

Supporting Information

Study of the Interaction of Folic Acid-modified Gold Nanorods and Fibrinogen through Microfluidics: Implications on Protein Adsorption, Incorporation and Viability of Cancer Cells

Nacaroha Orellana,^a Sujei Palma,^{a,b,d} Estefania Torres,^a María Luisa Cordero,^c Valentina Vio,^{b,d} Juan M. Ruso,^e Josué Juárez,^f Antonio Topete,^g Eyleen Araya,^h Rodrigo Vasquez-Contreras,^{b,d,h} Marcelo J. Kogan,^{b,d} and Natalia Hassan^{a,d*}*

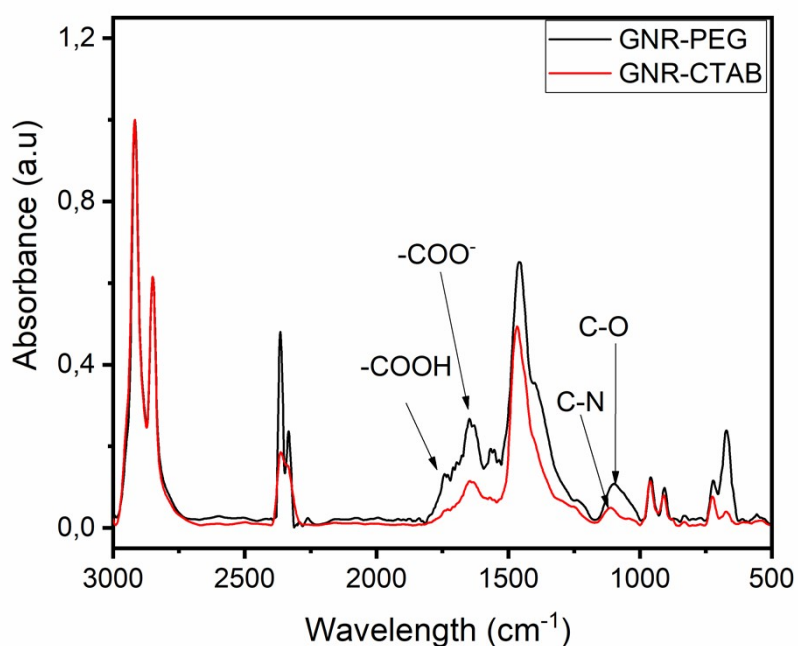


Figure S-1: FTIR spectra of functionalization of GNR-CTAB with SH-PEG-COOH and SH-PEG-OMe.

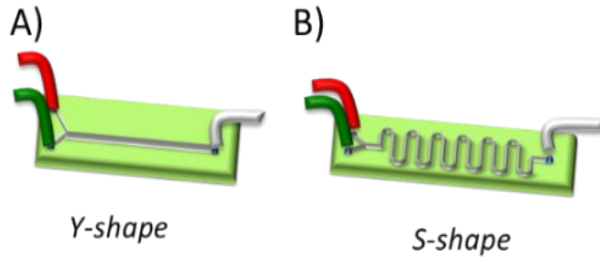


Figure S-2. Microchips in their different conformations. Y-shape, B) S-shape.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 7,031	Peak 1: 1,435	51,3	0,4332
Pdl: 0,407	Peak 2: 39,76	48,7	16,18
Intercept: 0,650	Peak 3: 0,000	0,0	0,000
Result quality : Refer to quality report			

