Electronic Supplementary Material (ESI) for RSC Advances.

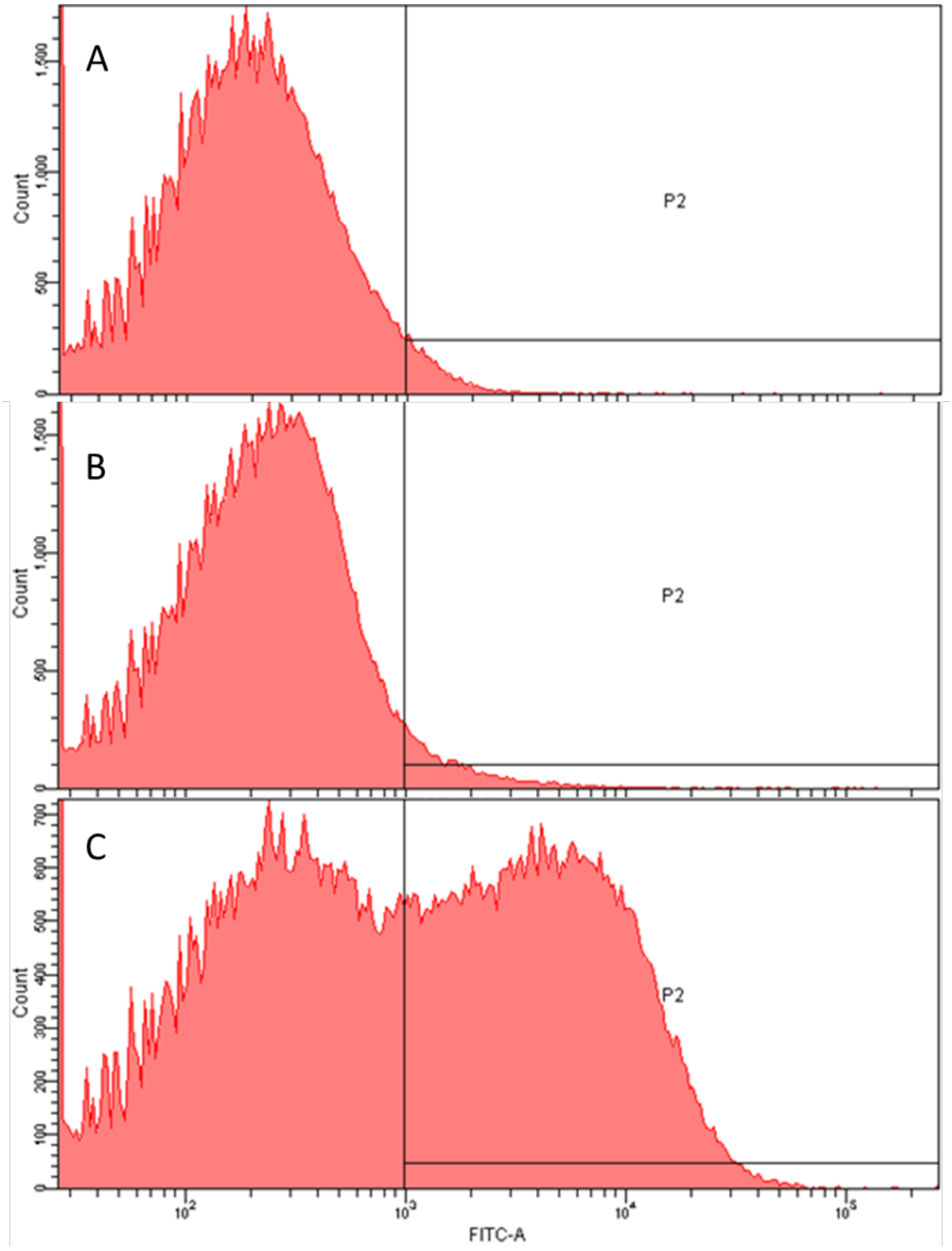

Figure S1: Histogram for M37L (B) and CalB (C) YSD biocatalyst before codon optimization of M37L. Fractions of population in P2 are 4% in B and 48% in C. For comparison, fraction in P2 for A (untransformed EBY100) is 3%. Cells were labeled as described in text, but with an Alexa 488-conjugated secondary antibody. Cells were analyzed on a BD FACS-Aria cytometer and data were collected with manufacturer's software.

