Electronic Supplementary Material (ESI) for Soft Matter.

Supplementary Information

Effect of Gelation on the Frank elastic constants in a liquid crystalline mixture exhibiting twist bend nematic phase

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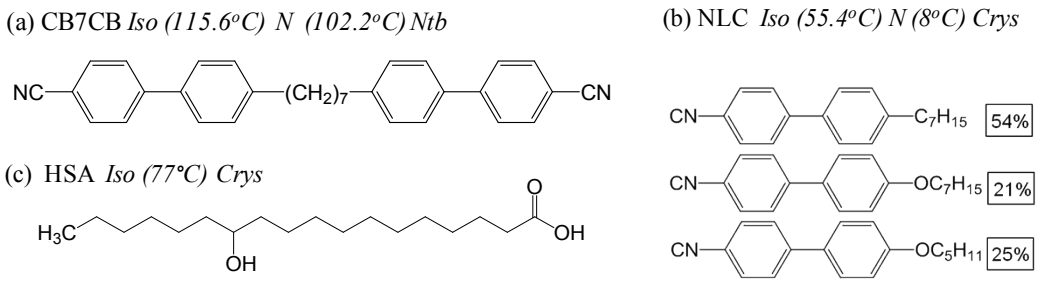

Figure S1: *Chemical structures and phase transition temperatures of the components of NTB-P and NTB-G mixtures, (a) CB7CB, (b) NLC and (c) HSA*

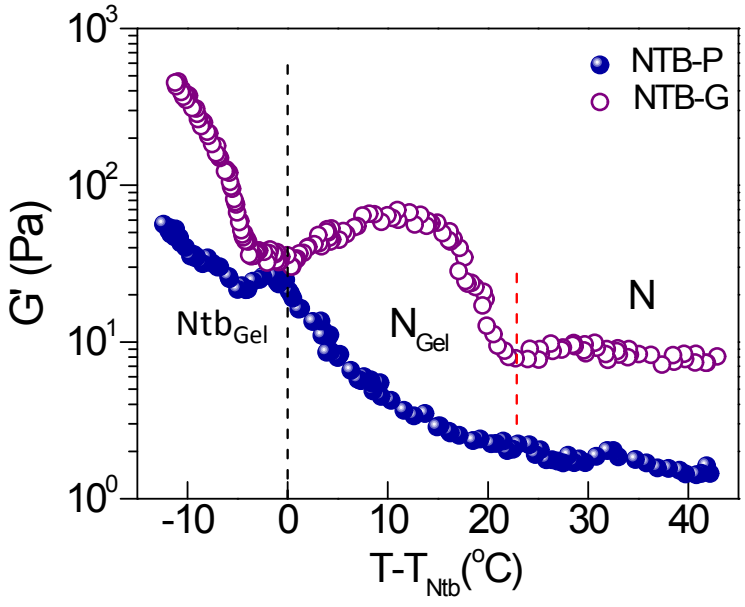

Figure S2: *Temperature dependence of the storage modulus, G' of the NTB-P and NTB-G systems. The y-axis is in log scale. The vertical red dotted line demarcates the N (sol) phase from the N_{Gel} in the NTB-G mixture.*

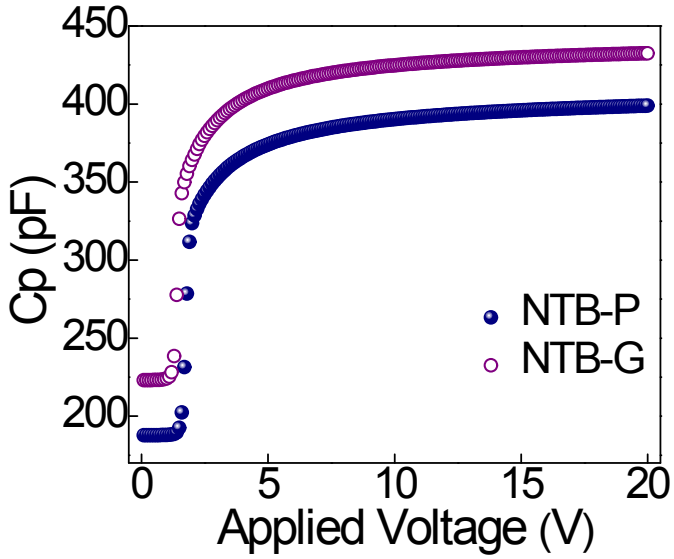

Figure S3: *Voltage dependence of capacitance of the (a) NTB-P and (b) NTB-G systems at a reduced temperature* $T\text{-}T_{Ntb}$ *= 10 °C*

