Supplementary Materials

High-Throughput, Low-Cost Reaction Screening using a Modified 3D Printer

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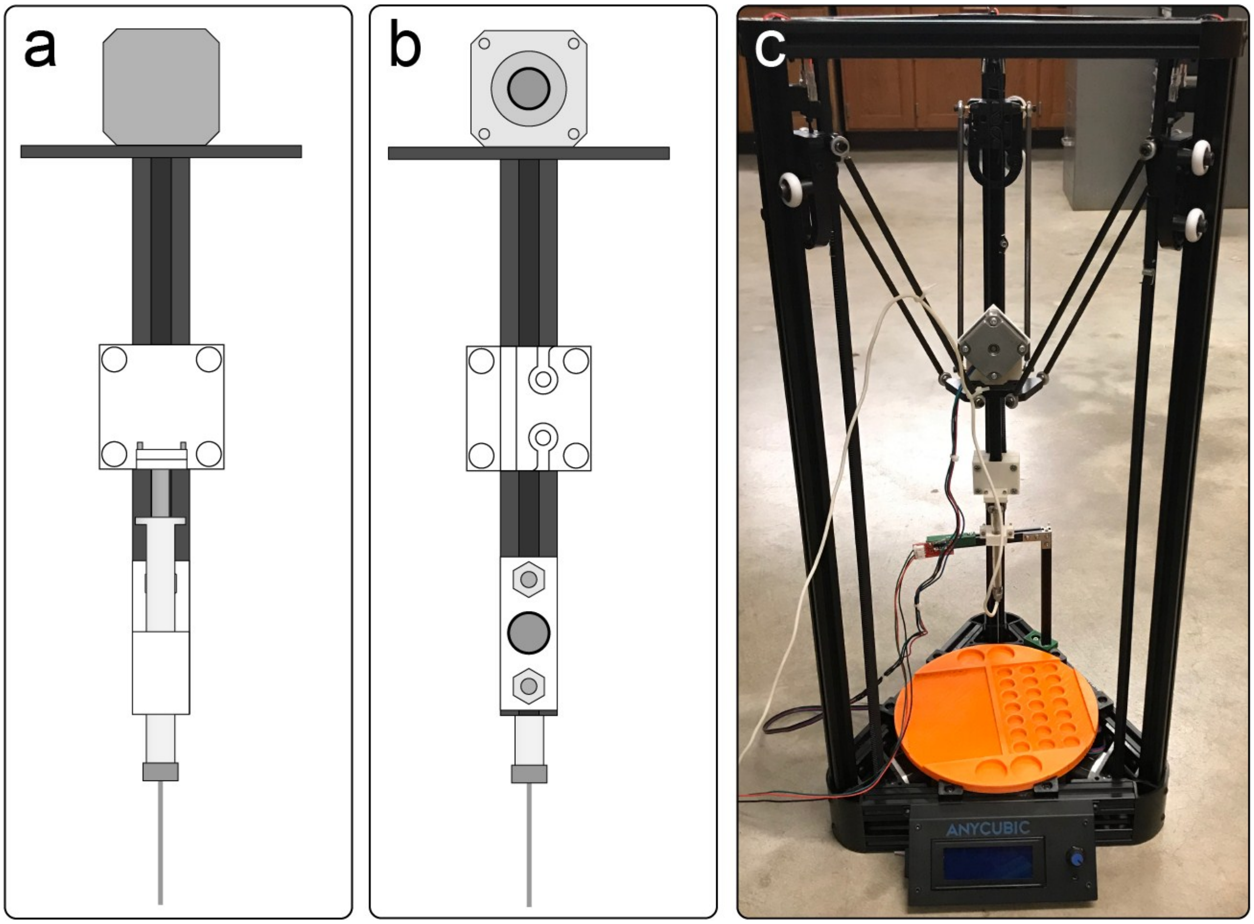

Figure S1. Schematic showing the (a) frontview of the custom syringe assembly, (b) backview of the custom syringe assembly, and (c) photograph of the fully assembled device. Note the custom printed bed that holds a 96-well microtiter plate and other items.

