

Fig S1. Thermographs corresponding to the different buffer conditions shown in Table 1. Some of the conditions resulted in bumpy curves indicating aggregation. MES / 1% Triton X-100 did not show aggregation and had higher fluorescence yield. Therefore, this condition was chosen for subsequent experiments

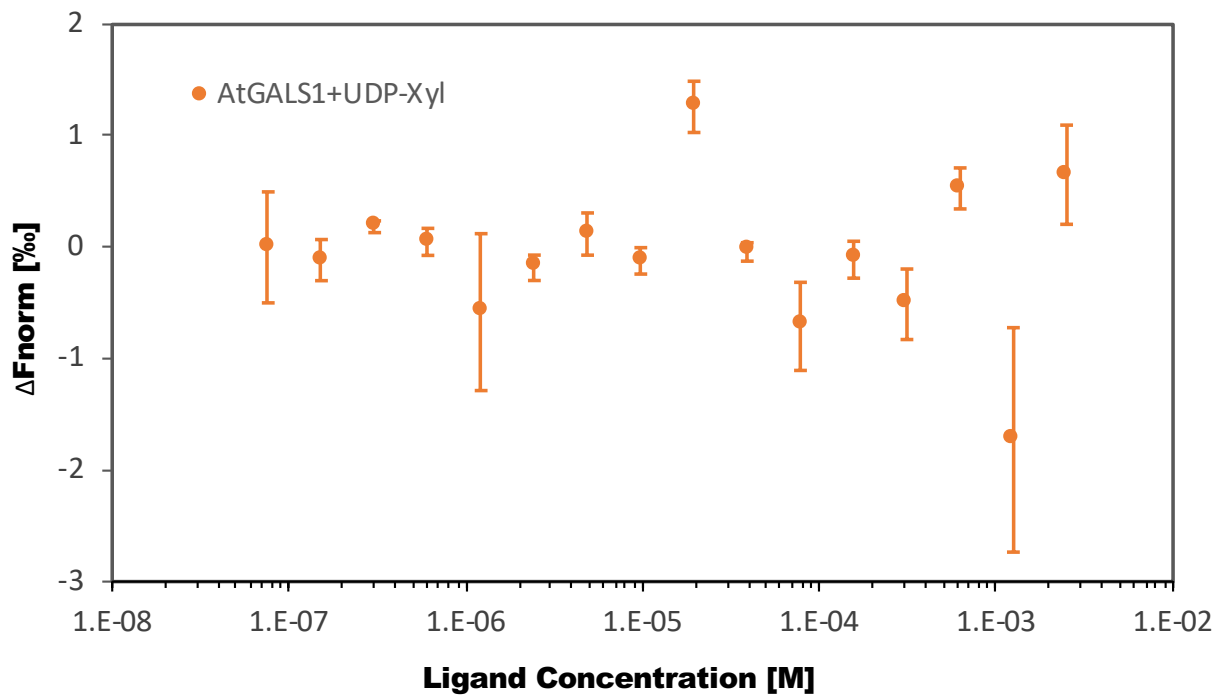
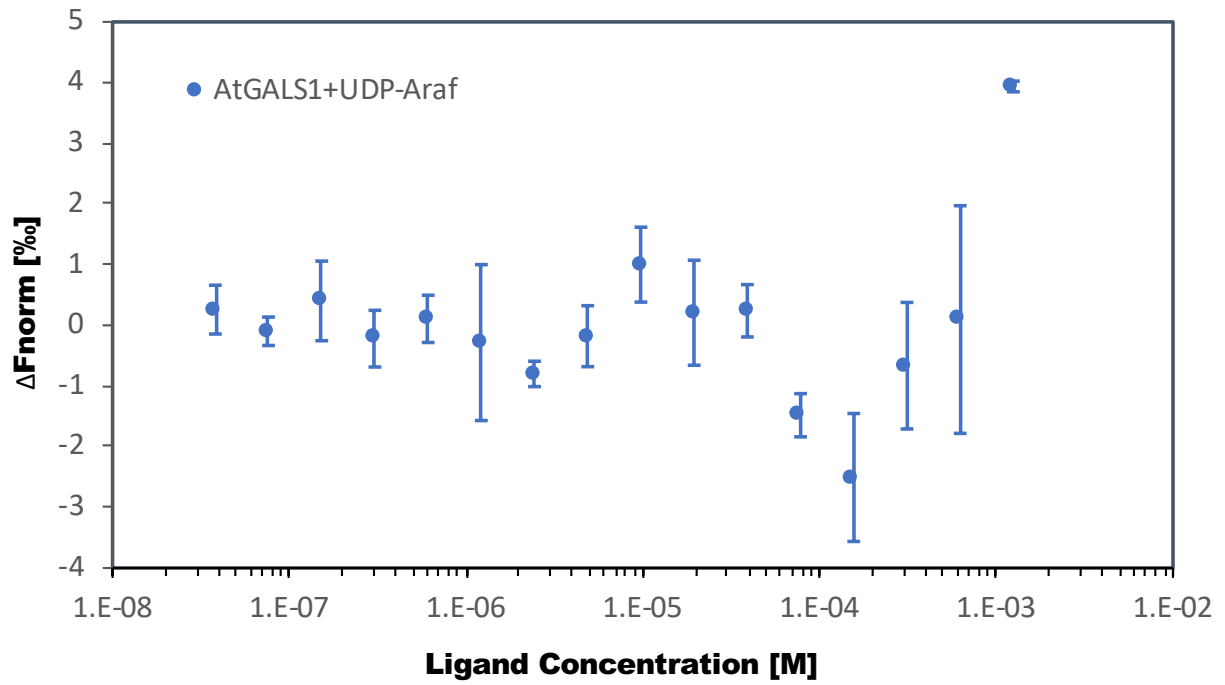


