

Effects of Epigallocatechin-3-gallate in Novel Object Recognition of Ts65Dn Down Syndrome Mice
Saniya Minhas¹, Irushi Abeysekera¹, Fatima Delgado¹, Hardeep Dhillon¹, Charles R. Goodlett², Randall J. Roper¹

¹Department of Biology, IUPUI, ²Department of Psychology, IUPUI

Down syndrome (DS) is one of the most common genetic disorders and has an incidence of 1/700 births; which can lead to many impairments, both physically and mentally. All individuals with DS have cognitive impairments which results in learning and memory deficits. To study these deficits, we use the Ts65Dn mouse model that carries trisomy of approximately 50% of the genes found on human chromosome 21. *DYRK1A*, a gene found in three copies in both humans with DS and Ts65Dn mice has been shown to have increased expression in the brains of humans with DS. *DYRK1A* protein is involved in a number of critical pathways including CNS development. Epigallocatechin-3-gallate (EGCG), the main polyphenolic compound found in green tea, inhibits *DYRK1A*. We hypothesize that EGCG treatment help improve cognitive deficits in trisomic mice. After treatment, the mice were subjected to behavioral tasks, including the Novel Object Recognition (NOR) test. Our results indicate that there was a significant difference that existed due to trisomy in Ts65Dn mice; but there was no significant effect of a low dose EGCG treatment. Further studies are examining the effects of the NOR task after a higher dose EGCG treatment.

Mentor: Randall J. Roper, Department of Biology, IUPUI, School of Science