

“TO B OR NOT TO B” IN NUCLEIC ACIDS CHEMISTRY

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In this lecture, I will provide an overview of the basic concepts, methods, and recent applications of predicting the stabilities of nucleic acid structures. I explain the theory of the most successful prediction method based on a nearest-neighbor (NN) model. To improve the versatility of prediction, corrections for various solution conditions considered hydration have been investigated. I also describe advances in the prediction of non-canonical structures of G-quadruplexes and i-motifs. Finally, studies of intracellular analysis and stability prediction are discussed for the application of NN parameters for human health and diseases.

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