

ANALYSIS AND MODELING OF CELL MECHANICS

Homework #3 (due 4/20/09)

This homework involves obtaining a scientific journal article about cell mechanical analysis and writing a one paragraph summary about it. You will use the PubMed search engine to find a suitable article:

<http://www.ncbi.nlm.nih.gov/sites/entrez>

There, type in the search menu "cell mechanics" and you will find over 4,500 articles. If you type in "cell biomechanics" you will find over 7,000 articles. Most are primary scientific articles but some are marked as "review" articles that summarize and highlight aspects of the field.

There is a large list to choose an article from so let's try to narrow our search down. If you search for "cell mechanics AND atomic force microscopy" and you will find a more reasonable list to choose from. Try combinations of "micropipette aspiration", "cell poking", "microneedle", "mechanical properties", "magnetic twisting cytometry", "magnetic beads", "optical tweezers", etc.

Please choose one article about a cell mechanical analysis study which is interesting to you and answer the following questions. Print and attach this article with your homework.

1. What was the hypothesis being tested in the article you chose?
2. How does the testing of this hypothesis advance our current understanding of cell function or physiology?
3. In general how was the experiment performed? What cell types were studied and what tissue and system do they form?
4. What biomechanical measurements were made? What biochemical measurements were made?
5. Briefly what were conclusions from this experiment?