Electronic Supplementary Material (ESI) for Analyst.

Supplementary Figures

DNA/RNA chimera templates improve the emission intensity and target accessibility of AgNCs-based sensors for human miRNA detection

*Pratik Shah†[§], Suk Won Choi‡[§], Ho-jin Kim‡[§], Seok Keun Cho†, Peter Waaben Thulstrup[€], Morten Jannik Bjerrum[€], Yong-Joo Bhang‡, Jong Cheol Ahn‡, and Seong Wook Yang†**

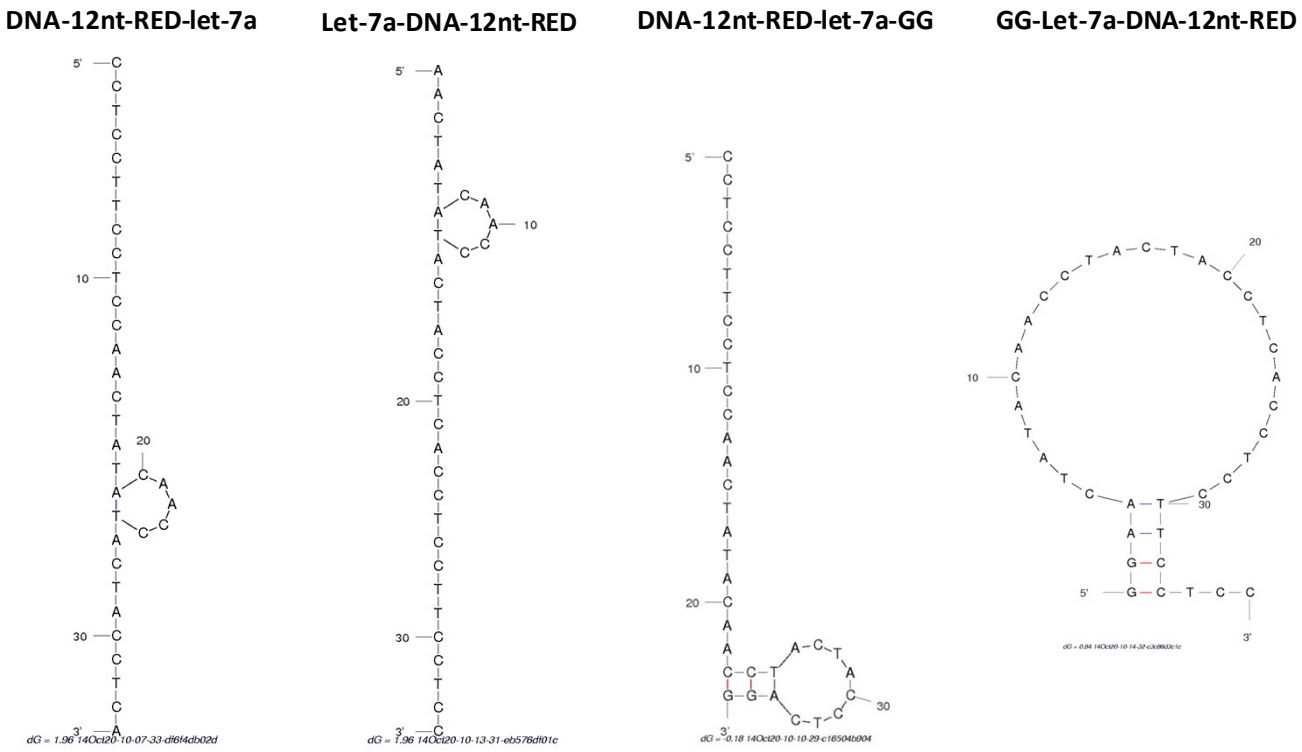
†UNIK Center for Synthetic Biology, University of Copenhagen, Thorvaldsensvej 40, DK-1871 Frederiksberg C, Copenhagen, Denmark

[€]Department of Chemistry, University of Copenhagen, Universitetsparken 5, DK-2100, Copenhagen, Denmark

‡Seoulin Bioscience Co. Ltd. 4F. #A, KOREA BIO PARK, 700, Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea

