

Aggregating Compounds

Creoptix™ WAVE



Summary

Aggregating compounds are a big issue in molecular screenings on label-free microfluidic-based devices as they give false-positive signals and because they can clog the microfluidics and therefore require maintenance intervention. Here we show that compound aggregation is detected in the Creoptix™ WAVE system as detergent-sensitive false-positive signal. Thanks to its innovative robust and disposable microfluidics, the Creoptix™ WAVE system however provides high tolerance against aggregates so that instrument performance is not affected by the injection of aggregating compounds.

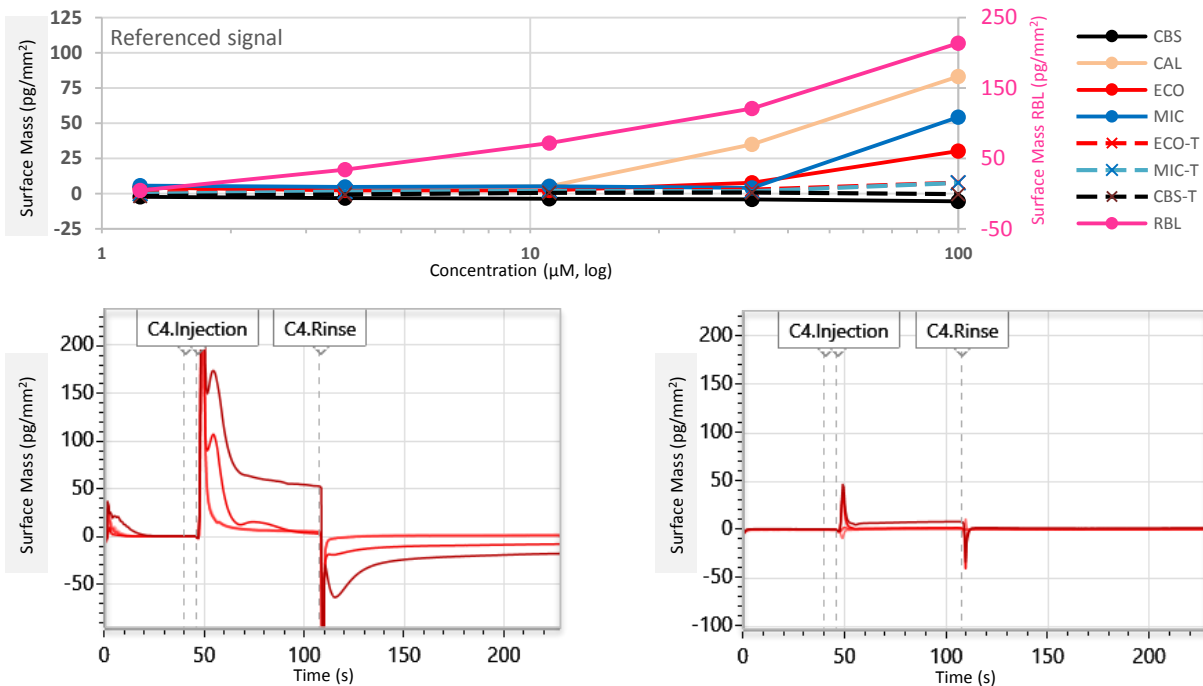


Figure 1: Detergent-dependent unspecific binding of aggregating compounds detected by the Creoptix™ WAVE. Top) Response at equilibrium (or end of injection) for the non-aggregating compound 4-Carboxybenzenesulfonamide (CBS) and the aggregating compounds Calcon (CAL), Econazole (ECO), Miconazole (MIC) and Rose Bengal Lactone (RBL), without (full line) and with Triton X100 (dashed line, -T). Note the disproportionately high increase in signal above each compound's Critical Aggregating Concentration (CAC). Bottom) Representative sensorgram obtained with the aggregating compound Miconazole without (left) and in the presence of 0.1% Triton X100 (right) at 100µM, 33µM and 11µM

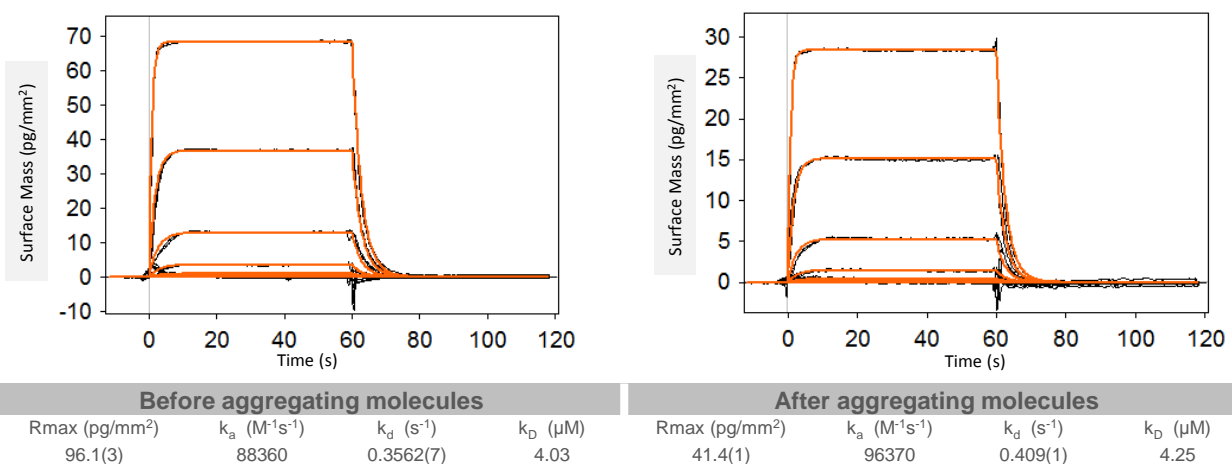


Figure 2: No clogging by aggregating compounds of the Creoptix™ WAVE: Injection of aggregating compounds above their CAC did not affect the capability of the Creoptix™ WAVE to measure kinetics, as before (left) and after (right) the injection of several aggregating compounds above CAC the interaction (ligand: 34mer ssDNA biotinylated, analyte: 7mer ssDNA) could be precisely measured.