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Abstract

The common practice of preparing storage libraries of compounds in 100% DMSO solution well in advance of bioassay brings with it difficulties that affect the accuracy of the data obtained. This publication presents a series of studies done on a subset of compounds that are difficult to bioassay because they precipitate from DMSO solution. These compounds are members of a frequently used, diverse compound library of the sort commonly used in the high-throughput screening (HTS) environment. Experiments were performed to determine the concentration of drug in solution above the precipitate, observe the time course and effect of various mixtures of solvents upon precipitation, measure the viscosity of cosolvents to determine compatibility with HTS, determine water absorption rates for various solvent combinations, and investigate resolubilization techniques to ensure proper drug solution for HTS. Recommendations are made on how to best maximize the probability that problem compounds will remain in solution, be accurately transferred during assay plate production, and, as a result, be accurately bioassayed at the specified molar concentration. (Journal of Biomolecular Screening 2009:708-715)