Supplementary material:

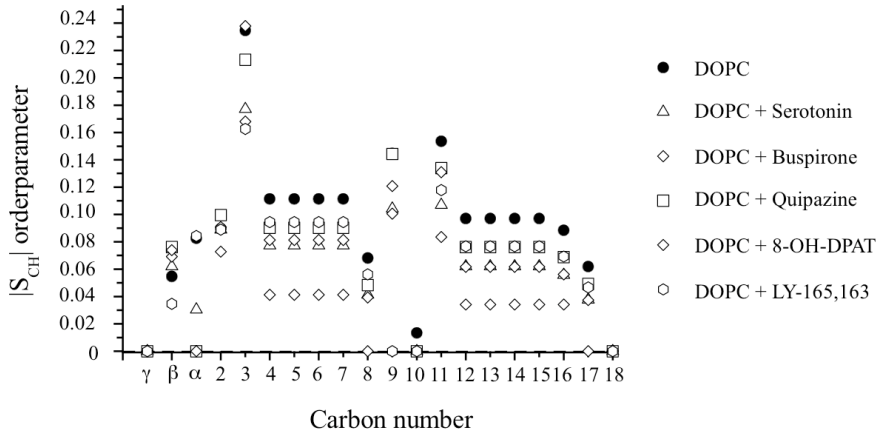

Figure S1: Lipid order parameters as determined by measuring ^{1}H-^{13}C dipolar couplings using 2D dipolar recoupling on-axis with scaling and shape preservation (DROSS) experiments (14). ^{1}H-^{13}C dipolar couplings were extracted from the dipolar splittings directly from the spectrum. The splittings were converted to segmental order parameters as described by Warschawski & Devaux (15). It should be noted that the order parameters derived from ^{2}H NMR experiments are systematically larger than those from DROSS measurements (15).

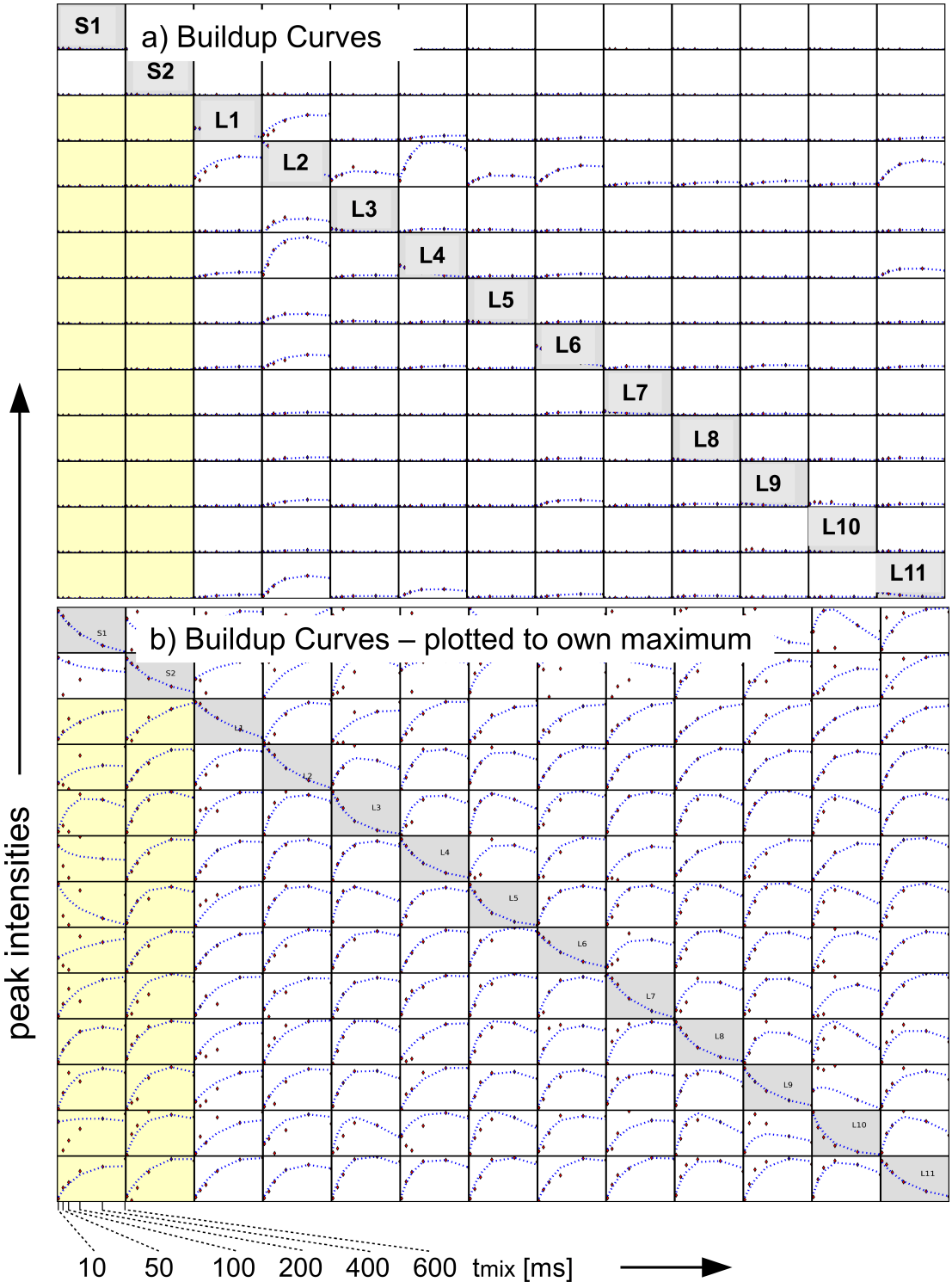

Figure S2: Representative snapshot of the experimental build up curves (red dots) for serotonin and DOPC lipid NOESY cross peaks. Calculated buildups (blue line) were calculated with the relaxation matrix **R** (see text)which was obtained by data analysis, using the full matrix approach. S1 and S2 represent the serontonin resonances as defined in figure 1. L1 to L11 are the lipid resonances in chemical shift order. Shown are a) peak intensities plotted in true ratio to one another, and b) each graph plotted to its maximum peak intensity.