



**Figure S3.** *Distribution of RMScore (B) and SARAscore (A).* All-to-all pairs are categorized into Low-RMScore ( $5\text{\AA} < \text{RMSD} \leq 10\text{\AA}$ ), High-RMScore ( $\text{RMSD} \leq 5\text{\AA}$ ) or Non-RMScore ( $\text{RMSD} > 10\text{\AA}$ ). The same category criterion is applied for SARAscore. The RMScores corresponding to the peak value are separated clear, which can be used to distinguish similarity or dissimilarity RNA pairs, but SARAscores corresponding to the peak value are close.