cell line activation test). For the consensus-based 2o3 DA, the app can now process data from individual assay runs to flag borderline results before applying the 2o3 data interpretation procedure. Additionally, the app now enables evaluating DA results against reference data from the Integrated Chemical Environment (https://ice.ntp.niehs.nih.gov/) and visualizing DA performance based on chemical-specific parameters. The new capabilities within the DASS App support consistent application and increased adoption of guideline DAs and provide new performance evaluation options for building confidence in non-animal methods. This project was funded by the NIEHS under Contract No. HHSN273201500010C.