BMB 401: Junior IS Spring 2004
Writing Assignment #1

Due Date: Tuesday, January 27, 2004

Assignment Goals:

- to explore the structure, function, and regulation of a ligand-gated ion channel
- to provide you an opportunity to synthesize a concisely written, critical analysis of the structure-function relationship of a physiologically important protein

Requirements:

Your paper must describe the key structural features of calcium-gated potassium channels in relation to their function and regulation. In particular…

- How do potassium channels achieve exquisite selectivity for a larger ion, at rates approaching the limits of diffusion?
- How does calcium regulate opening of the potassium channel?

Cover page and two pages of text with references, using 1 inch margins, 12 point Times font, double-spaced.

You may reference textbooks, but you must include 3 citations from primary research literature using the following format. Specifically note that parenthetical citations directly follow each concept, and note the format of the cited references.

> Crystal structures of cytidine deaminase complexes with a substrate analogue (Xiang, 1996), a potential transition state analogue (Betts, 1994), and product uridine (Xiang, 1997) provide insight concerning the roles of active site residues during catalysis (Figure 1).
>
> References:
> Betts, L., Xiang, S., Short, S.A., Wolfenden, R., and Carter, C.W., Jr. (1994) *J. Mol. Biol.* ***235***, 635.
>
> Xiang, S., Short, S.A., Wolfenden, R., and Carter, C.W., Jr. (1996) *Biochemistry* ***35***, 1335.
>
> Xiang, S., Short, S.A., Wolfenden, R., and Carter, C.W., Jr. (1997) *Biochemistry* ***36,*** 4768.

A link to the references that we want you to include will be posted on the BMB 401 website: www. wooster.edu/biology/wmorgan/bmb401