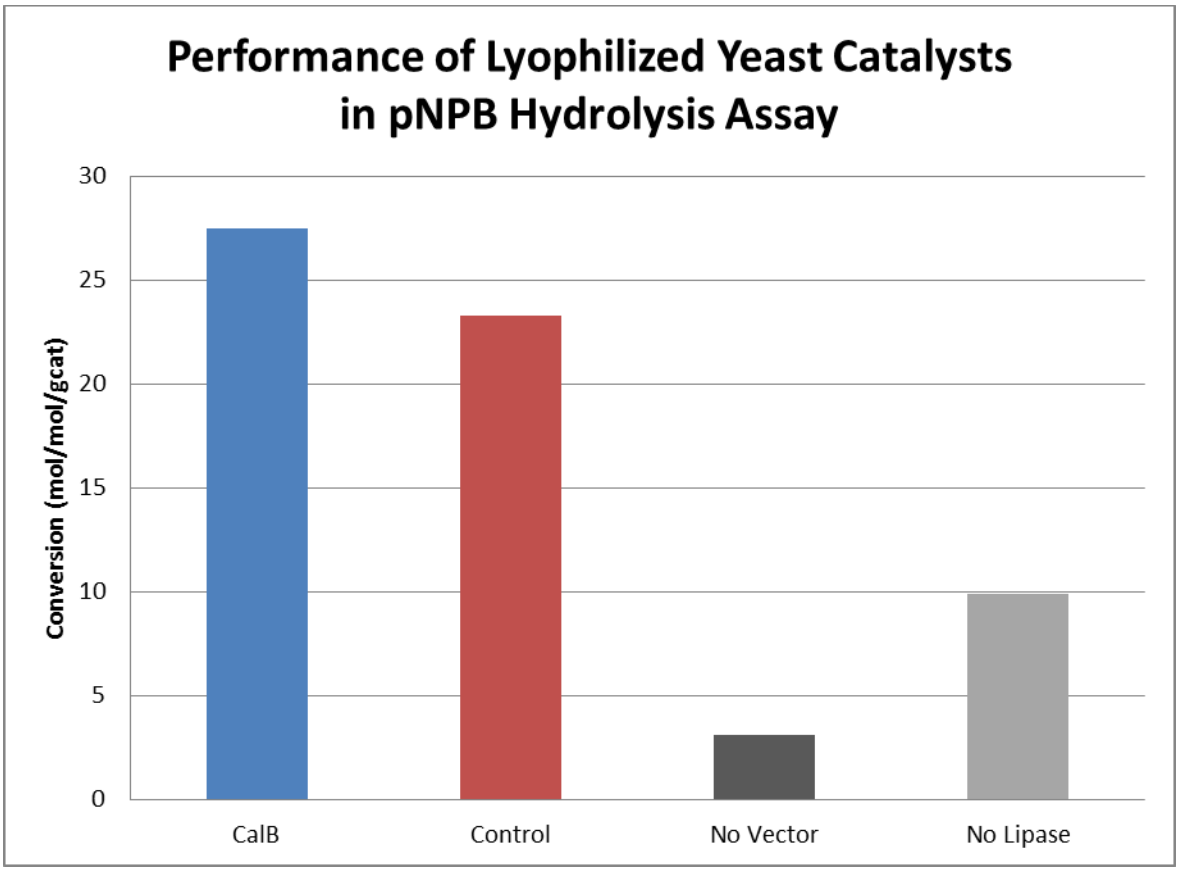

Figure S2: Performance of biocatalyst in hydrolysis assay at 30 °C. Control is Novozym 435 immobilized on macroporous acrylic resin. No Vector control is untransformed EBY100. No Lipase control is EGFP. Due to limited amounts of sample, values represent single measurements.