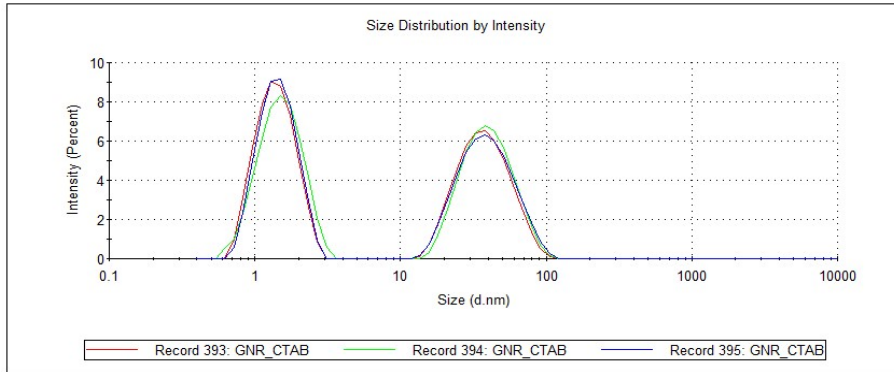


Figure S-3: Hydrodynamic diameters of GNR-CTAB.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 8,148	Peak 1: 3,579	54,1	0,9913
Pdl: 0,415	Peak 2: 59,47	45,9	23,14
Intercept: 0,710	Peak 3: 0,000	0,0	0,000
Result quality : Refer to quality report			

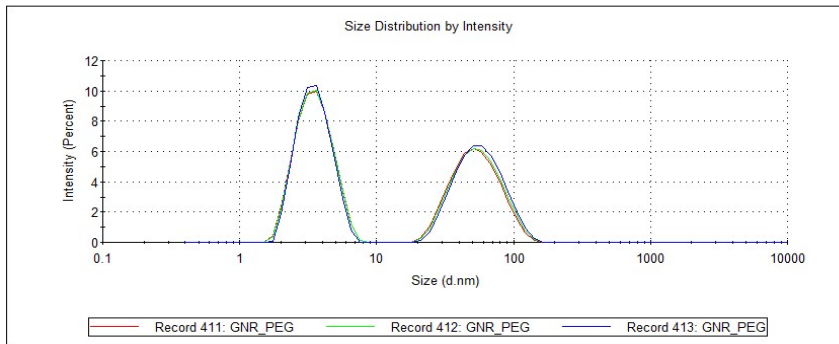


Figure S-4: Hydrodynamic diameters of GNR-PEG.

Z-Average (d.nm): 10,20 **Peak 1:** 74,46 **% Intensity:** 53,1 **St Dev (d.nm):** 35,10
Pdl: 0,508 **Peak 2:** 3,437 46,9 0,9310
Intercept: 0,730 **Peak 3:** 0,000 0,0 0,000
Result quality : Refer to quality report

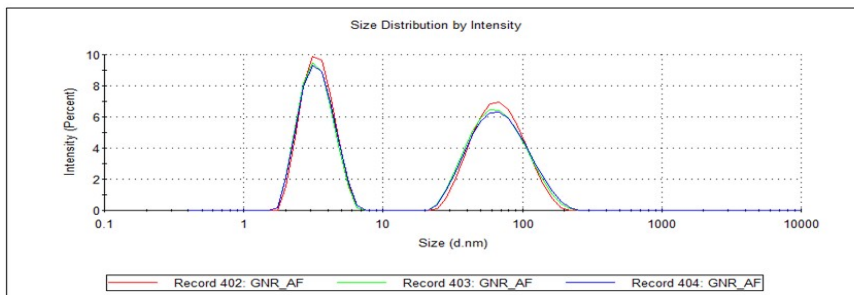


Figure S-5: Hydrodynamic diameters of GNR-PEG-FA.

Z-Average (d.nm): 9,398 **Peak 1:** 60,84 **% Intensity:** 52,2 **St Dev (d.nm):** 24,24
Pdl: 0,472 **Peak 2:** 3,297 47,8 0,8586
Intercept: 0,729 **Peak 3:** 0,000 0,0 0,000
Result quality : Refer to quality report

