Supplementary Information:

Predicting Molecular Crowding Effects in Ion-RNA Interactions

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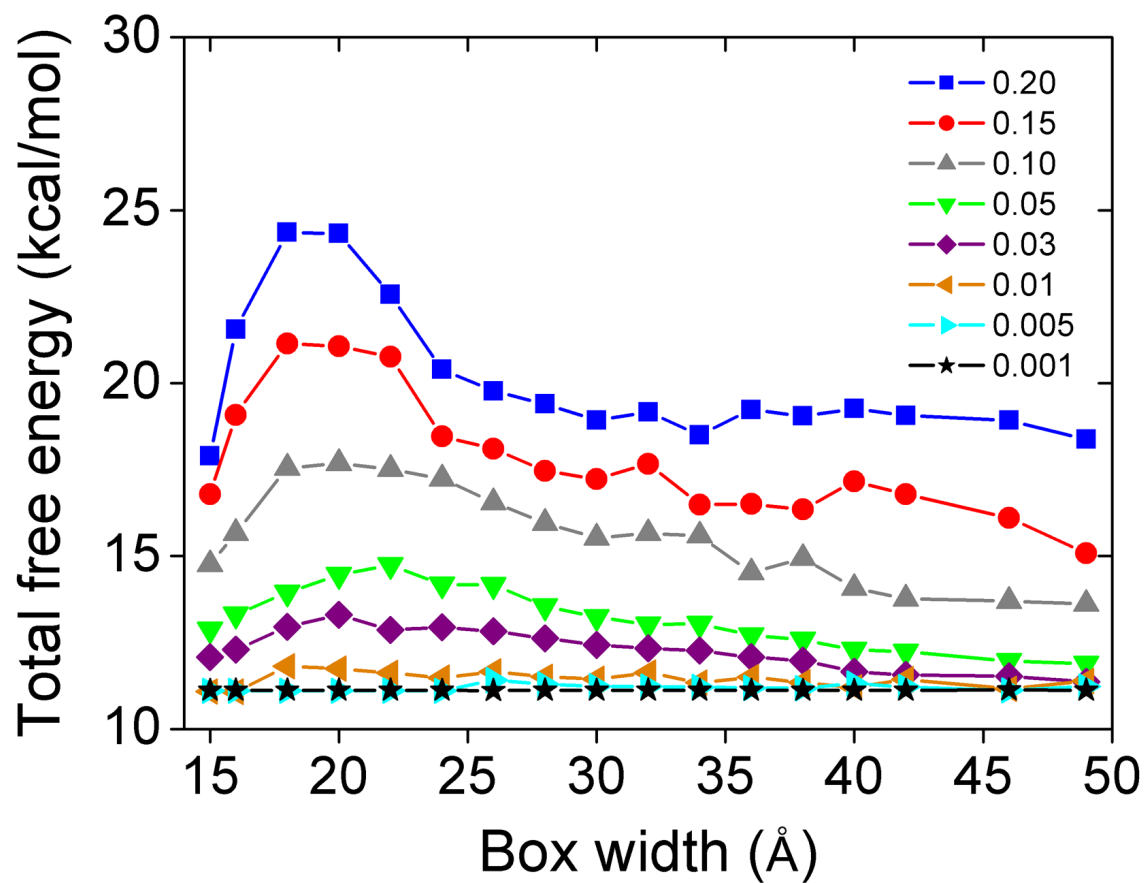*Author to whom correspondence should be addressed; E-mail: chenshi@missouri.edu

Figure S1: The dependence of the total free energy ΔG_{tot} on the ISB box width for the different crowder volume fractions for a 12-bp RNA helix. For all these cases, the solution contains 0.1M NaCl and 0.01M MgCl$_2$.
