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## **EPA Awards \$8 Million to UCLA-led Research Team for New Studies of Particulate Matter in Los Angeles Basin**

A UCLA-led research team has received an \$8 million grant from the Environmental Protection Agency for new studies of airborne particulate matter in the Los Angeles Basin — the most polluted airshed in the United States.

The five-year grant to researchers at the Southern California Particle Center will fund investigations into how exposure to airborne particulates affects health and how the impact varies with the source, chemical composition and physical size.

The six-year-old Southern California Particle Center is a unit of the UCLA Center for Occupational and Environmental Health at the UCLA School of Public Health. Other Southern California Particle Center research partners include the University of California, Irvine; Michigan State University; University of Southern California; University of Tsukuba, Japan; and University of Wisconsin, Madison.

“The opportunity to build on our success is tremendously exciting and important to the future health of the residents of the region, nation and the world,” said John Froines, professor of environmental health sciences at the UCLA School of Public Health and director of the UCLA Center for Occupational and Environmental Health. “During our first five years, the center has fostered an unprecedented collaborative energy among some of the nation’s top air pollution investigators and produced a unique and important body of new research on particulate matter.”

“We are pleased to team up with one of the premier learning institutions on the West Coast to better address one of Southern California’s most pressing environmental health issues,” said Deborah Jordan, the U.S. EPA’s air division director for the Pacific Southwest Region. “With this grant, UCLA will be able to build on the success the school has already had and further the EPA’s understanding of particulate matter exposure and its health effects on adults and children.”

The grant will fund four priority research projects to be conducted in the Los Angeles Basin:

- Project 1, led by the University of Southern California, will examine the relationships between particulate matter sources, exposure and toxicity. The project is

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integral to the other three as it will collect samples for toxicity testing and use in animal studies. Co-investigators are from UCLA and the University of Wisconsin, Madison.

- Project 2, led by UCLA, will examine how particulate matter causes asthma and worsens atherosclerosis. Co-investigators are from Michigan State University and UC Irvine.
- Project 3, led by UCLA, will characterize particulate matter from a variety of sources and examine the impact of each on biological tissues. Co-investigators are from the University of Tsukuba.
- Project 4, led by UC Irvine, will examine the importance of particle size and composition to the health of elderly people with coronary artery disease.

Described as the most polluted airshed in the United States, the Los Angeles Basin encompasses 12,000 square miles and a population expected to reach 19 million by the year 2020. Numerous sources in the basin emit a wide range of particulates, including millions of motor vehicles, nearly 300,000 diesel trucks, the nation's largest marine port, expanding airports and tens of thousands of factories.

The topography and climate of the Los Angeles Basin contribute to the area's high air pollution potential. Several studies, including those of the Southern California Particle Center's Southern California Supersite, show the basin comprises distinct microclimates with varying levels of a range of particulates and other pollutants. In contrast, particulate content in most metropolitan airsheds in the eastern United States is distributed more uniformly.

The basin's predictable and well-defined meteorology is well suited for controlled, laboratory-style experiments using particulate matter. Afternoon sunlight, persistence of fog and low clouds trigger atmospheric reactions that form secondary pollutants.

Key findings and results from the Southern California Particle Center's first six years include:

- The most extensive chemical characterization of particulate matter and intensive monitoring studies in the Los Angeles Basin ever conducted.
- Development of monitors and concentrators capable of collecting large amounts of ambient particulate matter samples for laboratory, animal and human clinical studies.
- Characterization of the formation and dynamics of particulate matter near freeways and demonstration, in animals, of allergic airway responses, neurological and cardiovascular effects close to a freeway.
- Exposure studies of human volunteers to coarse and ultrafine particles.
- Demonstration of a link between traffic density and human developmental toxicity.

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**Online resources:**

- Southern California Particle Center: <http://www.scpcs.ucla.edu/>.
- UCLA Center for Occupational and Environmental Health: <http://www.coeh.ucla.edu/>.
- UCLA School of Public Health: <http://www.ph.ucla.edu/>.
- U.S. Environmental Protection Agency: <http://www.epa.gov/>.

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