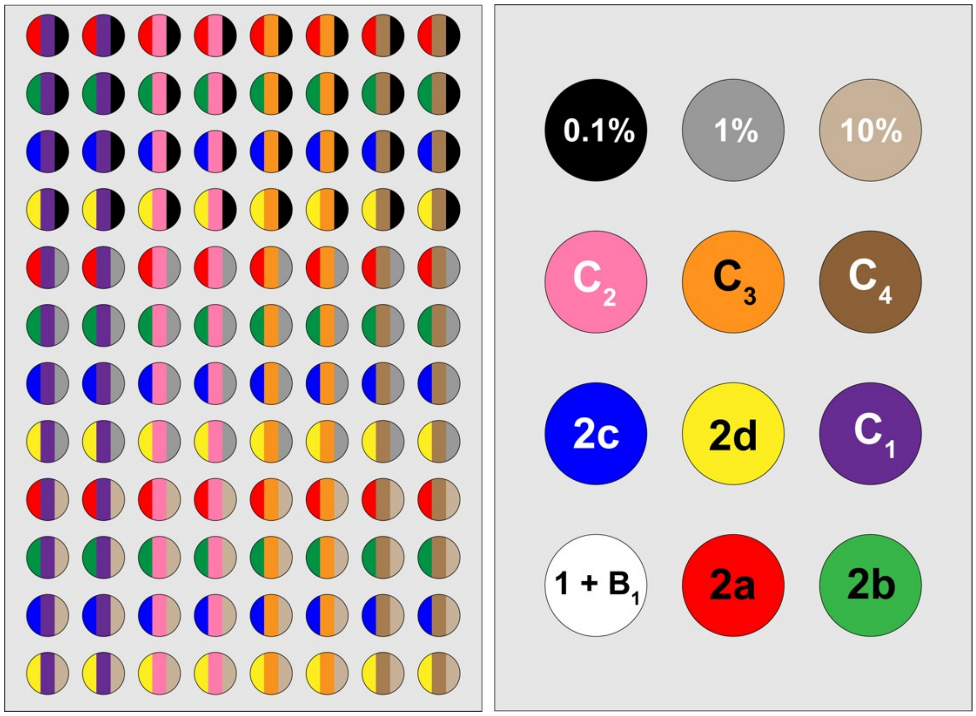

Figure S2. Microtiter plate for catalyst loading experiments was pipetted using this pattern in which each reagent was pipetted directly into the appropriate well. Reagents were stored in 4 mL vials and each syringe addition could fill 8 wells. Syringe was only washed when the reagent was changed. The full well plate was completed in approximately 40 minutes.

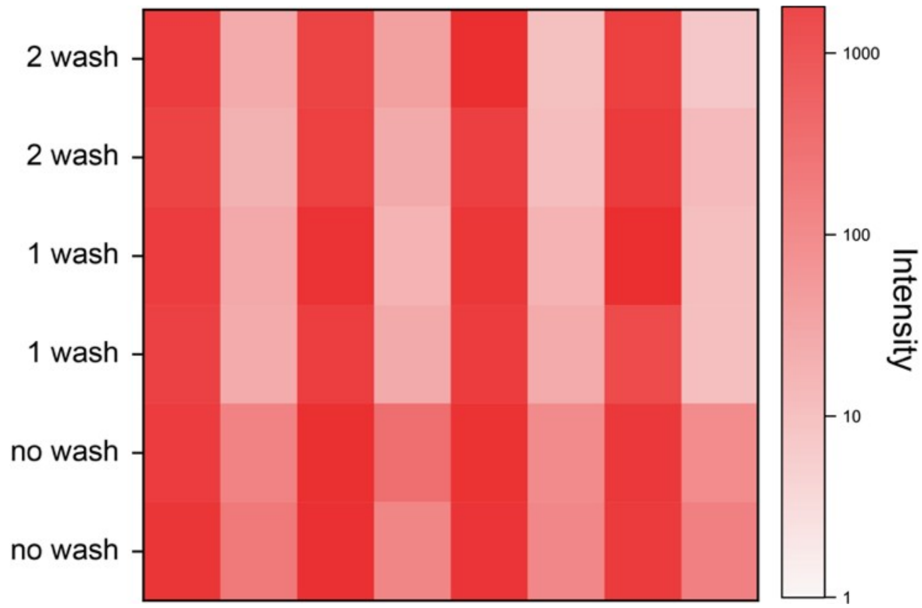

Figure S3. Wells filled with an alternating pattern of 1 µM rhodamine B in methanol and pure methanol were examined by ESI-MS. Intesnisty refers to total ion intensity on an arbitrary scale, common to this set of experiments. The resulting heatmap shows the intensity of *m/z* 443 in each well. The colors are shown on a log scale to highlight the increase in ion intensity observed in the blank wells when no wash was performed.