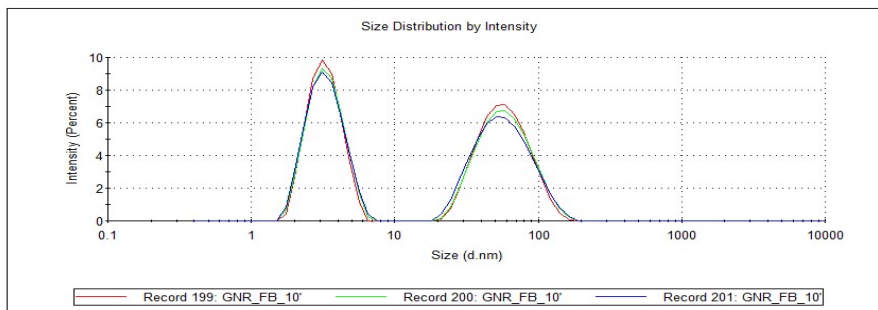


Figure S-6: Hydrodynamic diameters of GNR-FB-10'.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 10,58	Peak 1: 71,43	54,7	37,43
Pdl: 0,521	Peak 2: 3,387	45,3	1,032
Intercept: 0,733	Peak 3: 0,000	0,0	0,000

Result quality : Refer to quality report

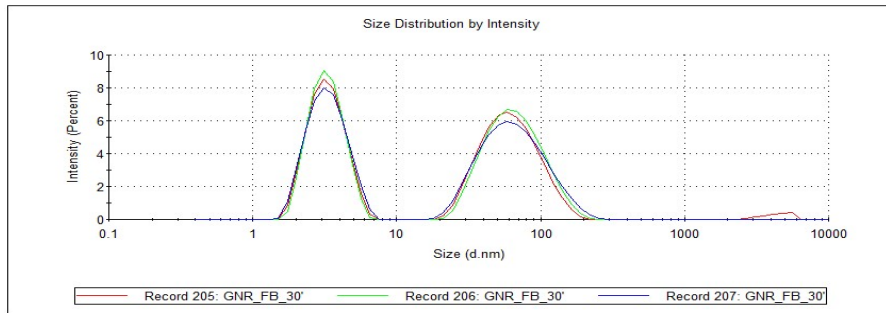


Figure S-7: Hydrodynamic diameters of GNR-FB-30'

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 14,77	Peak 1: 87,19	60,5	36,36
Pdl: 0,684	Peak 2: 3,845	37,6	1,096
Intercept: 0,713	Peak 3: 4629	1,9	815,1

Result quality : Refer to quality report

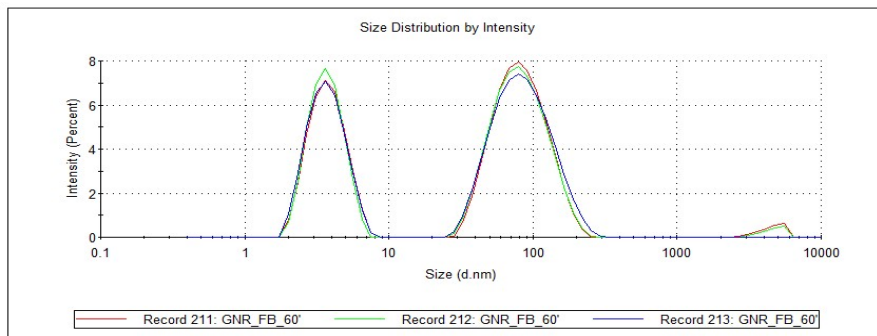


Figure S-8: Hydrodynamic diameters of GNR-FB-60'.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 8,459	Peak 1: 3,406	51,0	1,090
Pdl: 0,430	Peak 2: 56,97	49,0	25,36
Intercept: 0,727	Peak 3: 0,000	0,0	0,000