Fig S2. AtGALS1 expressed in *Nicotiana benthamiana* has no detectable binding with UDP-Ara_f or UDP-Xyl.

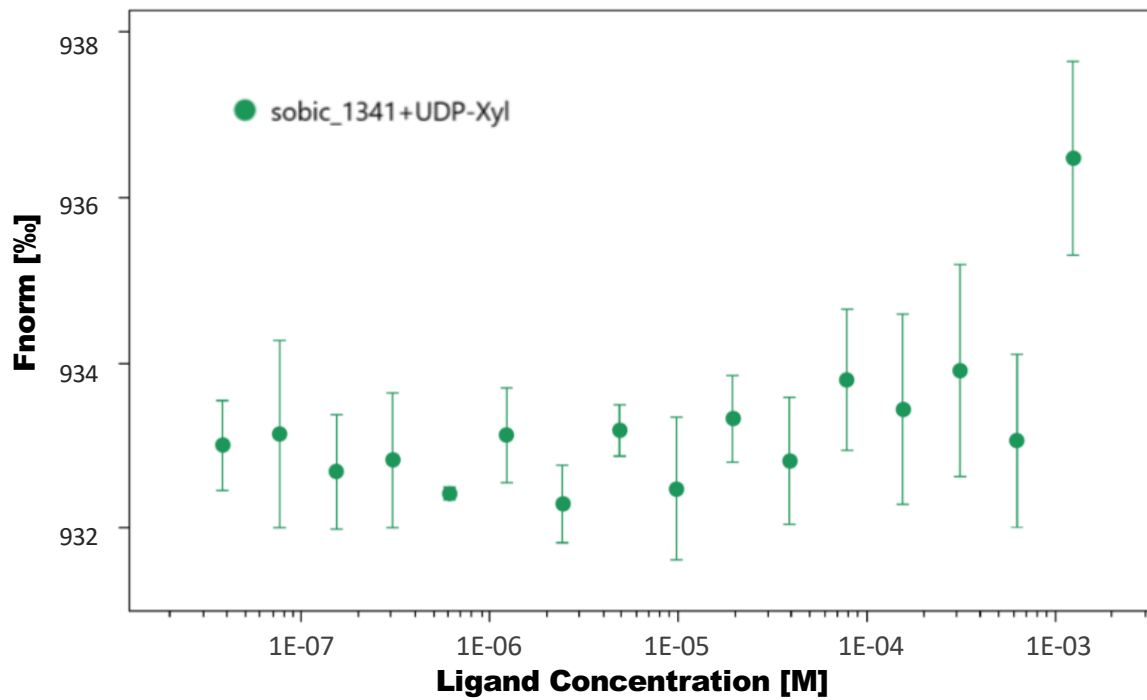
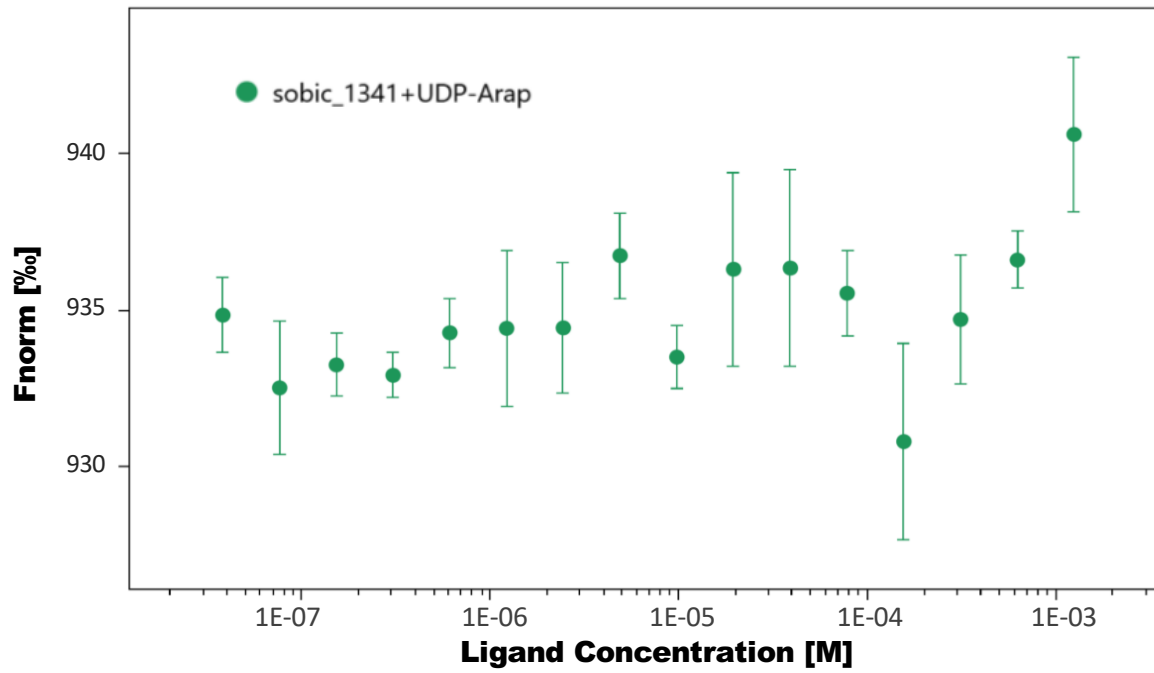


