

Senior Thesis Abstracts

Every student is expected to write an abstract describing his or her senior thesis work. The abstracts will be assembled into a booklet that students will receive after the presentations during the Senior Thesis Symposium.

You should write about 200-225 words that describes relevant background information, the hypothesis and approaches, and results with interpretation. The abstract must fit on a single page using the formatting described below. Your senior thesis advisor must see your abstract before you submit it.

Abstracts are due in the Department of Biology office, generally around the first of April. The abstracts should be submitted electronically with a required paper copy as back-up (place the copy in a box in the Department office). Files formatted for Word are preferred. Abstract must be received early in April to have enough time to assemble this booklet and get it printed before the day of the presentations.

In order to have a uniform abstract book, please conform to the following specifications. An example of a correctly formatted abstract is located in the Biology Department Office and is contained below.

Directions: Set the margins to 2 inches on the top and bottom, and 2.25 inches on the left and right sides. Set the font to Times Roman or Times New Roman at 14 point for your name and 11 point for the remainder of the document. Use single line spacing and full justification.

At top left: type your name in capital letters. Skip 2 lines, and type in bold the title of your abstract. Skip one line and type the name and institutional affiliation(s) of your mentor(s). Skip 2 lines, tab-over to indent, and begin typing your abstract. You should type only within the margins on this one page. You will have about 25 lines for the abstract (approximately 200-225 words). It is not necessary to use the entire space; each abstract will be printed on a separate page.

FAN Q. ZHANG

The Transcriptional Activators BAS1, BAS2 and ABF1 Bind Positive Regulatory Sites As The Critical Elements for Adenine-Regulation of *ADE5,7*.

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Adenine repression of the purine nucleotide biosynthetic genes in *Saccharomyces cerevisiae* involves down-regulation of the activator proteins BAS1 or BAS2 by an unknown mechanism. To determine the minimal cis-acting requirements for adenine regulation, hybrid promoter constructs were made between *ADE5,7* promoter fragments and a *CYC1-lacZ* reporter. A 139-nucleotide fragment containing two BAS1 binding sites was sufficient to confer adenine regulation on the *CYC1-lacZ* reporter. Analysis of deletion and substitution mutations led to the conclusion that the proximal BAS1 binding site is both necessary and sufficient for regulation, whereas the distal site augments the function of the proximal site. By performing saturation mutagenesis, we found two essential regions that flank the proximal site. An ABF1 consensus sequence is within one of these regions; and mutations that impaired in vitro ABF1 binding impaired promoter activity in vivo. A second region is AT-rich and appears to bind BAS2. No substitution mutations led to high-level constitutive promoter activity as would be expected from removal of an upstream repression sequence (URS¹). Our results indicate that ABF1, BAS1 and BAS2 are required for *ADE5,7* promoter function, and that adenine repression most likely involves activator modification or a negative regulator that does not itself bind DNA.