

O-38: SOLVING THE PROBLEMS WITH DMSO IN BIOLOGICAL TESTING

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DMSO has become the default solvent for dissolution of compounds prior to biological testing, yet DMSO has troublesome physical properties that can lead to inaccurate bioassay results. In addition to poor solubility for some compounds, DMSO is highly hygroscopic, which accelerates precipitation of previously-dissolved compounds. Observations and experience with the 1,990 compound NCI Diversity Set indicated that 25% of the assays done from 10 millimolar DMSO stock solutions were performed at less than the nominal molarity. Studies were carried out with the most troublesome members of the NCI Diversity Set to define the nature of compound solubility in DMSO and DMSO/water/co-solvent mixtures upon storage and handling, precipitation and re-dissolution. Handling parameters for DMSO solutions will be presented by which biological testing at incorrect molarity can be reduced to 5% for the most troublesome of compounds.

Funded by NCI Contract N01-CO-12400.