A.P. “Pete” Shepherd, PhD
Distinguished Alumni 2015

A native of Greenwood, Mississippi, Dr. Shepherd received a BS degree from Millsaps College in 1966 and his Ph.D. degree in Physiology from the University of Mississippi Medical Center in 1971. After receiving his Ph.D., Dr. Shepherd completed his postdoctoral studies in Physiology at the University of Texas Medical School in Houston where he later joined the faculty as an assistant instructor in 1972. In 1973, Dr. Shepherd moved to Irvine, California, to join the Department of Physiology at the University of California College of Medicine as an assistant professor. In 1974, Dr. Shepherd settled his family at the University of Texas Health Science Center in San Antonio where he served as a professor in the Department of Physiology.

From 1980 to 1988, Dr. Shepherd served on the editorial board of the gastrointestinal section of the American Journal of Physiology. From 1990 to 1994, he was on the National Board of Medical Examiners. He served as associate editor of the heart and circulation section of the American Journal of Physiology from 1987-1992. He served as Chairman of the FASEB Summer Research Conference in 1990. Dr. Shepherd has authored or co-authored over 180 publications and has been an invited presenter worldwide.

In addition to serving on the faculty at the University of Texas Health Science Center in San Antonio for 35 years, Dr. Shepherd also excelled in the business world. In 1976, inspired by Dr. Arthur C. Guyton, who was one of his graduate faculty mentors, Dr. Shepherd co-founded A-Vox Systems, Inc. His company started on a small scale by manufacturing instruments for investigators who needed to measure oxygen in the blood of experimental animals. During the 1980s, he and his colleagues studied the optical properties of blood and were awarded small business grants to design and develop oximeters and co-oximeters that would be more advanced than the current instruments hospitals were using.

In January 1993, A-Vox started marketing the AVOXimeter 1000, an oximeter designed for cardiac catheterization labs. Then in 1996, A-Vox released the AVOXimeter 4000, the world’s first and only co-oximeter that could measure the four major hemoglobin species without first rupturing the red blood cells. This enabled the AVOXimeter 4000 to be ten times smaller and ten times faster than other co-oximeters and enabled A-Vox to grow into a multi-million dollar company. After a unanimous vote of the A-Vox stockholders, the business was sold in 2006. Dr. Shepherd holds five patents pertaining to measuring the different types of hemoglobin in whole blood. The instruments he and his colleagues designed are used every day with thousands of patients in hospitals worldwide. The San Antonio Business Journal honored him in 2008 with the Healthcare Hero Award, and in 2010, the University of Texas System honored him with their Chancellor's Entrepreneurship and Innovation Award.

Since retiring, Dr. Shepherd has been updating his old computer programs for teaching physiology and enabling them to run in the latest Mac and Windows operating systems. He then donates them to the American Physiological Society's archive of free, peer-reviewed teaching materials.

Dr. Shepherd has also developed an iPad/iPhone app for teaching respiratory physiology. His app, “Alveolar Gas”, teaches the factors that affect the composition of alveolar gas in a simplified, high-tech manner. This app is being used at leading universities and hospitals in dozens of countries around the world. With Dr. Shepherd’s app, a student or instructor can manipulate variables such as the breathing frequency, volume of air per breath, and the oxygen consumption rate to see how these manipulations affect alveolar PO2 and PCO2. His app can be used for self-instruction by students or as a classroom demonstration by instructors. Health professionals can use the app by turning off the worksheet teaching function and instead using it as an alveolar gas calculator. Medical residents in anesthesiology and pulmonary medicine as well as respiratory therapists and nurse anesthetists have found Shepherd’s app to be especially useful in their field. Dr. Shepherd’s app is available through the App Store.