



## Keynote Lecture IV

### Genes and Gender Alter Outcome from Cardiac Arrest and Cardiopulmonary Resuscitation

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Dr Traystman is Associate Vice President for Research, Planning and Development, Associate Dean for Research at the School of Medicine, and Professor of Anesthesiology & Peri-Operative Medicine at Oregon Health & Science University (OHSU). Immediately prior to accepting his new position at OHSU (2003), he was a University Distinguished Professor and Senior Vice Chairman of the Department of Anesthesiology/Critical Care Medicine at the Johns Hopkins Medical Institutions. He was also Professor of Medicine and Professor of Environmental Health Sciences at Johns Hopkins Medical Institutions.

He has spent more than 30 years working on the regulation of brain blood vessels, cardiac arrest/CPR, and stroke. Dr Traystman received his BS and MS degrees from Long Island University in 1963 and 1966, respectively. He received his PhD from Johns Hopkins University Medical Center in 1971. Dr Traystman has received numerous distinguished awards from both clinical and basic science organizations for his work. He received the Laerdal Prize from the Society of Critical Care Medicine in 1991; the American Society of Anesthesiologists Excellence in Research Award in 1997; he was the Robert M Berne Distinguished Lecturer of the Cardiovascular Section of the American Physiological Society in 1996; he received the Excellence in Research Award from the Society of Critical Care Medicine in 2003; and he received an Honorary Doctorate (ScD) from his alma mater, Long Island University in 1999.

Dr Traystman has participated in Study Section review for the National Institutes of Health (NIH), American Heart Association (AHA), and Veteran's Administration. He was Associate Editor for the *American Journal of Physiology: Heart and Circulatory Physiology* Section and was Deputy Editor for *Critical Care Medicine*. He is presently Editor-in-Chief of the *Journal of Cerebral Blood Flow & Metabolism*. He serves on the editorial board of many prestigious journals such as *Stroke* and *Circulation Research*. Dr Traystman has authored more than 450 manuscripts in peer-reviewed journals, has trained more than 100 fellows and students, and has been funded by the NIH throughout his career. He has been Principal Investigator of a Program Project Grant from NIH for more than 20 years and has continuous NIH funding since 1971. He has made major contributions to our understanding of how the brain and its circulation respond to clinical disease states such as stroke and cardiac arrest. His work is striking for its breadth and application to the adult, neonate, and fetal brain.

Despite four decades of research concerning cardiac arrest and cardiopulmonary resuscitation (CA/CPR), clinical outcome remains poor. Much of this research has taken the form of developing new methodological or pharmacological approaches to CPR. Now, however, novel basic science and molecular genetic approaches to CPR are needed to improve our understanding of critical mechanisms of injury during CPR to develop new therapeutic interventions.

Poly (ADP-ribose) polymerase (PARP) is an abundant nuclear enzyme that helps maintain genomic integrity in neurons and other cell types. Inhibition of PARP with pharmacological agents or PARP knockout (-/-) animals reduces injury after focal cerebral ischemia, but the involvement of PARP after CA/CPR is unknown. We evaluated the effect of CA/CPR in PARP-/- compared to their Wild-Type controls (SvEv129). Tissue outcome