1163-92-218 **Maria R D'Orsogna*** (dorsogna@csun.edu), **Renaud Dessalles** and **Tom Chou**. *How T cell receptor abundance distributions are shaped by heterogeneous thymic output and proliferation.*

T-cell receptors (TCR) populate the surface of T-cells. They recognize fragments of foreign proteins, activate the T-cells where they reside and initiate immune responses. The group of T cells that express the same TCR sequence form a clone. Clonal diversity arises from the stochastic recombination of the V(D)J gene segments during T cell development, and since recombination rates are not the same for all sequences, certain TCRs may be more abundant than others. Furthermore, clone-dependent interactions between TCRs and self-antigens may lead to differential proliferation rates. As a result, clonal abundance distributions display non-trivial shapes. We present a mean-field birth-death-immigration model to investigate TCR-dependent heterogeneity in both T cell production and proliferation rates on the overall clone abundance distributions. We also compare predicted clone abundances with experimentally sampled ones. We find that the mechanism underlying the observed clone abundance distributions is most likely heterogeneity in proliferation rates rather than heterogeneity in thymic output rates. (Received August 27, 2020)