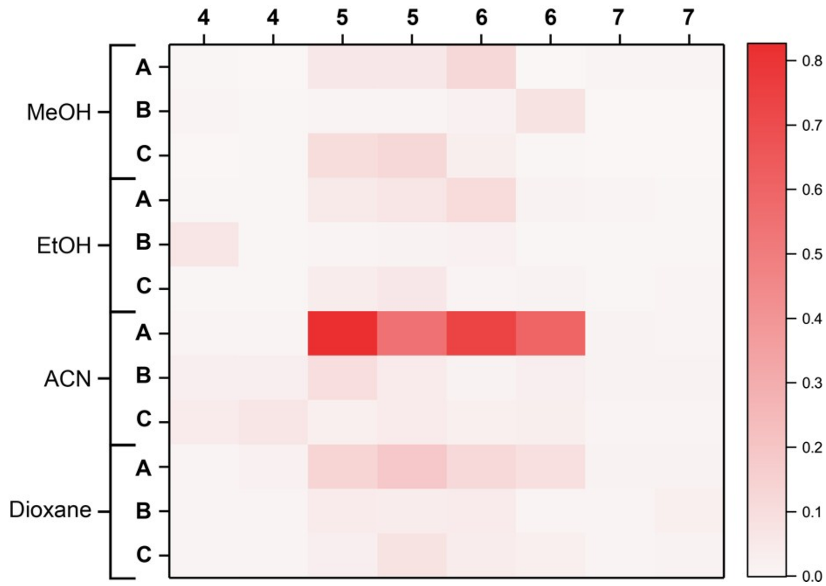

Figure S4. Heatmap for *m/z* 173, which corresponds to the single alkylation reaction product of **5** or **6** with **A** or **C**. No double alkylation products were observed for the reaction of **6** with **A**. As with the other amine alkylations, the reaction proceeds the fastest in acetonitrile.

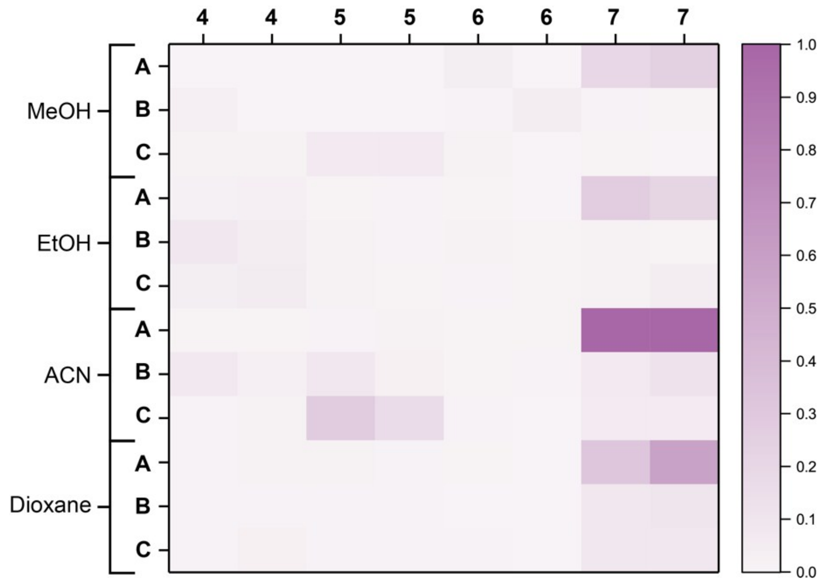

Figure S5. Heatmap for *m/z* 190, which corresponds to the single alkylation reaction product of **7** with **A** or **C**. No double alkylation products were observed for this reaction. As with the other amine alkylations, the reaction proceeds the fastest in acetonitrile.

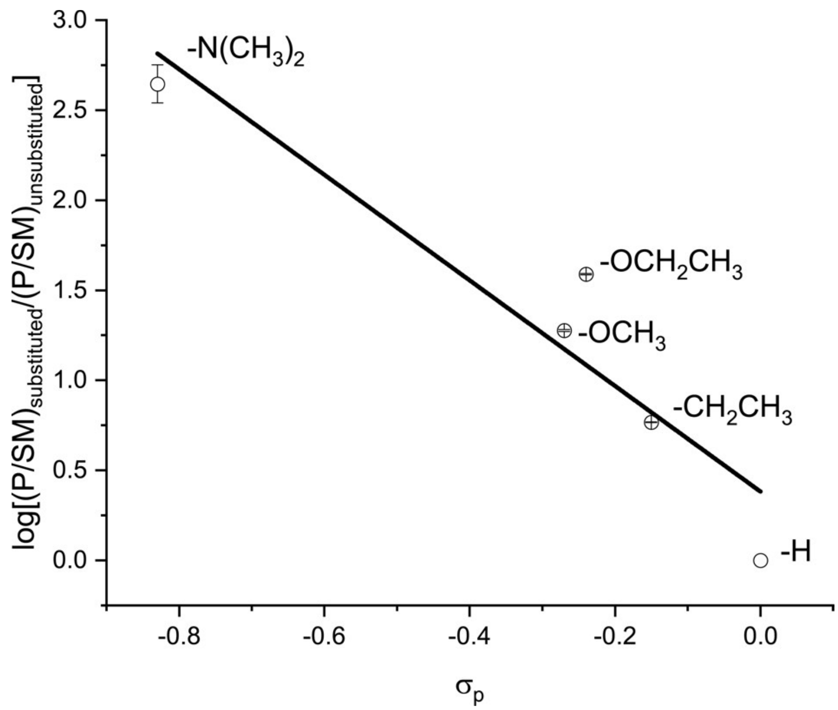

Figure S6. Hammett plot for the Katrtizky transamination reaction using σ_p constants instead of σ_p^+ (as in Figure 6b) because σ_p is available for the ethoxy substituent. The data is approximately log-linear, but much less so than when plotting against σ_p^+.

