

The Southern California Particle Center and Supersite Research Highlights

July 21, 2005

Air Resources Board

California Environmental Protection Agency



What is the SCPCS?

- Established in 2000
- 1/5 US EPA regional particle centers;
1/7 Supersites
- Principal Funding:
US EPA ~\$14.5 M; ARB ~\$2.5 M;
SCAQMD ~\$0.75M
- Located at UCLA with participation
from USC, UCI, UCR, UCD, Rancho Los
Amigos
- Objective: study health effects of PM in
the Los Angeles Basin



Study Design

- **Multidisciplinary Approach**
 - Toxicology (bioassays)
 - PM characterization
 - Exposure assessment
 - Human panel or chamber studies
- **Role oxidative stress**
- **Environmental Justice**
- **Instrumentation and Methods**
 - VACES



Health Studies

- **Animal Model**

- CAPs exposure
- allergic responses and inflammation greater at 50 m vs 150 m (*Kleinman et al., 2005 in-press*)

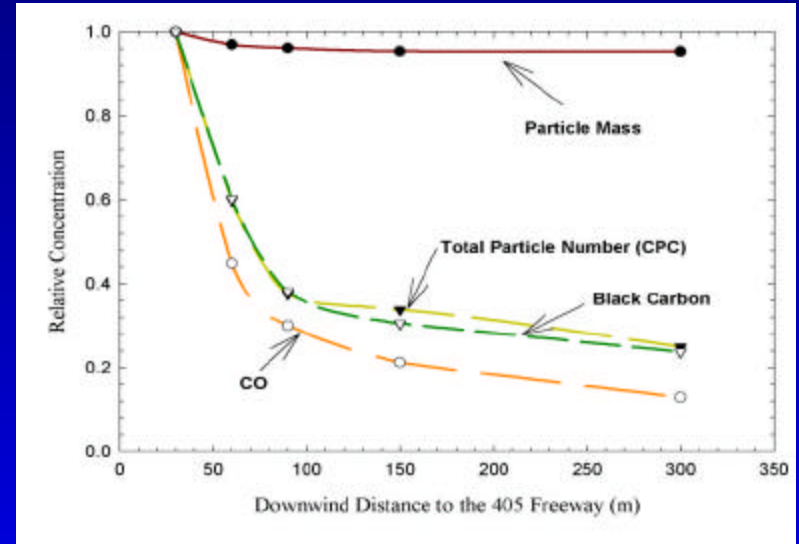
- **Human Panel Study**

- Exposed to CAPS and NO₂
- Healthy and with COPD
- respiratory effects in healthy volunteers
- Older adults may experience acute small airways dysfunction with impaired gas exchange (*Gong et al., 2005*)



Exposure Assessment

- Physical and chemical characterization near source (heavy and light-duty vehicles)
- Atmospheric transformation
- Impact of mobile sources on indoor environments (*Kuhn et al., 2005*)



Next Steps

- **Compare toxicity of emissions sources**
 - gasoline vs diesel
 - fine PM vs ultrafine PM
- **Guide ARB in targeting PM sources and constituents for control**

