

ANZSRS Fellowship and Society Research Medal

Dr Evangelia (Lily) Daviskas

BAppSc, MBiomed E, PhD, FANZSRS



Nominated by:

A/Prof David Johns and Dr Sandra Anderson

December 2002

Summary of Major Scientific Contributions (at the time of nomination)

At the time of nomination, Dr Lily Daviskas was a senior research scientist at the Department of Respiratory and Sleep Medicine of Royal Prince Alfred Hospital, Sydney.

She was a highly regarded international leader in the areas of heat and water loss from the human tracheobronchial tree and mucociliary transport system.

Her original research ideas and data were first communicated through the ANZSRS. Lily was the first to develop a detailed mathematical model to show that during mouth breathing, heat and water vapour transport in the human tracheobronchial tree was not uniform for all airway generations as it depended on factors such as air-residence time within each airway. This original work led to a further mathematical analysis that showed that the rate of water loss from the airway wall during the high ventilation of exercise could exceed the rate that it is replenished leading to dehydration of the airway surface liquid. This work supported the hypothesis that water loss and drying of the airways was the primary stimulus for exercise-induced asthma. She was the first in the world to demonstrate that muco-ciliary clearance is stimulated in humans by inhaling a dry powder of mannitol and the findings resulted in a rapid publication in the European Respiratory Journal.

At the time of publications Lily had published 25 scientific papers of which 22 described new observations, novel hypotheses or new techniques. She is regarded as a mature and gifted researcher who has demonstrated exceptional capacity for original thought and is highly regarded by both the national and international scientific communities.

Lily had contributed substantially to teaching and learning, particularly with respect to her dedication over many years to assisting with and facilitating the scientific development and nurturing of young scientists especially in experimental design and the application of new physiological tools. Prior to nomination she had been a longstanding member of the ANZSRS and had served on the ANZSRS Executive as Treasurer.