Abstract: The stability of approximately 7200 compounds stored as 20-mM DMSO solutions under ambient conditions was monitored for 1 year.

Compound integrity was measured by flow injection analysis using positive and negative electrospray ionization mass spectrometry. Each sample was assessed at the beginning of the study, after 12 months of storage, and at a randomized time point between the initial and final time points of the study.

The relationship between length of storage and the probability of observing the compound was described by a repeated-measures logistic regression model. The probability of observing the compound was 92% after 3 months of storage at room temperature, 83% after 6 months, and 52% after 1 year in DMSO. An acceptable limit for compound loss and corresponding maximum storage time for samples in DMSO can be determined based on these results.

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