



NAME: SANJANA RANE

SCHOOL: duPont Manual High School, Louisville, Ky.

YEAR: Senior

HOMETOWN: Prospect, Ky.

PROJECT: Effects of the Environmental Pollutant Acrolein on Renal Fibrosis

FIELD: Biochemistry

MENTOR: Shunying Jin; Research Associate; University of Louisville

"I discovered a novel role of a protein that could be potentially used to detect, as well as treat renal fibrosis preventing progression to end-stage renal disease, which is the incurable total failure of the kidneys."

Sanjana Rane's research has helped discover how a particular protein could be used to detect and treat renal fibrosis. This discovery helps to prevent renal fibrosis from developing into end-stage renal disease, an incurable total failure of the kidneys.

Sanjana first became interested in pursuing medical research when she read a *USA Today* study ranking Louisville, her hometown, as having some of the worst air quality in the United States. She began to look into the dangers of air pollution and learned about the chemical acrolein, which is found in both cigarette and industrial smoke and can cause kidney damage. As Sanjana delved more into the research, she began to focus on how to shift the chemical's influence on the kidneys through using a particular protein as a therapeutic target.

Looking forward in her career, Sanjana is interested in pursuing medicine. In particular, Sanjana would like to practice regenerative medicine to explore how to use stem cells to treat diseases like cancer, multiple sclerosis and ALS.

Beyond academics, Sanjana is the starting outside back for her high school's soccer team. She also mentors kindergarteners at a local elementary school.