Data collection on integrin

Ligands and bilayer asymmetry influence the sequestering of integrin into rafts and suggest a role of lipid packing and bilayer thickness that characterize the liquid ordered (Lo) and liquid disordered (Ld) domains in integrin sequestering. For example, αVβ3 integrin is sequestered into Ld in the absence of ligands but into Lo upon binding to vitronectin. These integrin sequestration changes are dependent on the cholesterol concentrations. The cholesterol-mediated integrin sequestration is due to the bilayer thickness of coexisting Lo and Ld domains whereby cholesterol might regulate the distribution of αVβ3 integrin by altering the bilayer thickness and lipid packing densities of the Ld and Lo domains.

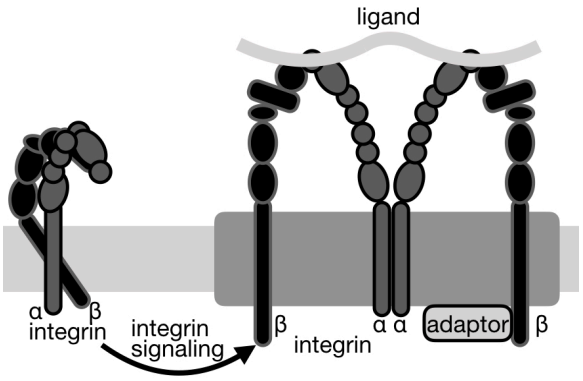

Fig. 1. The integrin activation state is linked to its conformation and to the local membrane order whereby the β integrin tilt (*left*) decreases upon activation (*right*) to separate the α and β integrin subunits and to accommodate the thicker microdomain. We also hypothesize that the hydrophobic mismatch generated by the thicker raft membrane drives oligomerization of α integrin akin to glycophorin A.

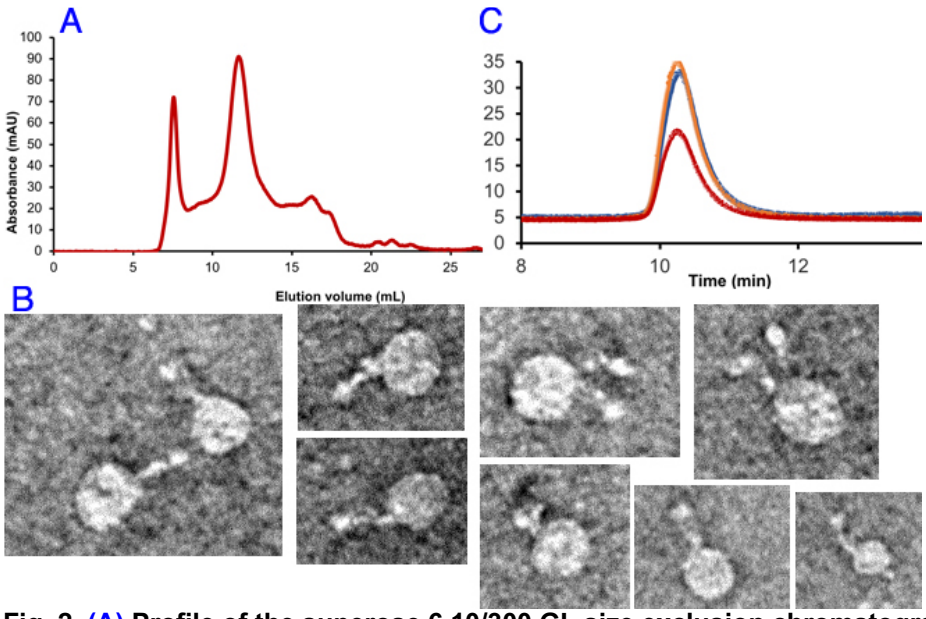

Fig. 2. (A) Profile of the superose 6 10/300 GL size exclusion chromatography for integrin embedded nanodiscs purification after reconstitution. The integrin embedded nanodiscs were eluted at 11.6 ml while empty nanodiscs eluted at 16.3 ml. The column was equilibrated with 50 mM Tris-Cl pH 7.5, 150 mM NaCl, and 0.5 Mm $CaCl_2$. **(B) negative stain assays to determine incorporation of integrin into nanodiscs.** The image was obtained on a FEI Tecnai transmission electron microscope and the sample was applied on carbon films on 400 mesh copper grids. **(C)** FSEC profile for the determination of nanodisc-embedded integrin activation. Integrin was three-fold less active in presence of the inhibitor eptifibatide (red) and higher in presence of the activator talin F3 domain (orange) when compared with the PAC1 antibody (blue) that binds to the already active integrin.