

LBJ student wins honors

By **BILL VALDEZ**

American-Statesman Staff

While most high school students are studying designer jeans, Patricia Zoch has designed a gene study that is already helping scientists to better understand genetics.



Patricia Zoch

and Crossover Frequency in *Drosophila melanogaster*," examines how genes function and what conditions are necessary for their survival.

"Geneticists thought it was gene placement," she explained, "but a new theory developed by Dr. John Ellison (a University of Texas biologist) maintains that it is the biochemical environment. My paper provided strong support for this new theory."

Patricia was recognized at Monday's Austin School Board meeting for her accomplishment, the first time an Austin ISD student has done so well in a scientific research contest.

She has until the summer of 1983 to prepare for the national competition and plans to enter the paper in the Westinghouse Scientific Research Paper Contest next October, "a much more prestigious event," she said. She also will try to get the paper published in a scientific journal.

For her efforts, Patricia, a junior at LBJ High School, won second place and a \$100 cash prize at the Texas Junior Academy of Science Research Paper Contest Feb. 17 and the right to compete in the national contest. Her award-winning paper, "Disruption of Melotic Chromocenters

Fruit fly project wins national honors

Young scientist gets flying start

By DEBBIE GRAVES

American-Statesman Staff

Patricia Zoch, 17, spent two months staring into the eyes of fruit flies. It proved to be a rewarding experience.

The eye contact was part of an experiment that the LBJ High School senior conducted last year, and her findings brought her national recognition. Last week Zoch learned that she is one of 40 winners of \$500 scholarships in the 42nd annual Westinghouse Science Talent Search, the leading science competition for high school students.

The first Austin student to make the top 40, she goes to Washington March 3 to compete for 10 \$5,000 scholarships and a grand prize of a \$12,000 scholarship.

WHEN ZOCH decided to do a science fair project in the fall of 1981, she talked with Dr. J.R. Ellison in the University of Texas zoology department. She said she intended at first "to do some work on the Medfly, which was big news at that time."

"I thought I could score big points at the science fair with it."

But Ellison steered her toward research he'd been doing for a decade, she said. He had come up with a genetic theory that flew in the face of accepted theory. Scientists had come to believe that the position of genes on the chromosome affects whether or not a gene functions properly, Zoch said.

But Ellison's research led him to believe that the biochemical environment within the nucleus of a cell determines whether genes function properly. If this



Staff Photo by Jay Godwin

Patricia Zoch says her research may help correct genetic disorders.

environment is disturbed or somehow unbalanced, the genes won't do their work.

ZOCH DECIDED to test his theory. She got normal "wild" flies from him, as well as mutant or deformed flies that had white or purple eyes instead of the normal red eyes, curved wings instead of straight ones and black bodies instead of brown.

She bred the normal flies with the mutant flies to see what would happen. She

needed virgin female flies for the experiment, so she had to separate female flies from males within six hours after they hatched.

BY THE END of the experiment, Zoch had studied and cataloged 1,000 fruit flies. "I went cross-eyed counting flies," she said, and she moved a little closer to substantiating Ellison's theory.

"I was able to observe any crossing over that happened," she said. "Crossing over is when genes move on the chromosome."

A crossover for her flies meant that some of the offspring might have some of the three mutations.

Zoch's work included experiments with regions of the cell's chromosome that don't normally cross over, Ellison said. Although some crossovers occur naturally, her controlled breeding made it happen 20 times the normal rate. Ellison called Zoch's work "significant in a number of ways."

"HER WORK PROVED that if a biochemical region in the nucleus is disrupted, one of the effects could be an increase in the number of crossovers," he said.

Zoch, who plans to major in biochemistry in college, said she wants to continue her research with another experiment using fruit flies that have rarer mutations.

"If the theory is correct, then we might be able to correct some genetic disorders," she said.

Austin American Statesman

Sunday January 30, 1983