The advent of deep sequencing technology has unexpectedly advanced our structural understanding of molecules composed of nucleic acids. A significant amount of progress has been made recently extrapolating the chemical methods to probe RNA structure into sequencing methods. Herein we review some of the canonical methods to analyze RNA structure, and then we outline how these have been used to probe the structure of many RNAs in parallel. The key is the transformation of structural biology problems into sequencing problems, whereby sequencing power can be interpreted to understand nucleic acid proximity, nucleic acid conformation, or nucleic acid-protein interactions. Utilizing such technologies in this way has the promise to provide novel structural insights into the mechanisms that control normal cellular physiology and provide insight into how structure could be perturbed in disease.

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