Result quality : Refer to quality report

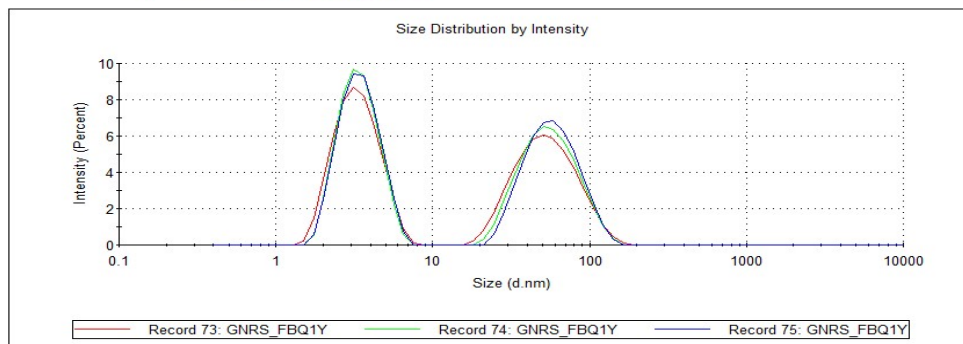
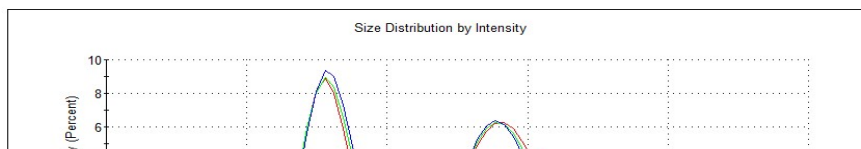


Figure S-9: Hydrodynamic diameters of GNR-FB Q₁Y

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 10,79	Peak 1: 74,66	54,4	36,19
Pdl: 0,519	Peak 2: 3,792	45,6	1,060
Intercept: 0,667	Peak 3: 0,000	0,0	0,000

Result quality : Refer to quality report



	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 13,06	Peak 1: 90,84	52,1	43,87
Pdl: 0,601	Peak 2: 4,596	44,0	1,246
Intercept: 0,725	Peak 3: 3869	3,9	1126

Result quality : Refer to quality report

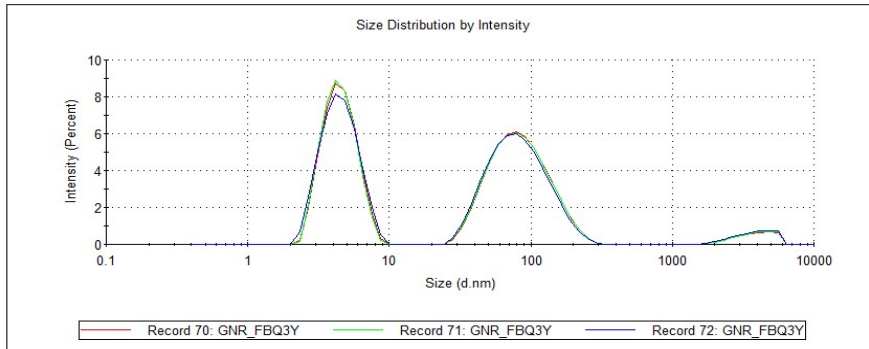


Figure S-11: Hydrodynamic diameters of GNR-FB Q₃Y

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 10,51	Peak 1: 77,09	49,7	40,68
Pdl: 0,495	Peak 2: 4,372	49,1	1,310
Intercept: 0,739	Peak 3: 4100	1,1	1046

