

Homework MNB MocBio Lecture 4 (Stowell)

1(10 pts) Starting with 1 micromole of T linked DNA synthesis resin. Calculate how many micromoles of a 60 mer oligonucleotide you could synthesize given each coupling step has a 97% efficiency. Assume that deprotection and cleavage are 100%.

$$1 \mu\text{mole} \times (0.97)^{59} = 0.166 \mu\text{mole}$$

2(10pts) Calculate the isoelectric points for conalbumin(ENTREZ CAA68468) and chicken ovalbumin(ENTREZ AAB59956) using the expasy HTML links (http://www.ebi.ac.uk/services/services_tree.html, <http://us.expasy.org/>, <http://www.ncbi.nih.gov/Tools/>). Based on this information what type of ion exchange column was used for the figure in slide 40?

The isoelectric point for conalbumin is 6.85 and for ovalbumin is 5.19. This means that ovalbumin is always more negatively charged than conalbumin. Since conalbumin elutes first from the column it binds less tightly and therefore this must be an ANION exchange column.