

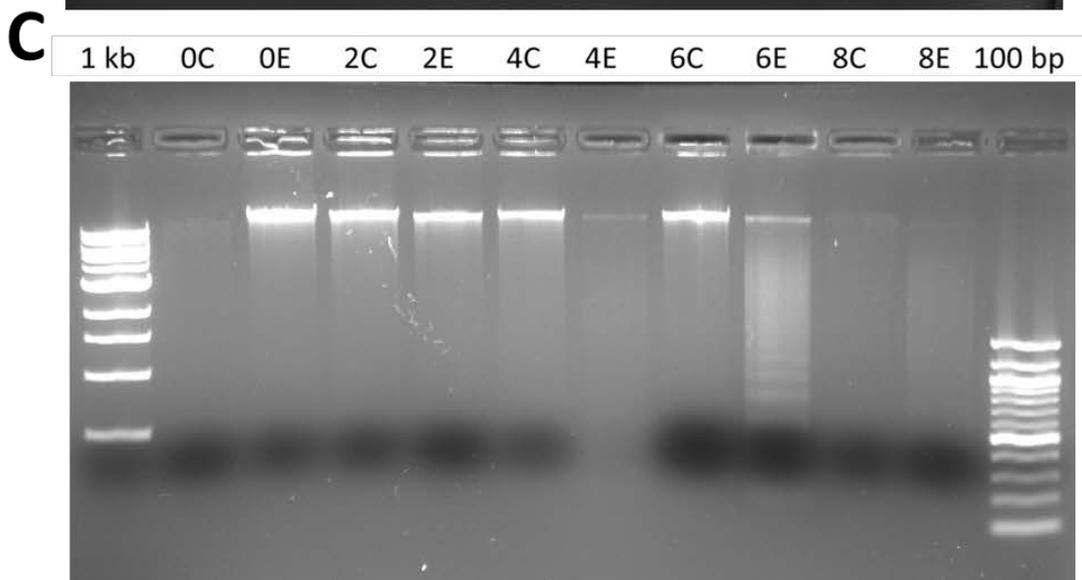
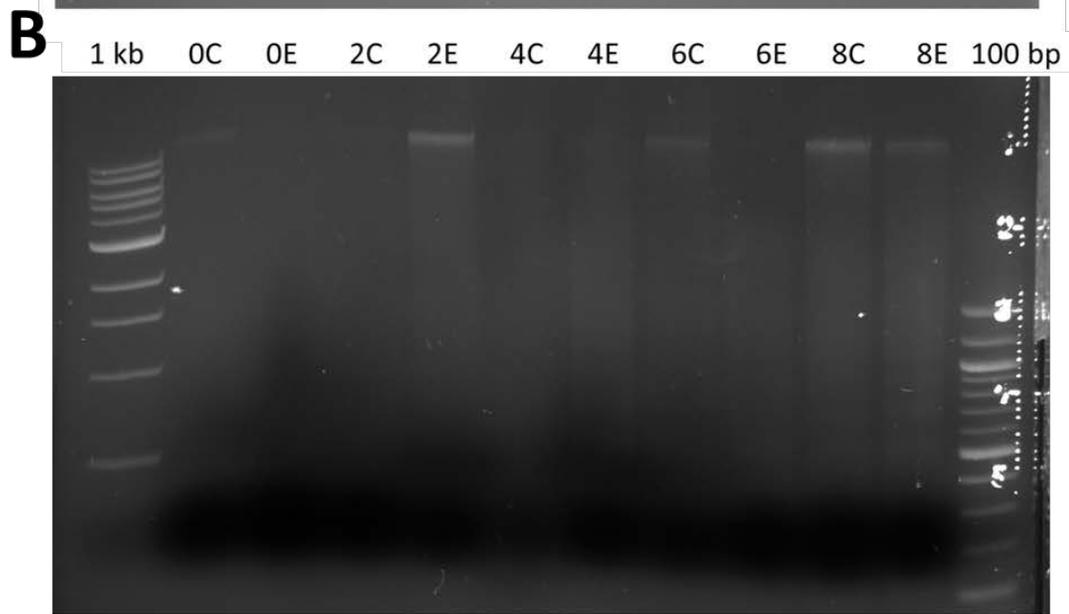
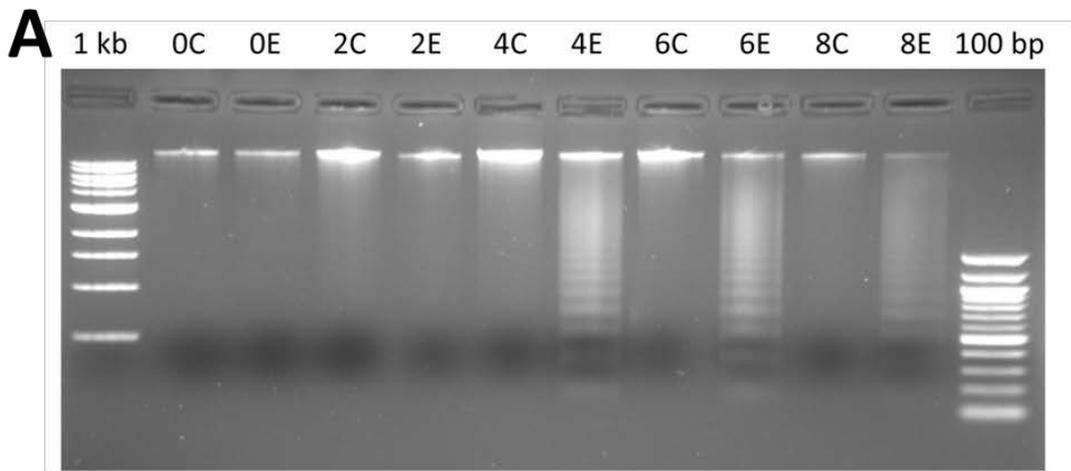
BISC/BIOC 220 Lab Final Assignment (35 points)

This assignment is due to your lab instructor via your Sakai dropbox by noon on Wed. May 8, 2013.