Result quality : Refer to quality report

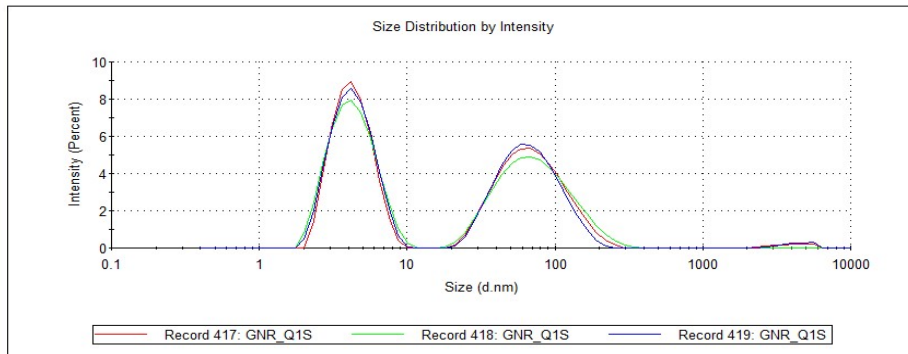


Figure S-12: Hydrodynamic diameters of GNR-FB Q₁S

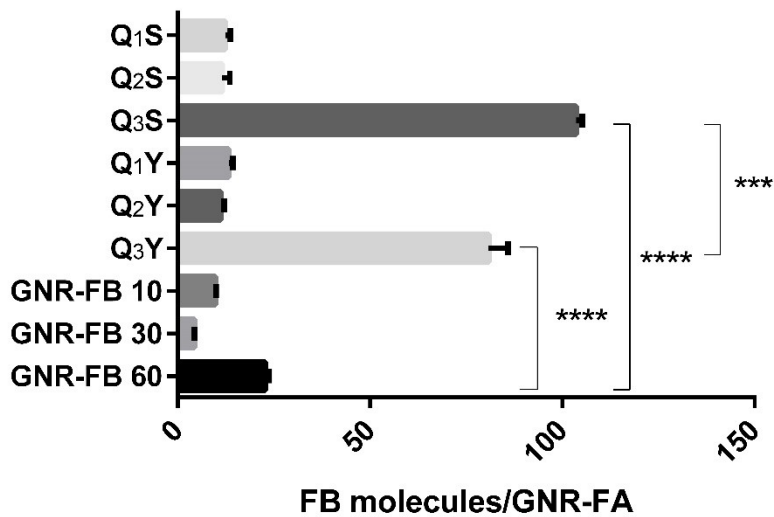


Figure S-13: Statistical analysis of FB molecules per GNR-FA obtained by TEM images analysis. ****p < 0.0001, ***p < 0.0003 related to the comparison of bulk 60', Q₃Y and Q₃S.

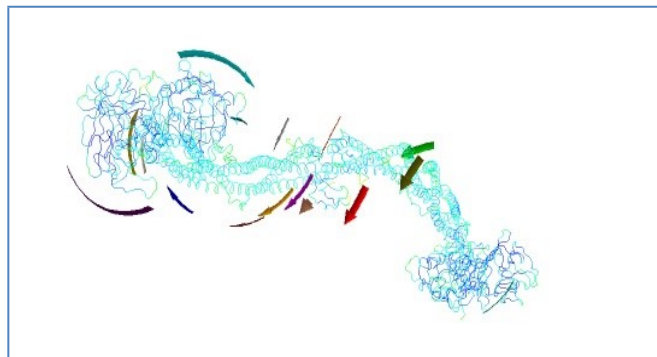


Figure S-14: Scheme of the movements (elasticity) of the fibrinogen based on the fluctuations size of the slowest vibration-modes of the protein. (The colored arrows indicate the fibrinogen movements directions).

