



**Showcasing research from Amnon Bar-Shir's laboratory,
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**Amplifying undetectable NMR signals to study host–guest
interactions and exchange**

NMR is frequently the analytical tool of choice for studying host–guest molecular systems in solutions, yet its lack of sensitivity can be a major drawback. By capitalizing on the dynamic exchange process between a free and bound ^{19}F -guest, and transferring magnetization from a few μM of bound ^{19}F -guest to the high concentration free ^{19}F -guest (a few mM), we were able to detect the otherwise NMR-undetectable ^{19}F -moieties. Using this approach, which we term GEST – guest exchange saturation transfer, we show that the nature of the binding kinetics of fluorinated guests and cucurbit[n]uril (CB[n]) hosts determine the NMR signal amplification. The use of the GEST technique within the ^{19}F -NMR framework provides sufficient signal amplification to detect >600-fold diluted CB[8] and may be extended to studying a wide range of supramolecular systems using standard NMR equipment.

As featured in:



See Amnon Bar-Shir *et al.*,
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