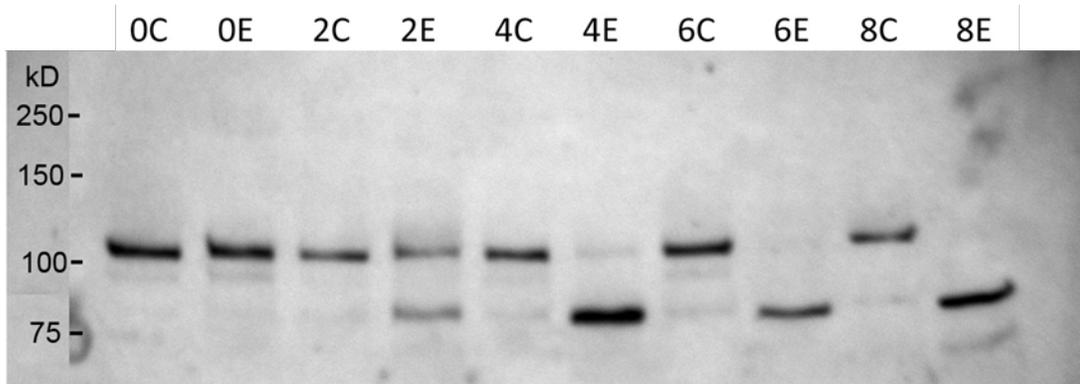
In lieu of a final partial paper on apoptosis please address the following questions. Be sure to include a properly formatted reference section for any literature you cite (and you should!).

1. (5 points) In this lab series we used the pharmaceutical agent etoposide (also called VP-16) as an extracellular signaling molecule triggering the apoptotic cascade in both HL-60 and 3T3 cells. Using citable sources address the following points in 1-3 paragraphs in the style you would write for the introduction of a scientific paper.
 - What is etoposide and how is it used clinically/pharmacologically?
 - How does it function to induce apoptosis?
 - How does it connect to PARP-1 as a downstream effector molecule?

2. (9 points) Fig. A below shows data obtained in Lab 9 (Apoptosis-DNA) from a previous year. Fig. B is the data obtained this year by the Friday lab section. Fig. C shows hypothetical data.
 - **For Fig. A only**, Please annotate the data (with arrows or asterisks) to point out the important features of the data to your reader. Create a proper, *Cell* style, figure legend. Please also write a brief results paragraph in standard narrative style. A .jpg file of Fig. A alone is available via Sakai or from your lab instructor.
 - Given your analysis of Fig. A, it should be apparent why this year's experiment was not successful (Fig. B). Please explain though why the hypothetical experiment in Fig. C was also not successful. Why is this data inappropriate to analyze?

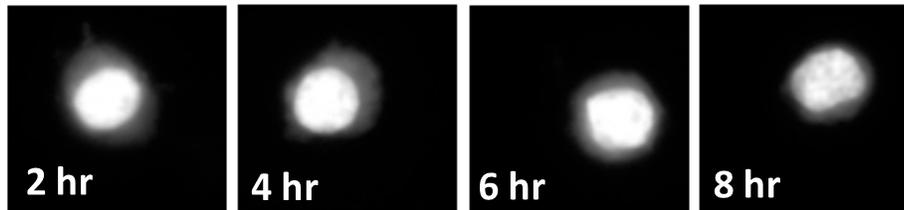


3. (8 points) The figure below is from a PARP-1 immunoblot as described in Labs 9 and 10 in the Wiki. Please annotate the figure (with arrows or asterisks; also available as a .jpg file on Sakai) to point out the important features of the data to your reader. Create a proper, *Cell* style, figure legend. Please also write a brief results paragraph in standard narrative style.

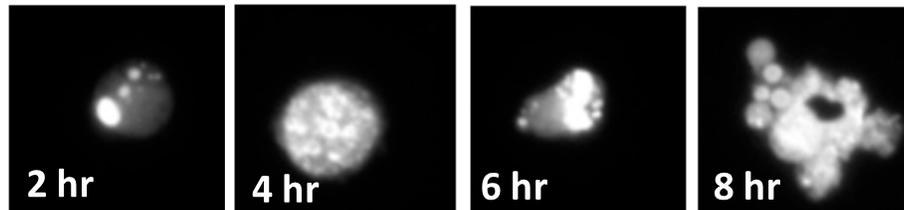


4. (8 points) The images below show examples of various cell nuclei labeled via the DNA-binding dye Hoescht-33342. The images were taken 2, 4, 6, and 8 hours after etoposide treatment, respectively. In a brief results paragraph in standard narrative style, please describe the data. What differs between control and treated cells?

Control



Etoposide-treated



5. (5 points) Using all the data/figures above please describe the temporal timeline of three main hallmarks of apoptosis: DNA fragmentation, DNA condensation, and PARP-1 changes. Please cite primary literature to support or refute your analysis.