This quiz is about protein-ligand binding. You study binding of ligand L to three proteins, A, B, and C at 25°C. You measured the concentration, [PL], of the ligand-bound form of each protein at various ligand concentrations. The data are summarized in the table below. The total protein concentrations are A: 3 μM, B: 2 μM, C: 1 μM.

Protein	A	B	C
$[L_{total}]$, μM	[PL], μM	[PL], μM	[PL], μM
10	0.115	0.572	0.167
25	0.601	1.000	0.333
40	1.171	1.231	0.444
60	1.771	1.412	0.546
100	2.403	1.603	0.667
200	2.824	1.777	0.802
500	2.971	1.905	0.909
1000	2.993	1.951	0.952

Using these data, answer the following questions. *Explain your assumptions*.

(**1**) Is the ligand binding to each protein cooperative or non-cooperative? If the binding is cooperative, determine the Hill coefficient. Briefly (in 1-2 sentences) *explain* how you came to these conclusions.

(**2**) Based on these data, estimate the K_d value for each protein. Briefly (in 1-2 sentences) *explain* how you did this.

(**3**) Determine the ΔG^o for each protein-ligand pair.

(**4**) Which of the three proteins has the lowest affinity for the ligand?