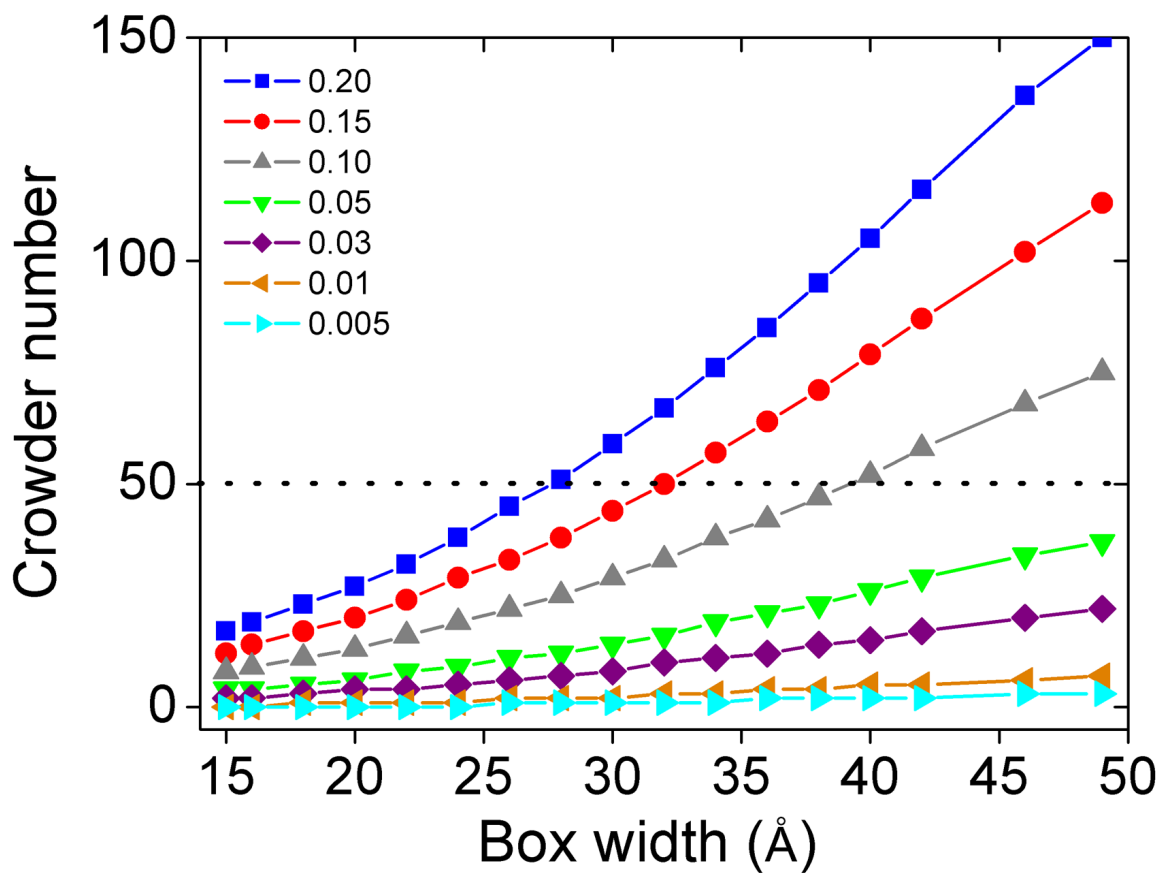
Figure S2: The number of crowders inside the ISB as a function of the ISB box width for a 12-bp RNA helix for the different volume fraction values
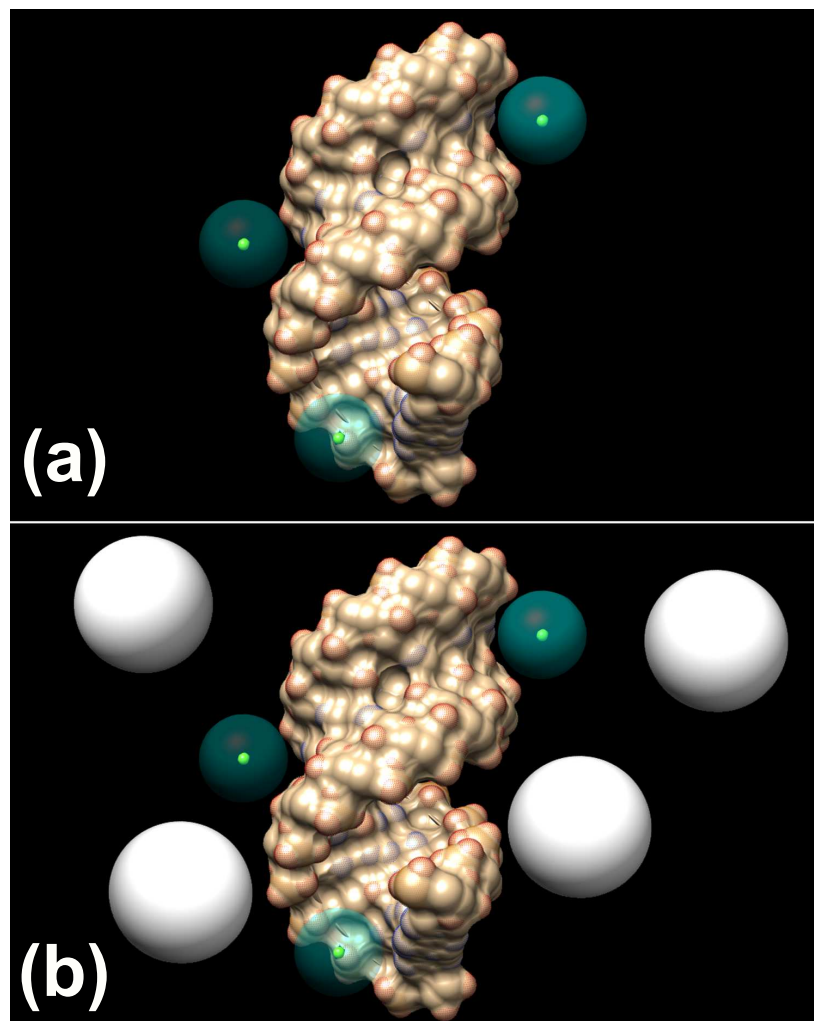
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Figure S3: Ion-crowder competition in RNA binding for a 12-bp helix. (a) ions only and (b) ions and crowders