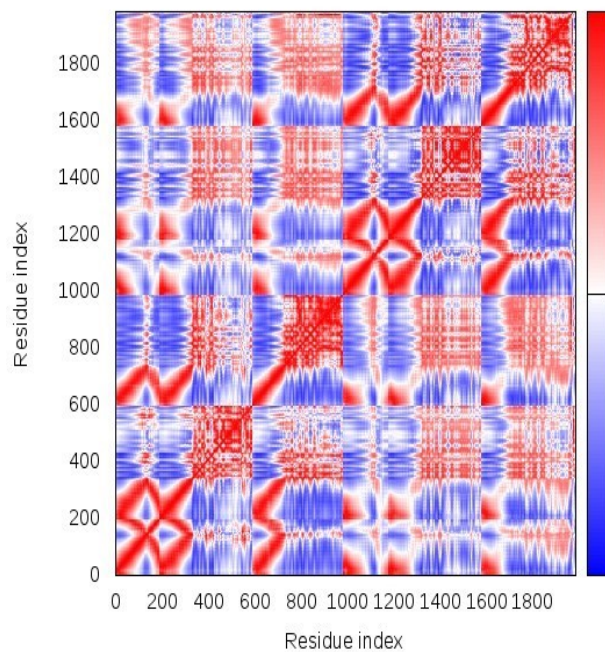


Figure S-15. Matrix cross-correlation maps of flexibility of chain N of FB showing the correlations between residue fluctuations which are plotted like a function of i vs j residue together with the corresponding flexibility perturbation in the 3D crystallographic chain (red positive correlation, blue negative correlation).

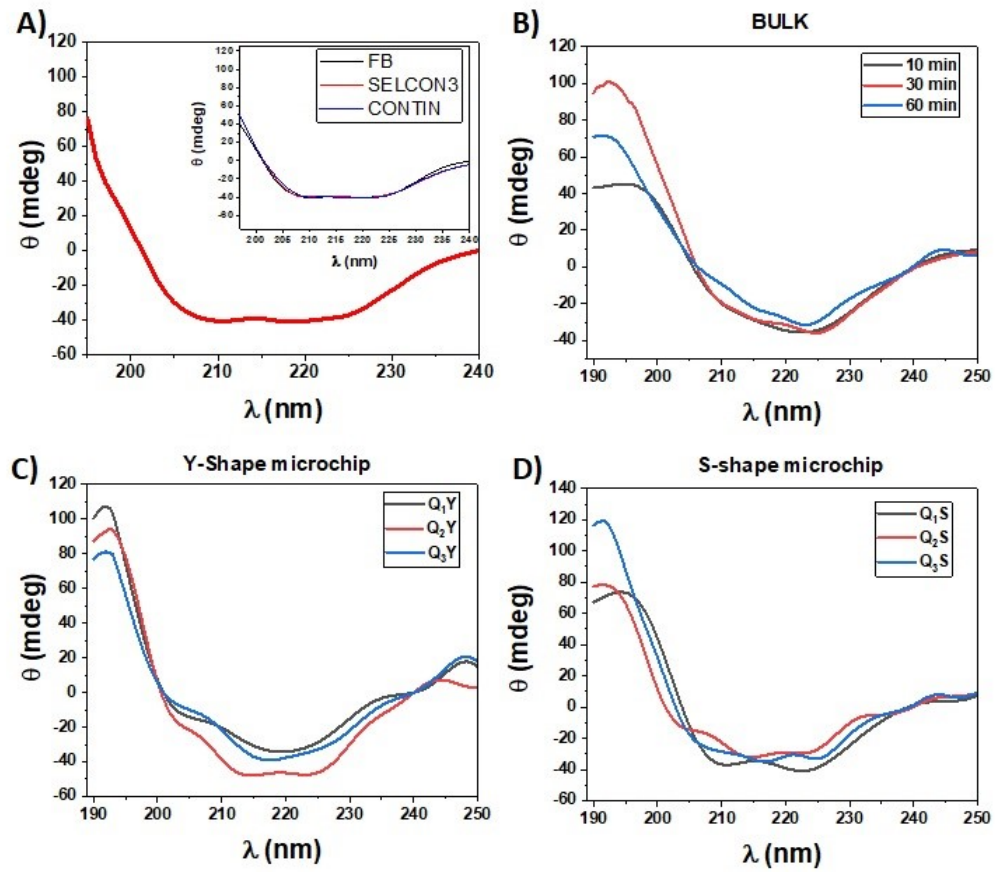


Figure S-16: Circular dichroism spectra of A) Fibrinogen, inset SELCON3 and CONTIN analysis. B) bulk experiments at 10, 30 and 60 min, C) Y-shape experiments, D) S-shape experiments.