

Supplemental Figures for:

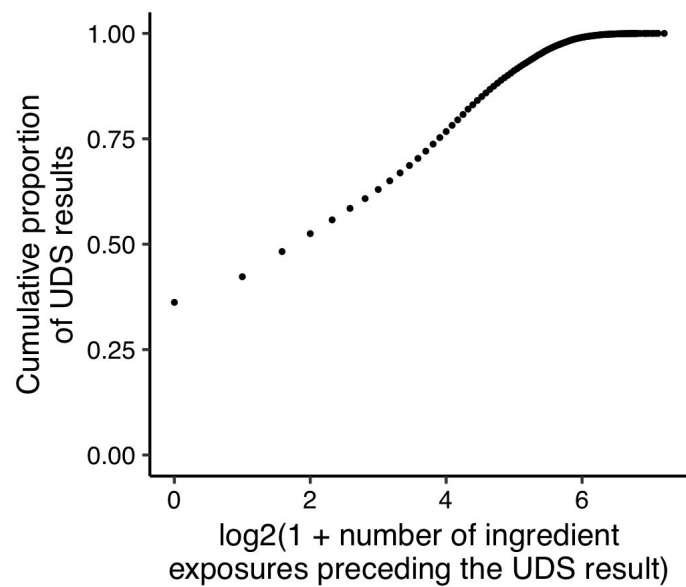
Discovering cross-reactivity in urine drug screening
immunoassays through large-scale analysis of electronic health
records

Jacob J. Hughey^{1*} and Jennifer M. Colby^{2*}

¹Department of Biomedical Informatics, Vanderbilt University Medical Center, Nashville, Tennessee; ²Department of Pathology, Microbiology, and Immunology, Vanderbilt University Medical Center, Nashville, Tennessee

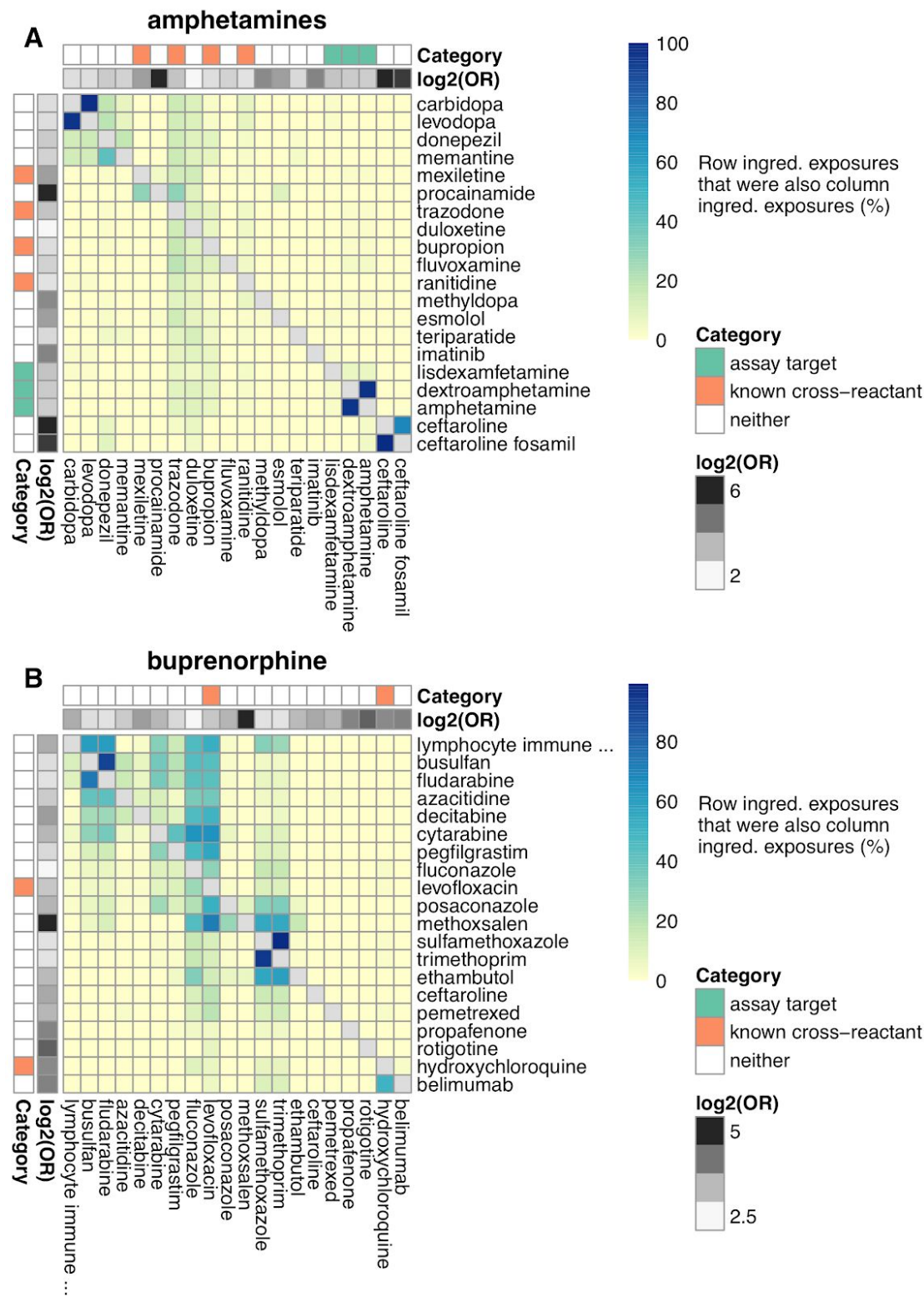
*Address correspondence to these authors at: jakejhughey@gmail.com and jennifermcolby@gmail.com

