

## RESEARCHERS AT DOW UNIVERSITY OF HEALTH SCIENCES SUCCESSFULLY DEVELOP A COMMON FRUIT FLY MODEL OF CYCLOPIA – A RARE BIRTH DEFECT IN NEWBORNS

Cyclopia is a rare birth defect that occurs when the front part of the brain doesn't cleave into right and left hemispheres. The most obvious symptom of Cyclopia is a single eye or a partially divided eye. Cyclopia often results in a miscarriage or stillbirth and survival after birth is usually a matter of hours only. This condition is not compatible with life and occurs in about 1 in 100,000 newborns. The causes of Cyclopia are not well understood although many risk factors such as gestational diabetes, exposure to environmental toxins, etc., have been hypothesized.



Human Cyclopia



The Team

A common fruit fly (*Drosophila melanogaster*) is an animal model of choice for genetics, molecular biology and study of human diseases. Over 150 human diseases have been modeled in the fruit fly. In the Laboratory of Bioinformatics & Molecular Biology, Dow Research Institute of Biotechnology & Biomedical Sciences, Dr Mushtaq Hussain along with his postgraduate students, notably Ms. Sanya Shabbir and Ms. Fozia Raza are working on fruit fly to study molecular genetics of different anatomical and

physiological disorders observed in humans.

Recently, after continuous inbreeding and rigorous series of selections, the team has isolated a mutant fly with single central eye instead of laterally placed normal two eyes. Therefore this mutant fly could be used as model to study biology of Cyclopia at higher resolution and for devising gene correction strategies for preventative and/or therapeutic interventions. At present Dr Mushtaq and his team are working on the sustenance and propagation of the mutant for more detailed investigation.



Normal Fruit fly



Mutant Fruit fly with Cyclopia

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