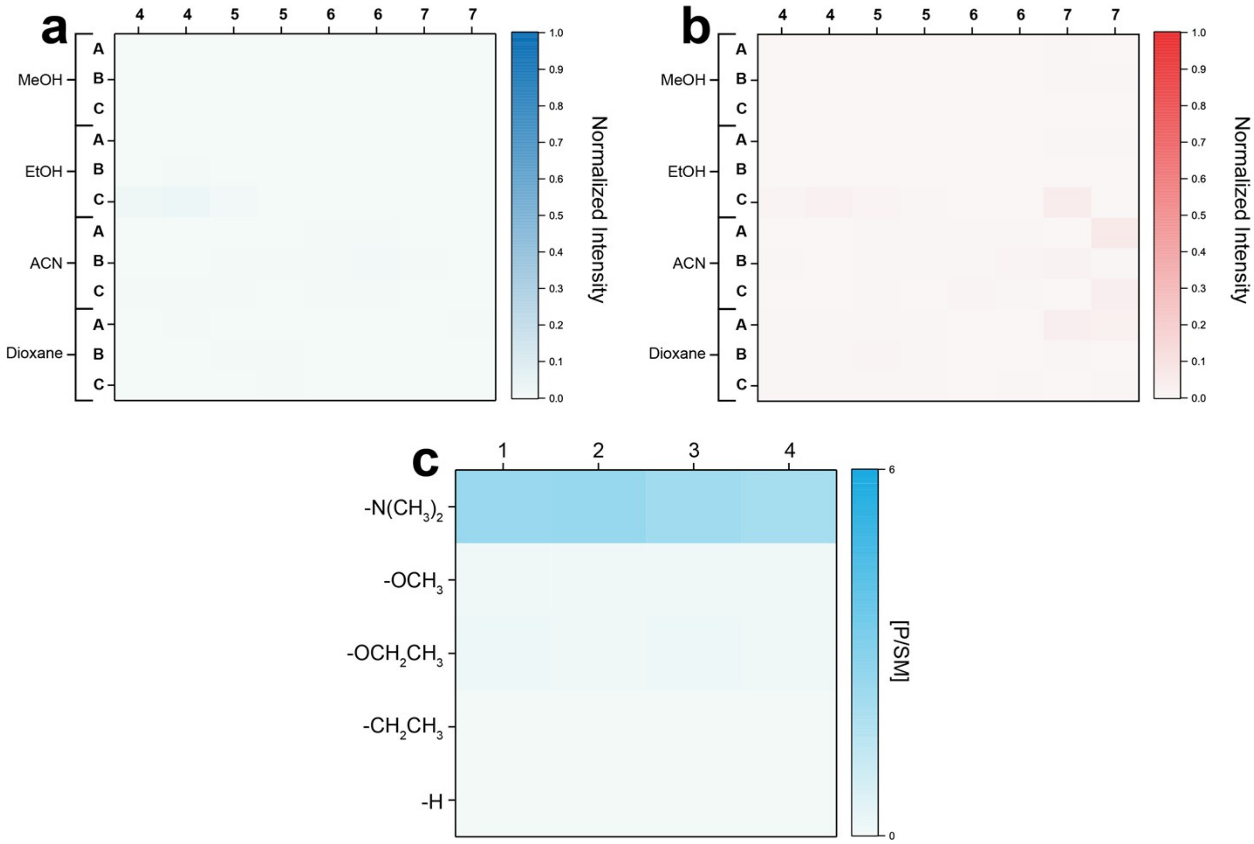

Figure S7. Heatmaps for (a) amine alkylation of **4** with **A** (b) amine alkylation **7** with **A**, and (c) ratio of product to starting material for each para-substituted aniline for the Katritzky transamination reaction run in acetonitrile. Unlike experiments in the main text, here data was recorded upon mixing. No reaction is observed in these cases, showing that with these chemical and instrumental systems and under this set of conditions, reaction is occurring in solution in the microtiter wells as opposed to the electrospray microdroplets or in the gas phase.