Fig S3. *Sobic_004G134100* expressed in *Nicotiana benthamiana* has no detectable binding with UDP-Ara_p or UDP-Xyl.

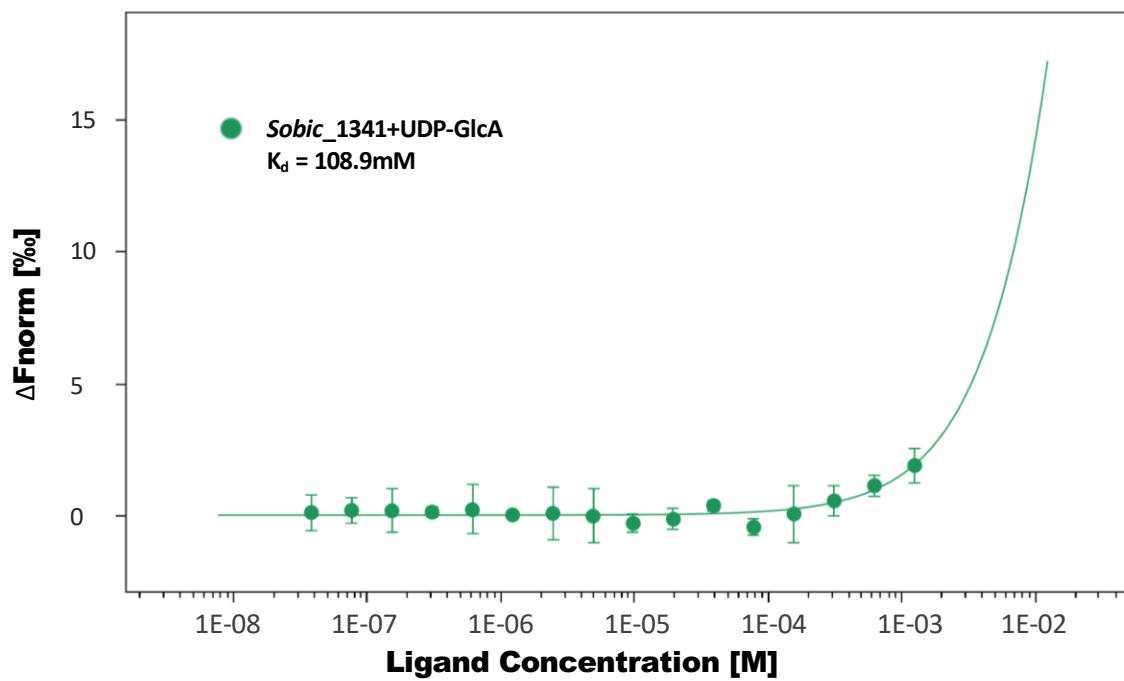


Fig S4. *Sobic_004G134100* expressed in *Nicotiana benthamiana* has very weak binding with UDP-GlcA ($K_d > 0.1$ M).