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Scaling of Adaptive Immune System Repertoires ZACHARY SETHNA, YUVAL ELHANATI, CURTIS CALLAN, Princeton University — The adaptive immune system has evolved a stochastic method called VDJ recombination for the purpose of generating the necessary receptor diversity to identify all foreign pathogens. Recent work characterizing the probability distributions of this VDJ recombination process in mouse and human T-cell repertoires shows a massive difference in the corresponding diversities. The increased diversity of the human repertoire is wholly driven by an increase in the average number of nucleotide insertions in VDJ recombination. In this talk the impact of different insertion profiles is quantified and a model for the scaling of such repertoires with respect to the size of the repertoire is laid out.

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