Enabling and Accelerating Drug Discovery with High-Throughput Chemistry

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Traditionally, HTE has been used for new method development, reaction optimization, and enabling rapid access to desired compounds by finding enabling reaction conditions. Parallel library synthesis has been primarily used to access closely related analogues rapidly. When used together, these two high throughput chemistry tools can improve each other in a symbiotic fashion. Examples of developing and leveraging both technologies for rapid condition screening set development and scope evaluation, as in our recent comparison of aryl-alkyl coupling methods, will be presented.[1,2] Additionally, the datasets resulting from many years of high throughput chemistry reactions and the trends gleaned from these datasets have had their own impact on discovery chemistry at Abbvie; this impact will also be discussed.[3]

[1]Tu and Dombrowski, *Angew. Chem. Int. Ed.* **2019**, *58*, 7987-7991.; Tu, *Org. Process Res. Dev.* **2019**, *23*, 1900-1907. [2]Dombrowski and Gesmundo, *ACS Med. Chem. Lett.* **2020**, *11*, 4, 597-604. [3]Dombrowski and Wang, *J. Org. Chem.* **2022**, *87*, 4, 1880-1897.