

Hydrophobicity

- 1) Why is the hydrophobic effect badly named?
- 2) Looking at Radzicka and Wolfenden (Biochem 1988 27 1664-1670)
 - 2a) Compare the free energy of transfer from cyclohexane (chx) to water and vapor to water (table II & Fig 6).
 - Which is more favorable?
 - How much more favorable (give me a range of differences for the different sidechains).
 - Why is there this difference in transfer energy (what interactions contribute)?
 - 2b) What is the free energy of transfer of Asp and of Leu from chx to water?
 - Given this free energy of transfer what would be the equilibrium constant for transfer be? (Tell me which table you get the numbers from)
- 3) Give an explanation for there being no loss in enthalpy but a very unfavorable entropy change when a hydrocarbon is transferred to water at 20 C.
- 4) Write a description of how the x (buried > accessible, kcal) and y (cyclohexan > water, kcal) axis information would be obtained to generate figure 4 in Radzicka and Wolfenden (Biochem 1988 27 1664-1670). What is the conclusion of the figure?