

Villanova Hosts Biology Seminar By Yu-Chieh David Chen

Kristiana Kovaci, Staff Writer

Villanova University recently welcomed Yu-Chieh David Chen on Sept. 26, to present a biology seminar on “Wiring up the Brain During Development: Coordination and Propagation of Cell Fate Choice in Neural Circuit Assembly.” The presentation dealt with fruit flies, drosophila and the difference between stochastic and deterministic cell-type determination methods. The room was composed of students, one who was there for their senior thesis, and many members of faculty.

Chen is a highly successful postdoctoral fellow at Dr. Claude Desplan’s lab, at New York University. He first received his bachelor of science in Taiwan in life sciences and entomology, where he then continued to receive his master’s degree in molecular cell biology. In 2013, Chen began his Ph.D. in neuroscience at the University of California in the lab of Dr. Anupama Dahanukar. Throughout his work and studies, Chen has set up many functional studies for how flies and animals taste things during his Ph.D. work. The tools that Chen developed are utilized by various labs, such as Villanova’s. Chen then shifted his focus from taste systems to visual systems, circuits and how they wire up in specific ways. Now, Chen is a postdoctoral researcher, and his work is funded through a NIH/NEI NRSA F32 Fellowship, of which he has received \$1,055,664 to study stochastic color vision circuit assembly.

The seminar commenced with Chen discussing the two ways one can determine a cell’s type. The most common and known one is called “deterministic,” where one will know the cell type and it is certain through the transcription factors (a protein controlling and transcribing the information of DNA into messenger RNA). However, a much less-known and less certain way is the “stochastic” method, where there is a random distribution of cell-types, but there is an average range or probability of the amount of cell-types seen. Chen continued to discuss different transcription factors (spatial and temporal), how stem cells divide and communicate to neurons through transcription factors, and how scientists have attempted sequencing every cell to determine their genetic code and predict behavior. Stochastic and deterministic cell-type orientation is something Chen focuses on specifically in the visual systems of fruit flies, and the photoreceptors found in the eye units which contribute to sight.



Olivia Pasquale

Villanova recently welcomed Yu-Chieh David Chen to present a biology seminar on “Wiring up the Brain During Development: Coordination and Propagation of Cell Fate Choice in Neural Circuit Assembly.”

After the presentation, Chen welcomed questions, which were asked by Villanova students, as well as faculty in attendance. Many of the questions were centered around how stochastic cells are arranged, but biology researchers have yet to discover the truth themselves. The seminar prompted many thought-provoking questions for all in attendance, while receiving important insight on transcription factors and cell arrangement that marks the beginning for this field of study.