in competition. The white and dark green spheres represent the crowders and Mg^{2+} ions, respectively.
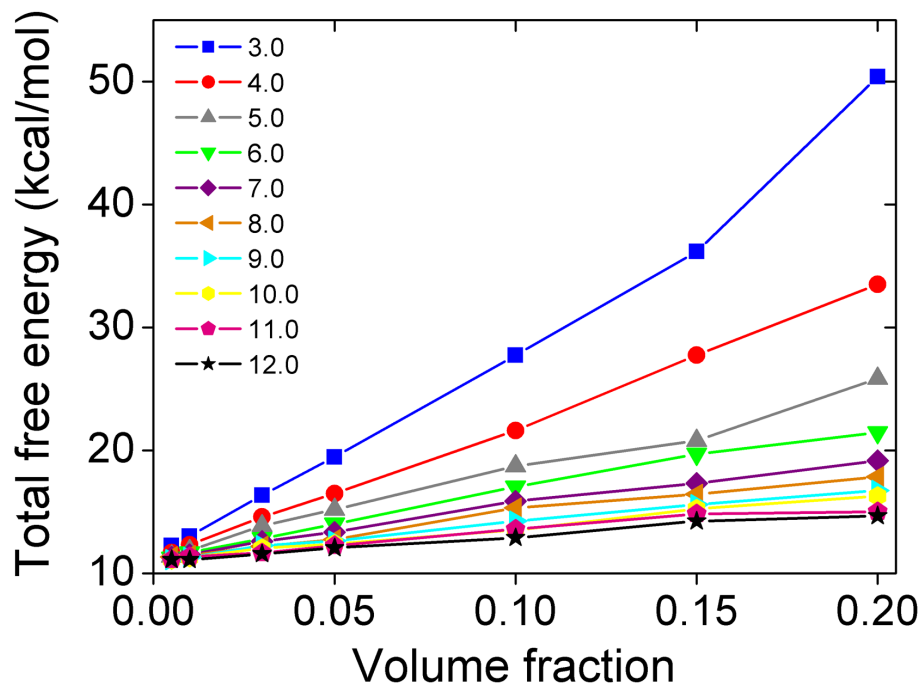
Figure S4: Total free energy ΔG_{tot} for a 12-bp helix structure in a crowded solution as a function of the crowder volume fraction for the different crowder sizes. For all these cases, the solution contains 0.1M NaCl and 0.01M $MgCl_2$.