Supplemental Figure 1

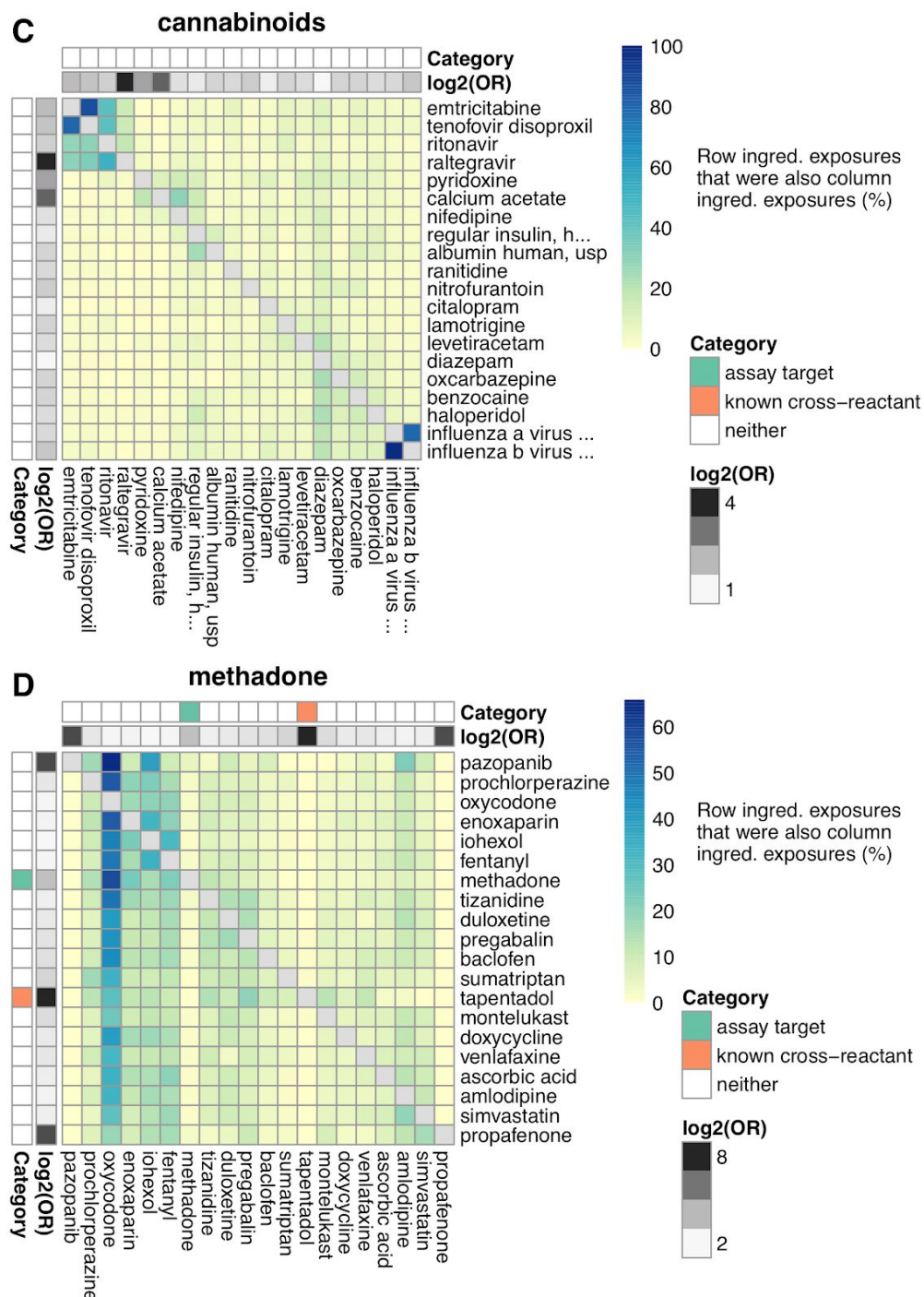


Empirical cumulative distribution function of the number of ingredients that a person was exposed to in the period prior to a UDS result (based on results from ten screening assays).

Supplemental Figure 2

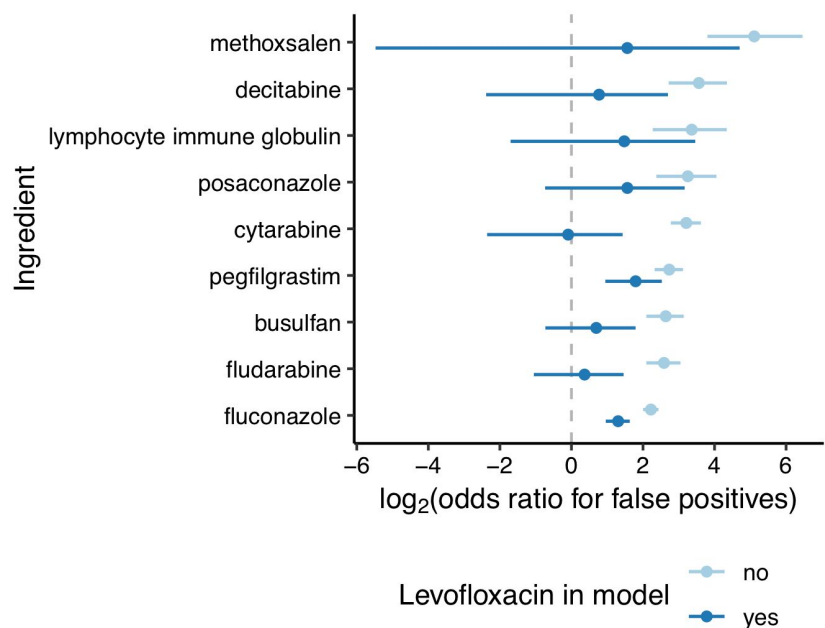


Supplemental Figure 2 (cont.)



Quantifying the frequency of ingredient co-exposures. Heatmaps include the 20 ingredients most strongly associated with false positives ($OR = OR_{FP}$, based on lower bound of 95% CI) on the screening assays for **(A)** amphetamines, **(B)** buprenorphine, **(C)** cannabinoids, and **(D)** methadone. Ingredients were ordered by hierarchical clustering.

Supplemental Figure 3



Discriminating the effects of several top-ranked ingredients from that of levofloxacin on the buprenorphine screen. Points indicate odds ratios, lines indicate corresponding 95% confidence intervals. Dashed line indicates an odds ratio of 1, i.e., no association.