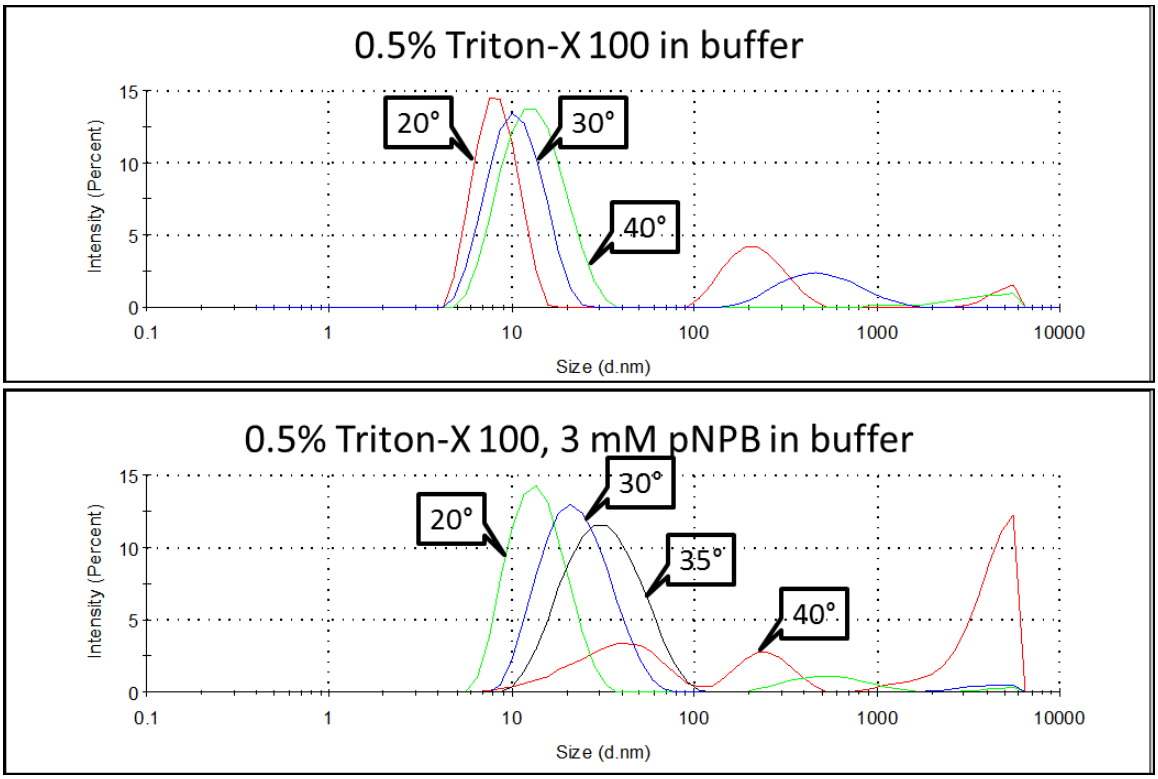

Figure S3: Size distribution intensity plots from dynamic light scattering experiments showing the micelle size changes and disruption in the pNPB assay with increasing temperature. Data were collected in triplicate on a Malvern Instruments Zetasizer Nano.

