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NCCS Ph.D. Scholar Ms. Rohini Dhat wins C. C. Kartha Award

By Dr Bilqeesa Bhat

Ms. Rohini Dhat receiving the C. C. Kartha award

Ms. Rohini Dhat, a Ph. D. research scholar working with Dr. Sandhya Sitasawad at National Centre for Cell Science (NCCS) received prestigious C. C. Kartha Award for oral presentation of her work at the 'International Conference on Cardiovascular Sciences' held at New Delhi in February, 2020.

Dr. Sitasawad and her group have been focused on learning about the epigenetic regulation of the pro- and anti-oxidative genes. Epigenetic regulation refers to a mechanism that turns genes "on" or "off" with external modifications to the DNA, without changing its sequence. These epigenetic changes alter the physical structure of the DNA, thus influencing how the cells "read" the genes.

Cells of our body contain various components such as DNA, RNA, proteins, as well as special smaller enclosed compartment-like structures like mitochondria, which are the powerhouses of the cell. Diabetes is known to generate oxidative stress in the mitochondria of heart muscle cells by either up-regulating pro-oxidant genes or down-regulating anti-oxidant genes present in the cell, leading to damage to the heart muscle cells, or diabetic cardiomyopathy. Pro-oxidant genes are responsible for the generation of oxidative stress, and conversely, anti-oxidant genes are responsible for the inhibition of oxidative stress.

The cellular stress generated due to free radicals can damage cellular components like DNA, RNA and proteins and mitochondria, ultimately leading to death of the cells. Therefore, gaining

insights into how the pro- and anti-oxidant genes are regulated could prove useful in understanding the biology of diabetic cardiomyopathy, and hopefully help in addressing this undesirable consequence of diabetes.

Contact Details:
Dr. Sandhya Sitasawad, Scientist (ssitaswad@nccs.res.in)
Communication coordinator: Jyoti Rao (jyoti@nccs.res.in)