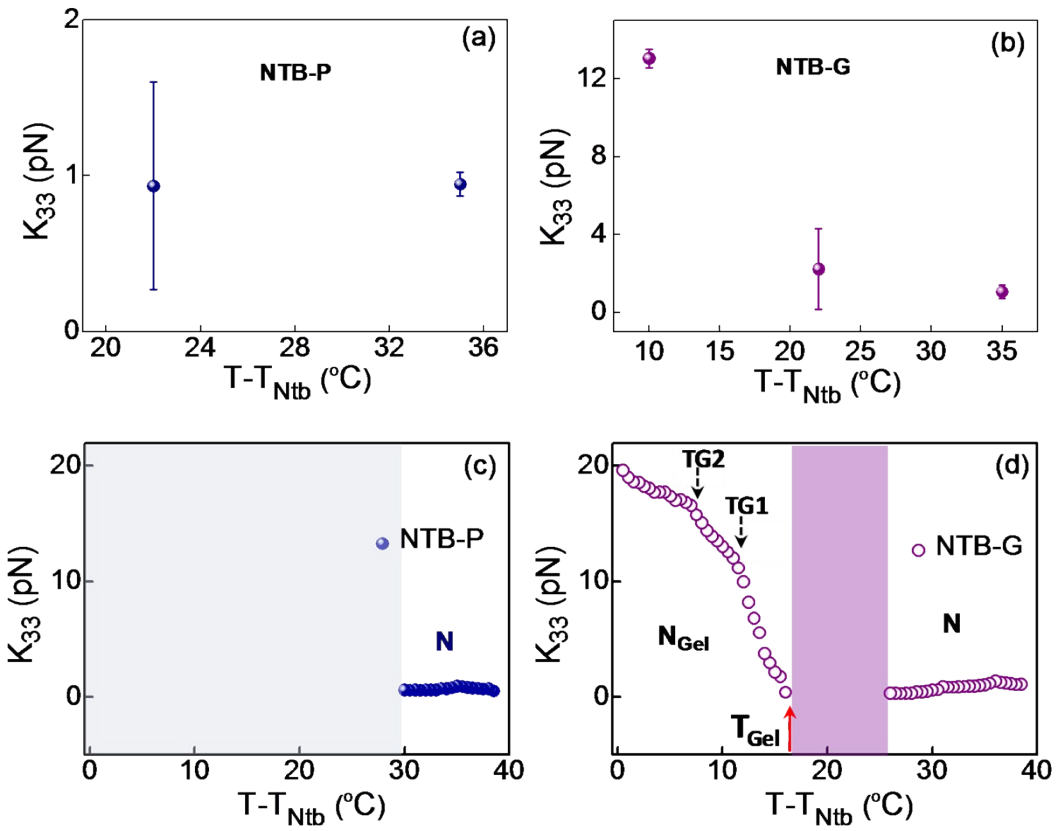

Figure S4: *The K_{33} value obtained at a few representative temperatures of the (a) NTB-P and (b) NTB-G systems with the corresponding error limits. For the temperature $T-T_{Ntb}$= 35 °C of NTB-G, the error bar is within the size of data symbol. Thermal dependence of K_{33} of the (c) NTB-P and (d) NTB-G mixture.The grey and purple shaded rectangles indicate the thermal regime wherein K_{33} cannot be determined reliably for the NTB-P and NTB-G mixtures respectively. The vertical red arrow in (d) demarcates the N (sol) phase from the N_{Gel} in the NTB-G mixture.*

