Supplemental Information to "LCD-based detection of enzymatic action" by Johan Hoogboom, Kelly Velonia, Theo Rasing, Alan E. Rowan and Roeland J.M. Nolte

To a cooled amount of γ-aminopropyl-triethoxysilane (1.1 ml, 4.6 mmole) was added maleic anhydride (0.45 g, 4.6 mmole), after which **1** was formed in a vigorous reaction as a solid white product in quantitative yield. A solution of **1** (1.47 g, 4.6 mmole) in 10 ml of chloroform was added dropwise to a solution of benzyl alcohol (0.5 g, 4.6 mmole) and dicyclohexyl-carbodiimide (0.95 g, 4.6 mmole) in 20 ml of chloroform, containing a catalytic amount of N-N'-dimethylaminopyridine. After stirring for 1 hr, the mixture was filtered and the solvent removed under vacuum. Repeated recrystallisations from hexane yielded compound **2** as a white solid in a yield of 62%.

1: ^{1}H-NMR (300 MHz, CDCl$_3$, 20°C, TMS): δ = 8.34 (br, 1H, O*H*), 6.46 (d, J = 12.9 Hz, 1H, HN(CO)C*H*), 6.26 (d, J = 12.8 Hz, 1H, *H*CCOOH), 3.78 (q, J = 7.1 Hz, 6H, OC*H*$_2$CH$_3$), 3.33 (m, 2H, HNC*H*$_2$), 1.70 (m, 2H, CH$_2$-C*H*$_2$-CH$_2$), 1.19 (t, J = 7.1 Hz, 9H, C*H*$_3$), 0.63 (m, 2H, Si-C*H*$_2$).

^{13}C{1H}-NMR (50 MHz, CDCl$_3$, 20°C, TMS): δ = 167.2 (s, 1C, *C*OOH), 166.7 (s, 1C, (*C*O)NH), 136 (s, 1C, HN(CO)*C*H), 133 (s, 1C, H*C*COOH), 59 (s, 3C, O*C*H$_2$CH$_3$), 43 (s, 1C, HN*C*H$_2$), 23 (s, 1C, CH$_2$-*C*H$_2$-CH$_2$), 19 (s, 3C, *C*H$_3$), 8 (s, 1C, Si-*C*H$_2$).

IR (KBr): ν (cm^{-1}) = 3319(NH), 3059 (OH), 1753 (COOH-stretch), 1662 (Amide-I), 1535 (Amide-II).

2: ^{1}H-NMR (300 MHz, CDCl$_3$, 20°C, TMS): δ = 7.82-7.76 (m, 2H, *m*-Ph-*H*), 7.21-7.12 (m, 2H, *o*-Ph-*H*), 6.72 (m, 1H, *p*-Ph-*H*), 6.52 (d, J = 12.9 Hz, 1H, HN(CO)C*H*), 6.36 (d, J = 12.8 Hz, 1H, *H*CCOCH$_2$), 5.92 (br, 1H, N*H*), 5.18 (br, 2H, C*H*$_2$-Ph), 3.82 (q, J = 7.1 Hz, 6H, OC*H*$_2$CH$_3$), 3.39 (m, 2H, HNC*H*$_2$), 1.71 (m, 2H, CH$_2$-C*H*$_2$-CH$_2$), 1.19 (t, J = 7.1 Hz, 9H, C*H*$_3$), 0.63 (m, 2H, Si-C*H*$_2$).

^{13}C{1H}-NMR (75 MHz, CDCl$_3$, 20°C, TMS): δ = 168 (s, 1C, NH(*C*O)), 167 (s, 1C, (*C*O)CH$_2$), 139 (s, 1C, *ipso*-Ph-*C*), 138 (s, 1C, HN(CO)*C*H), 137 and 136 (s, 2C, Ph-*C*), 135 (s, 1C, H*C*COOH), 130 (s, 1C, Ph-*C*), 67 (s, 1C, *C*H$_2$-Ph), 58 (s, 3C, O*C*H$_2$CH$_3$), 46 (s, 1C, HN*C*H$_2$), 23 (s, 1C, CH$_2$-*C*H$_2$-CH$_2$), 20 (s, 3C, *C*H$_3$), 8 (s, 1C, Si-*C*H$_2$).

IR (KBr): ν (cm^{-1}) = 3325(NH), 1658 (Amide-I), 1542 (Amide-II).

Due to the oligomerization of **1** and **2**, no elemental analysis could be obtained.
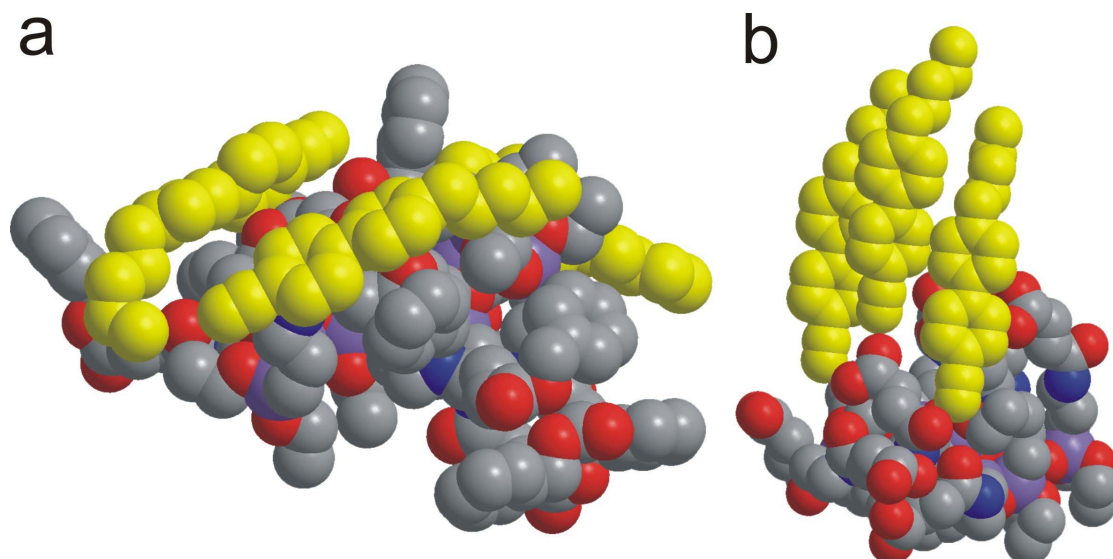
Figure S1: Schematic representation of a minimum-energy conformation of the alignment layer and mesogen. a) Before hydrolysis. b) After hydrolysis. Shown is a pentamer of the siloxane in interaction with 3 molecules of 5CB (yellow). Minimum energy structures were obtained by at least three cycles of molecular dynamics-energy minimisation at the MM2 level, followed by an energy minimisation at the PM3 level. (Chem3D Ultra 9.0, ©Cambridgesoft 2004)