

## Supplementary Material

Quality control by spectroscopic ellipsometry was performed using a Wollam M2000V spectroscopic ellipsometer at a fixed incident angle of  $70^\circ$ . The data was fitted using the Woolam Complete EASE software package using a constrained model where the native oxide layer thickness was fixed after the initial measurement and the surface film was constrained to a Cauchy model. For the samples used in the neutron experiment the average thickness for the final grafted films was measured to be  $23.1\text{\AA}$ . This data is shown in figure S1.

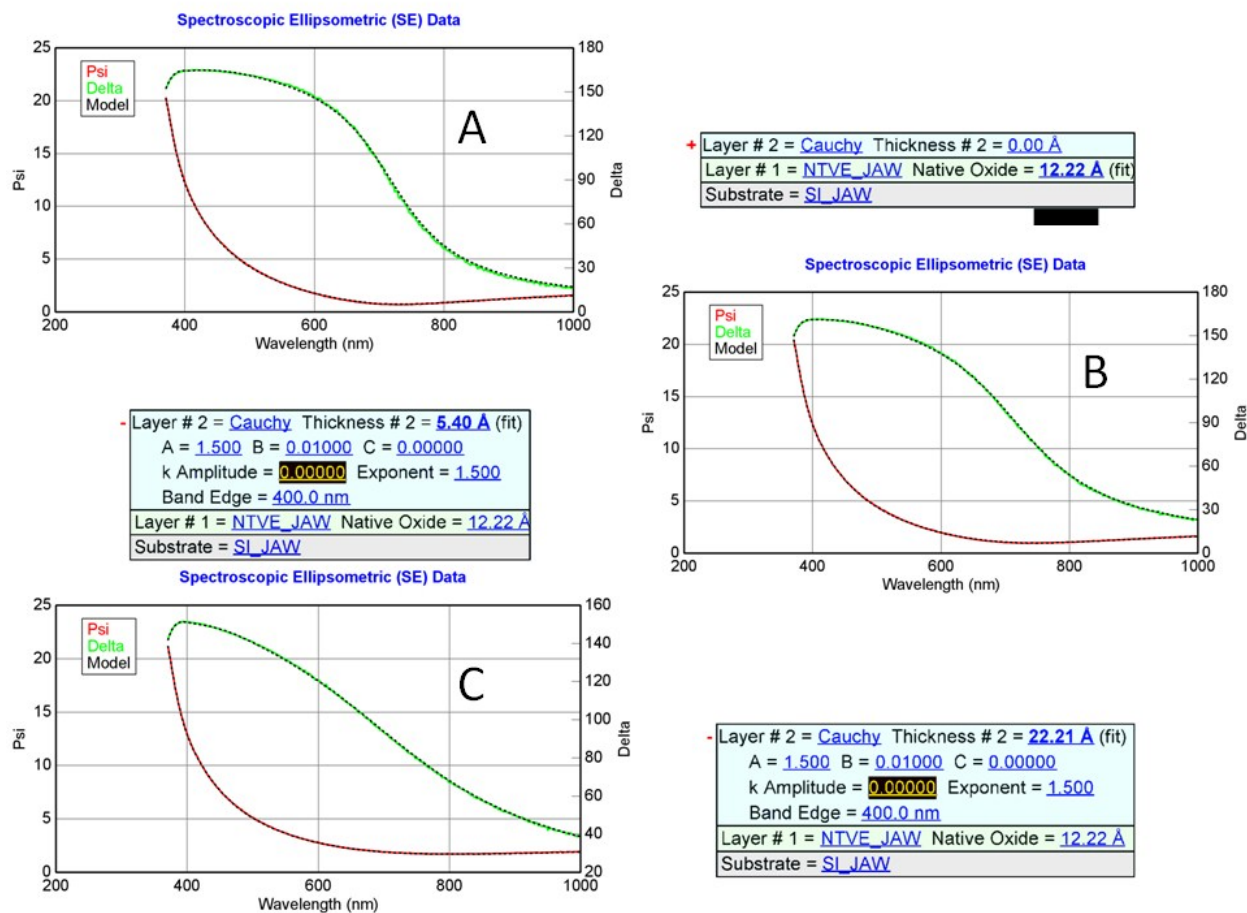


Figure S5: Spectroscopic ellipsometry data for preparation and quality control of A) the initial silicon block, B) 1-(trimethoxysilyl)-propylacrylate silane SAM on Si block, and C) final grafted lipid film after polymerisation and washing with chloroform.

