



CBCB SEMINAR

11/29/2021

3:30-4:30PM

AP BioPharma
Room 140
(590 Avenue 1743)

or via ZOOM:

[https://udel.zoom.us/j/
93442313974](https://udel.zoom.us/j/93442313974)

(Passcode: BINF865)

bioinformatics.udel.edu

BIOINFORMATICS SEMINAR

AKSANA DALLAKOTI

MS Student UNIVERSITY OF DELAWARE

THE ROLE OF EXOSOMES IN MAREK'S DISEASE VIRUS VACCINE RESPONSES

Marek's Disease (MD) is caused by the oncogenic *Alpha herpesvirus*, Marek's disease Virus (MDV). MD is characterized by the induction of paralysis, nerve inflammation, and profound immune suppression in susceptible chickens. MD is most notably observed as the rapid development of visceral and peripheral T-cell lymphomas. MD is controlled in commercial poultry production via the use of cell-associated live attenuated and naturally non-oncogenic vaccines. The mechanisms elicited by these vaccines to prevent lifelong tumor formation in the face of near ubiquitous virulent MDV challenge are largely unknown, but involve both antibody and cell-mediated responses. In recent work, we found that serum exosomes (extracellular vesicles ~100 nm in size) contained mRNAs encoding nearly all MDV gene products in vaccinated and protected vs tumor-bearing chickens. Exosomes are small, enveloped vesicles specifically loaded and released by cells into all biological fluids. We isolated and sequenced the complete transcriptomes of exosomes from unvaccinated and HVT-, HVT-SB1 and CVI988-vaccinated SPF chickens. We determined the uptake of labeled exosomes by chicken monocytes, macrophages and dendritic cells, our results indicate that the HD11 differentiated into dendritic cells showed consistently higher levels of exosomes. We are currently assessing the changes in proteomes of HD11 cells or HD11s treated to differentiate into macrophages and dendritic cells.

BIOGRAPHY

Aksana Dallakoti is currently pursuing MS in Bioinformatics and Computational Biology. She is working as research assistant under the supervision of Dr. Mark Parcels from the department of Animal and Food science. She obtained a bachelor's degree in Veterinary science and Animal husbandry from Agriculture and Forestry University at Nepal. Her current research is focused on transcriptomics and proteomic analysis of exosomes released by Marek's Disease Virus and role of exosomes on Marek's Disease Virus Vaccine response.

