Probing the Tertiary Structure of the Hairpin Ribozyme by Chemical Cross-Linking

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Abstract: The hairpin ribozyme is a small self-cleaving RNA of unknown three-dimensional structure that can be engineered for RNA cleavage in trans and has potential as a therapeutic agent. We are developing a chemical crosslinking approach to study the inter-domain distances in the catalytically active structure of a 3-stranded hairpin ribozyme. The substrate RNA was crosslinked to ribozyme strand B through tethered disulfide formation via the 2'-positions of specific nucleoside residues located within the two internal loops of domains A and B, respectfully. Preliminary results suggest that the catalytic activity is retained in the crosslinked ribozymes.