Supplementary Material

A Saccharide Chemosensor Array Developed Based on an Indicator Displacement Assay Using a Combination of Commercially Available Reagents

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S1
1 UV-vis measurements for saccharides

**Supplementary Figure 1.** UV—vis spectra of the ARS (40 μM)—3-NPBA (6 mM) complex upon the addition of galactose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

**Supplementary Figure 2.** UV—vis spectra of the ARS (40 μM)—3-NPBA (6 mM) complex upon the addition of glucose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.
Supplementary Figure 3. UV–vis spectra of the ARS (40 μM)–3-NPBA (6 mM) complex upon the addition of xylose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

Supplementary Figure 4. UV–vis spectra of the ARS (40 μM)–3-NPBA (6 mM) complex upon the addition of rhamnose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

Supplementary Figure 5. UV–vis spectra of the BPR (40 μM)–3-NPBA (6 mM) complex upon the addition of galactose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.
Supplementary Figure 6. UV–vis spectra of the BPR (40 μM) – 3-NPBA (6 mM) complex upon the addition of glucose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

Supplementary Figure 7. UV–vis spectra of the BPR (40 μM) – 3-NPBA (6 mM) complex upon the addition of xylose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

Supplementary Figure 8. UV–vis spectra of the BPR (40 μM) – 3-NPBA (6 mM) complex upon the addition of mannose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.
Supplementary Figure 9. UV—vis spectra of the BPR (40 μM) — 3-NPBA (6 mM) complex upon the addition of rhamnose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

Supplementary Figure 10. UV—vis spectra of the PV (40 μM) — 3-NPBA (6 mM) complex upon the addition of galactose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.

Supplementary Figure 12. UV—vis spectra of the PV (40 μM) — 3-NPBA (6 mM) complex upon the addition of xylose in a phosphate buffer solution (100 mM) at a pH of 7.4 at 25 °C.
2 FAB MS Analysis

Supplementary Figure 13. (A) FAB MS (negative) spectra of the ARS–3-NBPA complex. (B) Calculated isotope pattern for [ARS-2H₂O+3-NPBA+3-NBA-H⁻]. Matrix: 3-nitrobenzylalcohol.
Supplementary Figure 14. (A) FAB MS (negative) spectra of the PR–3-NBPA complex. (B) Calculated isotope pattern for [PR-2H2O+3-NPBA+3-NBA-H]. Matrix: 3-nitrobenzylalcohol.
3 Analysis-of-Variance (ANOVA)

Supplementary Figure 15. One-way ANOVA result of the qualitative analysis.
**Supplementary Figure 16.** LDA plots for the semi-quantitative assay for Fru (○) and Glc (□) at the concentration range of 0—100 mM. Twenty repetitions were measured for each concentration.
**Supplementary Table 1** Jackknifed classification matrix of the qualitative assay for Fru and Glc

|                | Fru-100mM | Fru-10mM | Fru-20mM | Fru-30mM | Fru-60mM | Glc-100mM | Glc-10mM | Glc-20mM | Glc-30mM | Glc-60mM | control | %correct |
|----------------|-----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|
| Fru-100mM      | 20        | 0        | 0        | 0        | 0        | 0         | 0        | 0        | 0        | 0        | 0        | 10       |
| Fru-10mM       | 0         | 20       | 0        | 0        | 0        | 0         | 0        | 0        | 0        | 0        | 0        | 10       |
| Fru-20mM       | 0         | 0        | 20       | 0        | 0        | 0         | 0        | 0        | 0        | 0        | 0        | 10       |
| Fru-30mM       | 0         | 0        | 0        | 20       | 0        | 0         | 0        | 0        | 0        | 0        | 0        | 10       |
| Fru-60mM       | 0         | 0        | 0        | 0        | 20       | 0         | 0        | 0        | 0        | 0        | 0        | 10       |
| Glc-100mM      | 0         | 0        | 0        | 0        | 0        | 20        | 0        | 0        | 0        | 0        | 0        | 10       |
| Glc-10mM       | 0         | 0        | 0        | 0        | 0        | 0         | 20       | 0        | 0        | 0        | 0        | 10       |
| Glc-20mM       | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 20       | 0        | 0        | 0        | 10       |
| Glc-30mM       | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 0        | 20       | 0        | 0        | 10       |
| Glc-60mM       | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 0        | 0        | 20       | 0        | 10       |
| control        | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 0        | 0        | 0        | 20       | 10       |

**Supplementary Figure 17.** Canonical score plot of the qualitative assay for Fru and Glc.
Supplementary Table 2: Jackknifed classification matrix of the qualitative assay for Fru

| Jackknifed Classification Matrix | Fru-100mM | Fru-10mM | Fru-20mM | Fru-30mM | Fru-60mM | control | %correct |
|----------------------------------|-----------|----------|----------|----------|----------|---------|----------|
| Fru-100mM                        | 20        | 0        | 0        | 0        | 0        | 0       | 100      |
| Fru-10mM                         | 0         | 20       | 0        | 0        | 0        | 0       | 100      |
| Fru-20mM                         | 0         | 0        | 20       | 0        | 0        | 0       | 100      |
| Fru-30mM                         | 0         | 0        | 0        | 20       | 0        | 0       | 100      |
| Fru-60mM                         | 0         | 0        | 0        | 0        | 20       | 0       | 100      |
| control                          | 0         | 0        | 0        | 0        | 0        | 20      | 100      |
| Total                            | 20        | 20       | 20       | 20       | 20       | 20      | 100      |

Supplementary Figure 18: Canonical score plot of the qualitative assay for Fru.
**Supplementary Table 3** Jackknifed classification matrix of the qualitative assay for Glc

| Jackknifed Classification Matrix | Glc-100mM | Glc-10mM | Glc-20mM | Glc-30mM | Glc-60mM | control | %correct |
|----------------------------------|-----------|----------|----------|----------|----------|---------|----------|
| Glc-100mM                       | 20        | 0        | 0        | 0        | 0        | 0       | 100      |
| Glc-10mM                        | 0         | 20       | 0        | 0        | 0        | 0       | 100      |
| Glc-20mM                        | 0         | 0        | 20       | 0        | 0        | 0       | 100      |
| Glc-30mM                        | 0         | 0        | 0        | 20       | 0        | 0       | 100      |
| Glc-60mM                        | 0         | 0        | 0        | 0        | 20       | 0       | 100      |
| control                         | 0         | 0        | 0        | 0        | 0        | 20      | 100      |
| Total                            | 20        | 20       | 20       | 20       | 20       | 20      | 100      |

**Supplementary Figure 19.** Canonical score plot of the qualitative assay for Glc.
Results of Quantitative Analysis
Supplementary Figure 20 SVM regression results used for quantitative analyses of Fru and Glc mixtures. The values of the root-mean-square errors of calibration (RMSEC) and prediction (RMSEP) (shown as insets) attest to the high accuracies of the model and its predictive capacity.