

# METABOLIC DISORDERS AS TARGETED TREATMENTS FOR AUTISM

**Richard E Frye**

Barrow Neurological Institute at Phoenix Children's Hospital, University of Arizona, USA

**A**utism spectrum disorder (ASD) is behaviourally defined but is also associated with significant metabolic pathophysiology. Outcomes with standard behavioural and educational therapy are suboptimal in many cases, suggesting that medical therapies aimed at underlying pathophysiological abnormalities are urgently needed. Recent research has documented that ASD is associated with several metabolic disorders, including disorders of redox, methylation, folate, purine, tetrahydrobiopterin, carnitine, amino acid and mitochondrial metabolism. The association with metabolic disorders is important since such disorders may be amenable to treatment if the disruption in the metabolic pathway is detected and understood. Although it is important to better understand the appropriate treatments that could theoretically improve function of these pathways, empirical evidence for such treatments is of the utmost importance when considering clinical therapy. Studies have documented improvement in ASD symptoms with many of these treatments in clinical studies which range from case reports to well controlled double-blind randomized trials. This presentation will review the metabolic disorders associated with ASD that may be amendable to treatment and the evidence for the potential treatments. In addition, biomarkers which can be used to guide therapy will also be discussed. Through a comprehensive understanding of the biological underpinnings of an individual with ASD, we can strive to formulate a detailed, personalized, and precise treatment plan toward achieving optimal patient outcomes.