

Dedication to honor Dr. John A. Sturman

Since it was first found in brain tissue, the amino acid taurine has been enigmatic with regard to assignment to a specific function. During the last 40 years, numerous functions have been associated with taurine, such as neurotransmitter, antioxidant, neurodepressant, osmolyte and as a substance which is obligatory for the integrity, functioning and normal neuronal development of the brain. To facilitate studies related to the latter functions, a taurine-deficient cat model was developed by maintaining cats on a taurine-free diet. Since cats have a very low capacity for taurine biosynthesis, this leads to severe depletion of taurine levels in all organs.

Dr. Sturman has contributed significantly to the understanding of the role of taurine in several of its functions. His impact has been particularly prominent in elucidating the role of taurine in nutrition, on neuronal development and on the functional development of the central nervous system. With regard to the role of taurine in nutrition, Dr. Sturman and colleagues have established that in contrast to infant formula, taurine content of human milk is quite high. These studies led to the now general practice of including taurine in these formulas. With regard to the role of taurine in development of the central nervous system, John Sturman suggested in the mid-seventies that taurine was likely to play an important role in brain development. A few years later he discovered, using the cat-deficiency model that taurine plays an essential role in brain maturation, and that taurine deficiency leads to severe neurological symptoms. More specifically, it was shown that the migration of granule cells during cerebellar development is arrested as a consequence of taurine deficiency. Additionally, it was established that taurine deprivation in rhesus monkeys leads to severe retinal degeneration and to impaired development of the visual cortex, including the loss of glial cells.

These observations have inspired a large number of studies aimed at elucidating the molecular mechanisms involved in the effect of taurine. More recently, John Sturman established tissue culture models which have allowed studies to be performed on the relationship between neuronal survival and migration and the availability of taurine.

Based on these accomplishments, it is clear that John Sturman, during almost three decades of dedicated research, has cemented the very important notion that taurine plays a fundamental role in brain development and functional maturation. Among the various functional roles ascribed to this enigmatic amino acid, its developmental effects are perhaps the most important.

The research efforts of Dr. Sturman in establishing this role of taurine have indeed been instrumental in inspiring the work of a number of other research groups. The insight and knowledge of Dr. Sturman as well as his generous friendship, hopefully, will still be available after his all too early retirement forced upon him by a serious illness.

H. Pasantes-Morales
A. Schousboe