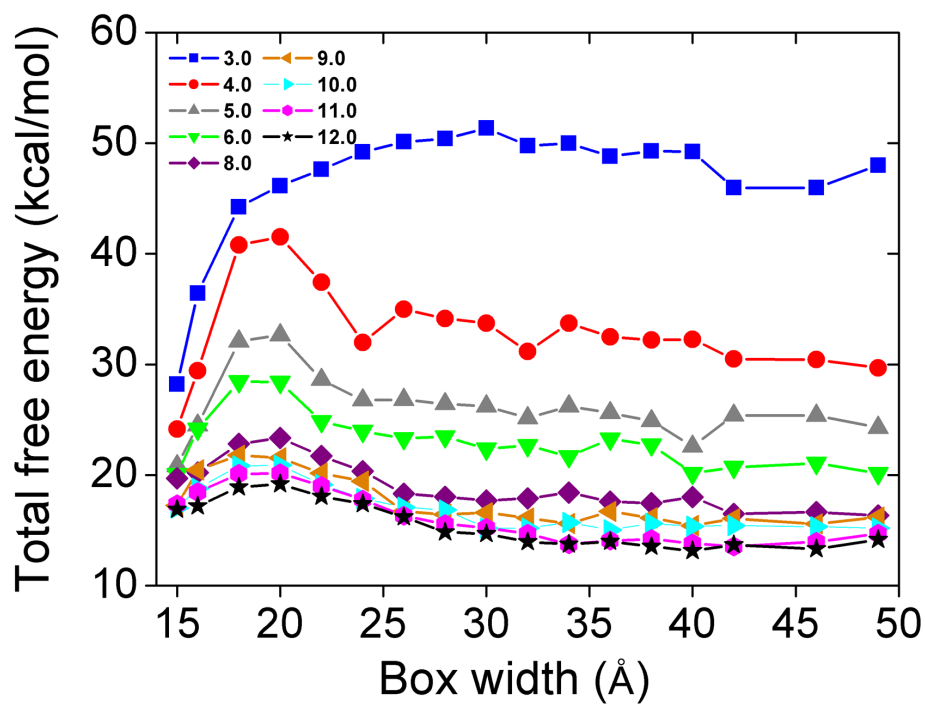
Figure S5: Total free energy ΔG_{tot} for a 12-bp helix structure in a crowded solution as a function of the ISB box width for the different crowder sizes. For all these cases, the solution contains 0.1M NaCl and 0.01M MgCl$_2$.
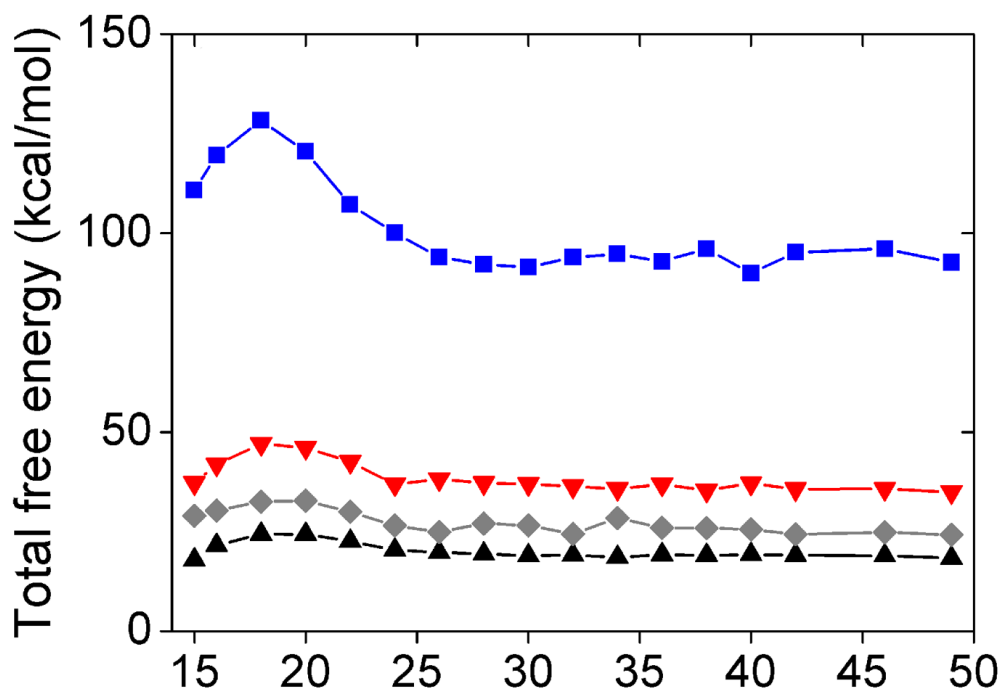
Figure S6: Total free energy ΔG_{tot} predicted with the different ISB box widths for four representative RNA structures: tRNA (blue square), mRNA (red down triangle), BWYV (gray diamond), and 12-bp RNA (black up triangle).