## Small angle x-ray scattering (SAXS)

SAXS data was collected at beamline B21 at the Diamond light source, the solution scattering was measured using the automated sampling system available at B21, this system fills a cuvette, collects the data and then automatically cleans the cuvette prior to the next solution. The solutions were made in the same way as the for the NR experiments insulin at 1 mg/ml with 50

mM glycine buffer acidified to pH 2.3 using concentrated hydrochloric acid. The data for the samples is presented in figure SI 2 for the 0 M, Gdn.HCL. A Guinier fit was used to extract the radius of gyration of Insulin, this gave a value of 11.7 Å, sadly this was only possible for the 0 M dataset, as the change in electron density upon the addition of Gdn.HCl reduces the overall contrast in the system. This result is close to the value of an Insulin monomer (Insulin dimer 14.9 Å and monomer 11.6 Å)

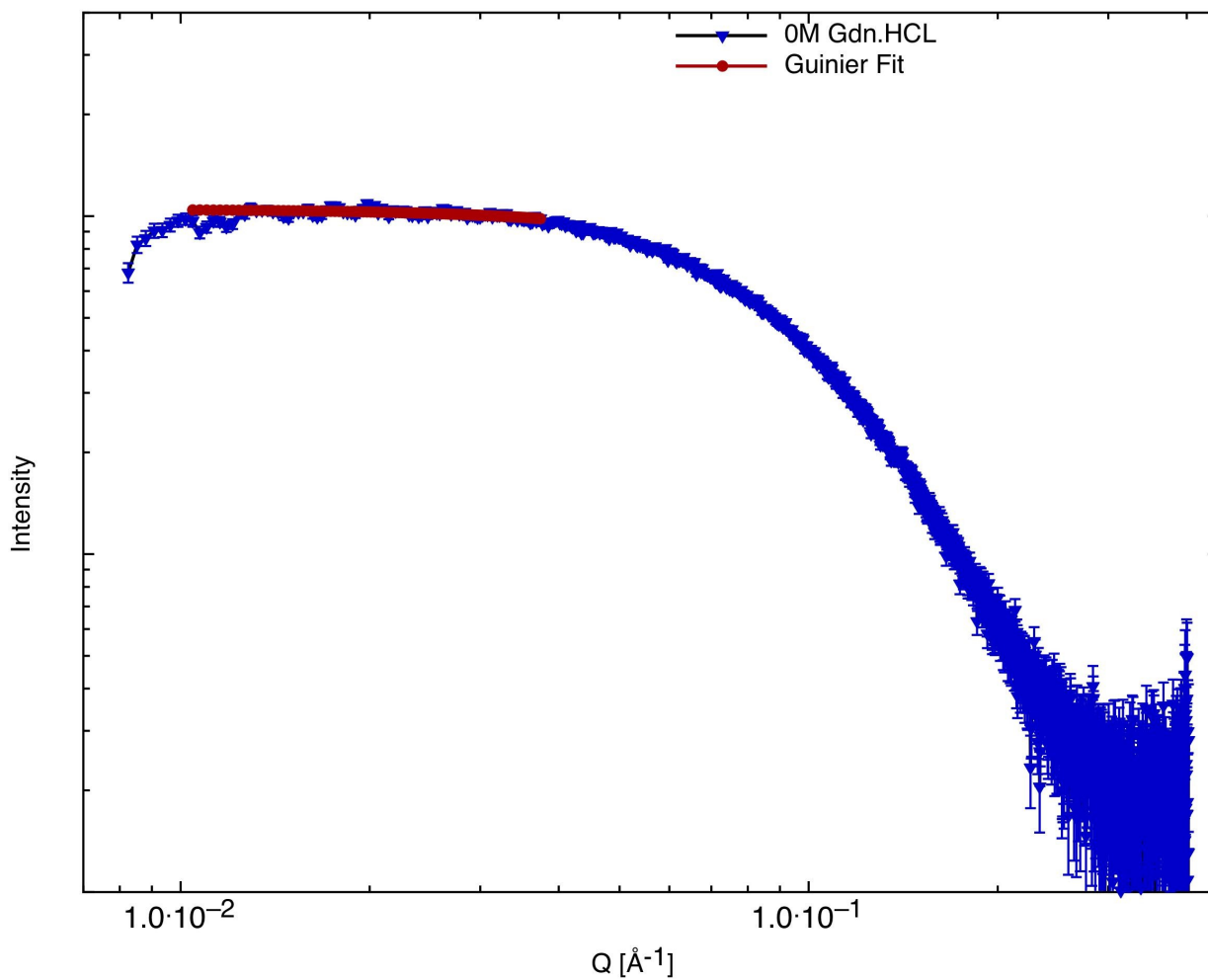


Figure SI 6. Solution SAXS scattering data for 1mg/ml insulin solutions at different Gdn.HCL concentrations.