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Abstract for an Invited Paper
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Diversity of immune systems.

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The recognition of pathogens relies on the diversity of immune receptor proteins. Recent experiments that sequence entire immune cell repertoires provide a new opportunity for quantitative insight into naturally occurring diversity and how it is generated. I will show how applying statistical inference to these recent experiments that sequence entire B and T-cell repertoires we can quantify the origins of diversity in these sequences and characterize selection acting on the somatic evolutionary process that leads to the observed receptor diversity. I will finish by showing how the known types of immunity observed in nature can be explained in terms of evolutionary arguments.