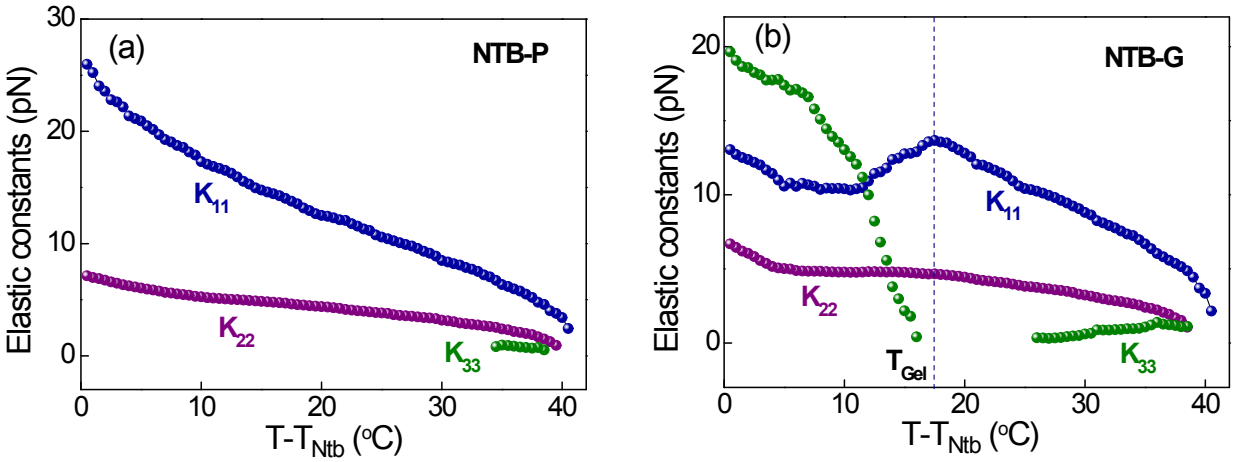

Figure S5: *Comparison of the thermal dependence of all the three Frank elastic constants for the (a) NTB-P and (b) NTB-G mixtures.*

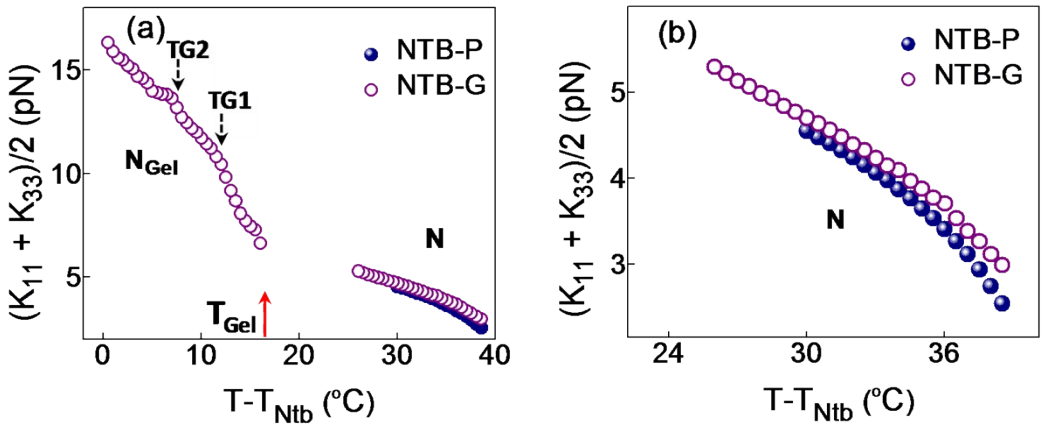

Figure S6: *Thermal dependence of the average elastic constant, $(K_{11} + K_{33})/2$ for the NTB-P and NTB-G mixtures (a) in the entire thermal range and (b) expanded view of the profiles in the nematic phase. The vertical red arrow in (a) demarcates the N (sol) phase from the N_{Gel} in the NTB-G mixture.*

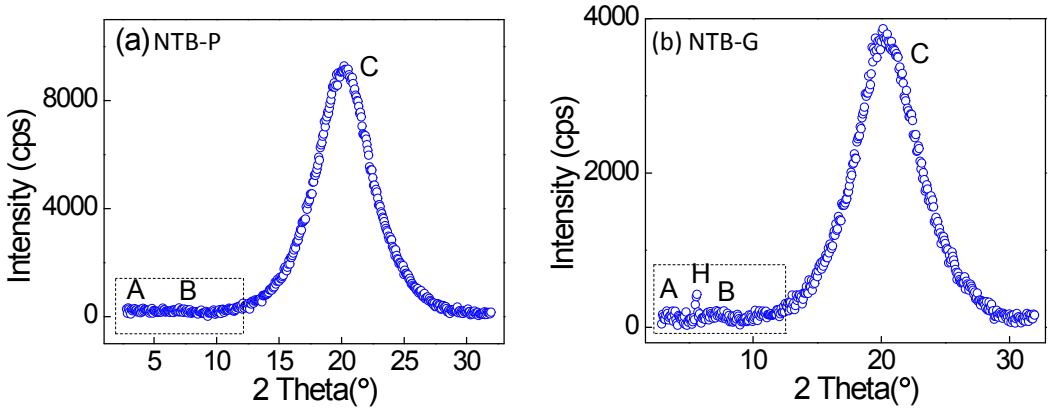

Figure S7: *XRD profiles of (a) NTB-P and (b) NTB-G mixtures exhibiting the low angle peaks (shown inside the dotted rectangle) 'A', 'B' along with the HSA peak 'H' and the wide-angle peak 'C'*