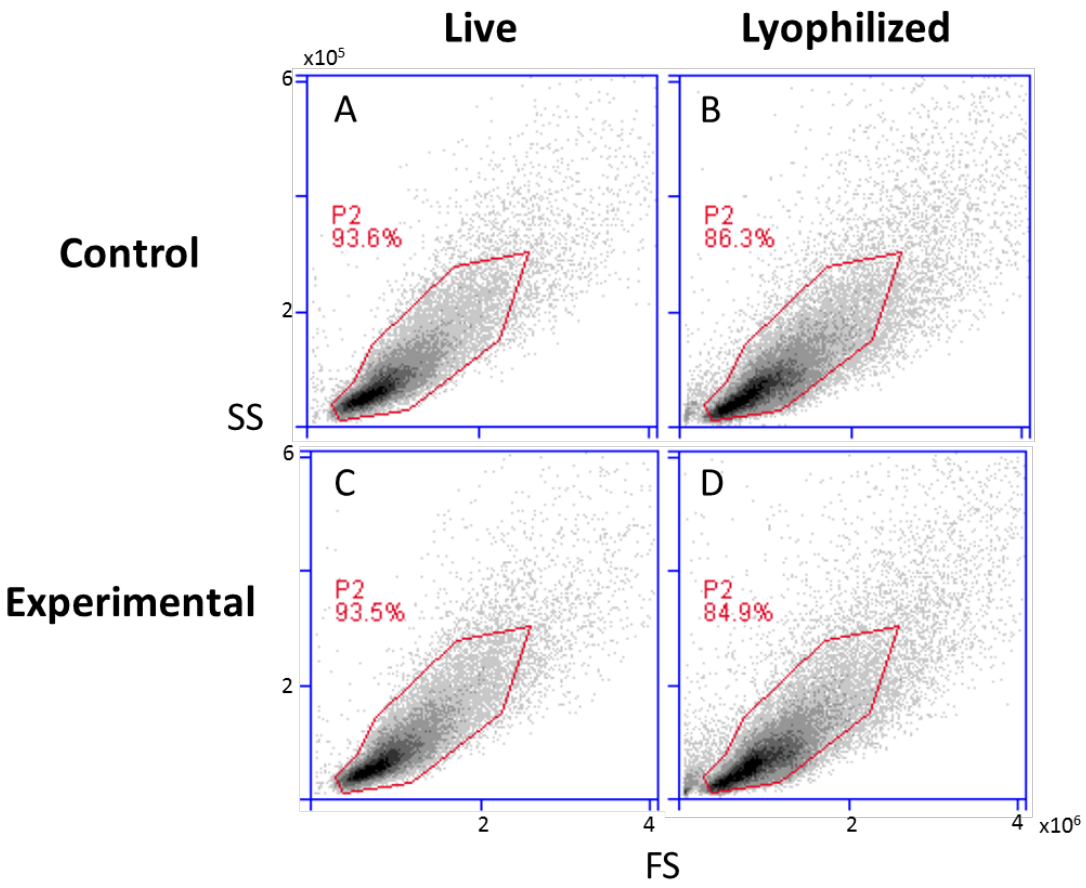

Figure S4: Comparison of live and lyophilized YSD biocatalyst displaying ycM37L, SSvFS plots. Plots correspond to histograms in Figure S5.

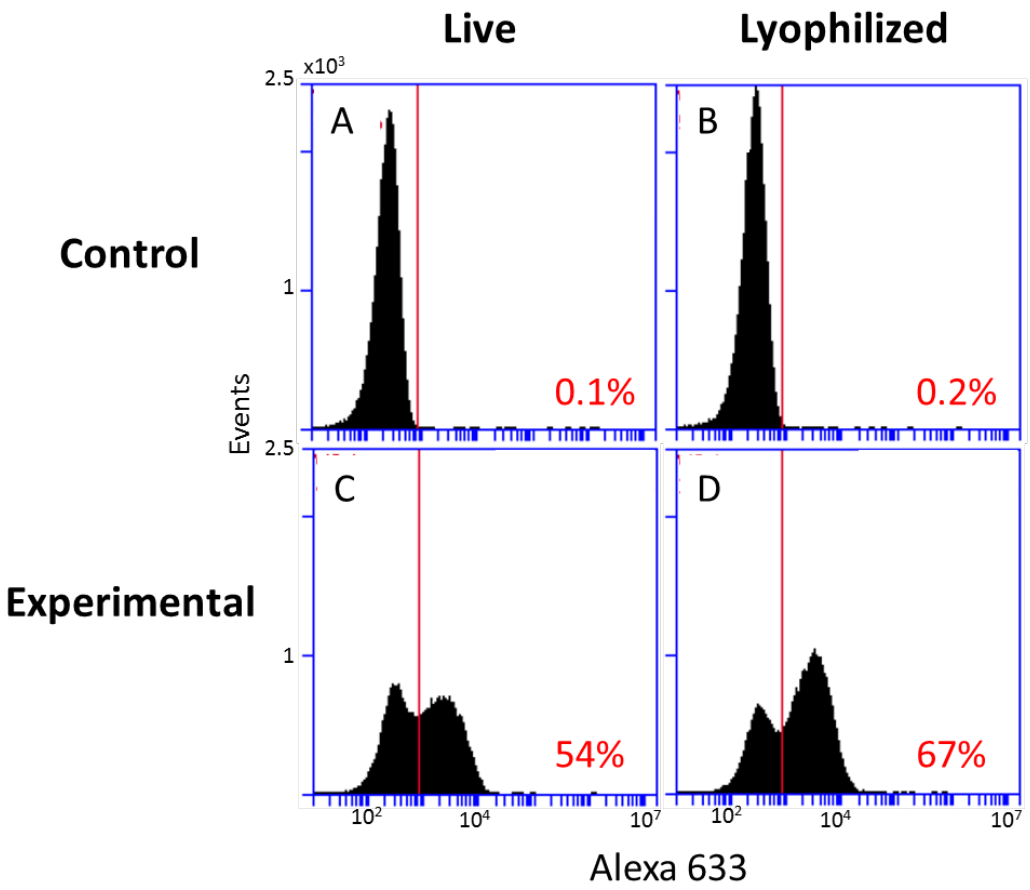

Figure S5: Histograms comparing live and lyophilized YSD biocatalyst displaying ycM37L. Note that the total fraction of the population expressing the fusion is the product of the corresponding percentage in a plot from Figure S4 and S5, and that the lyophilized total is slightly higher. The difference is probably due to a combination of favorable lyophilization conditions and losses in the live cells, which were in storage at 4 °C during the lyophilization cycle.