[§]Equal contributions

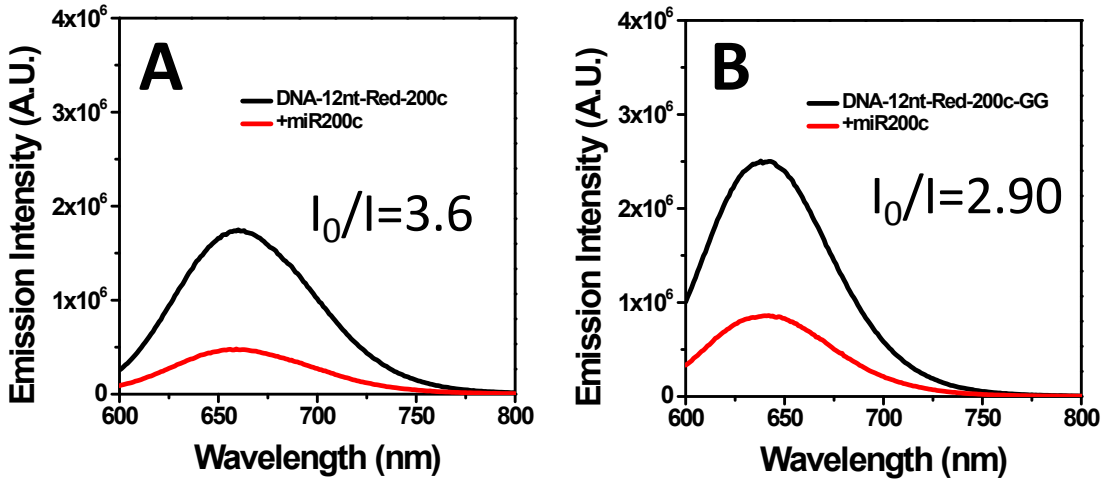
*Correspondence E-mail: swyang@life.ku.dk (S.W.Y.)



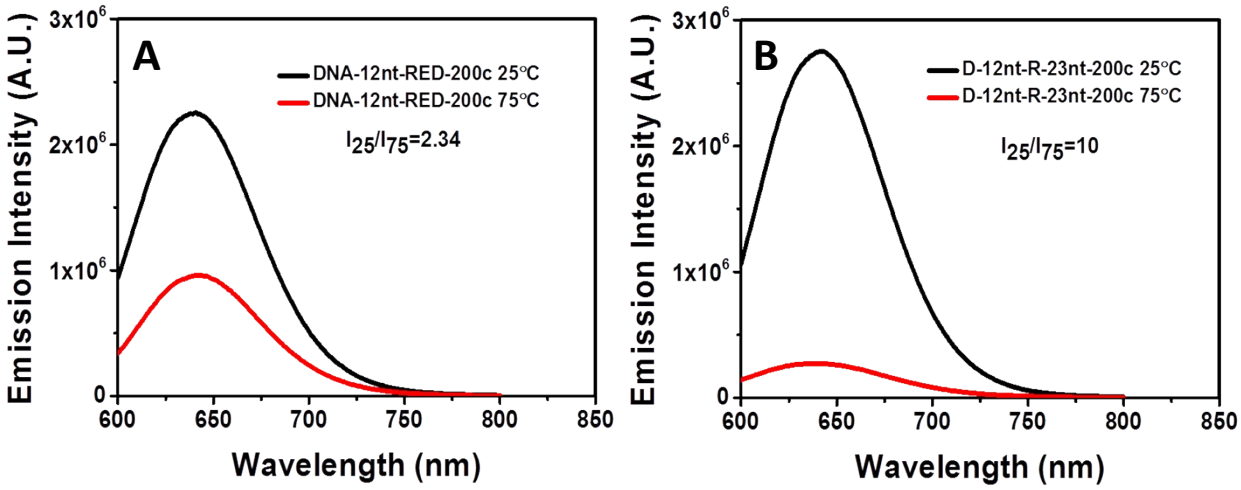
Supplementary Figure S1. Prediction of secondary structures of DNA/AgNCs probes for let-7a. To predict the structures, we used m-fold DNA program (http://mfold.rna.albany.edu/?q=mfold).

miR-21-5p	rUrArGrCrUrUrArUrCrArGrArCrUrGrArUrGrUrUrGrA
miR-200c	rUrArArUrArCrUrGrCrCrGrGrGrUrArArUrGrArUrGrGrA
miR-122	rUrGrGrArGrUrGrUrGrArCrArArUrGrGrUrGrUrUrUrG
ath-miR166	rUrCrGrGrArCrCrArGrGrCrUrUrCrArUrUrCrCrCrC
ath-miR172	rArGrArArUrCrUrUrGrArUrGrArUrGrCrUrGrCrArU
Let-7a	rUrGrArGrGrUrArGrUrArGrGrUrUrGrUrArUrArGrUrU

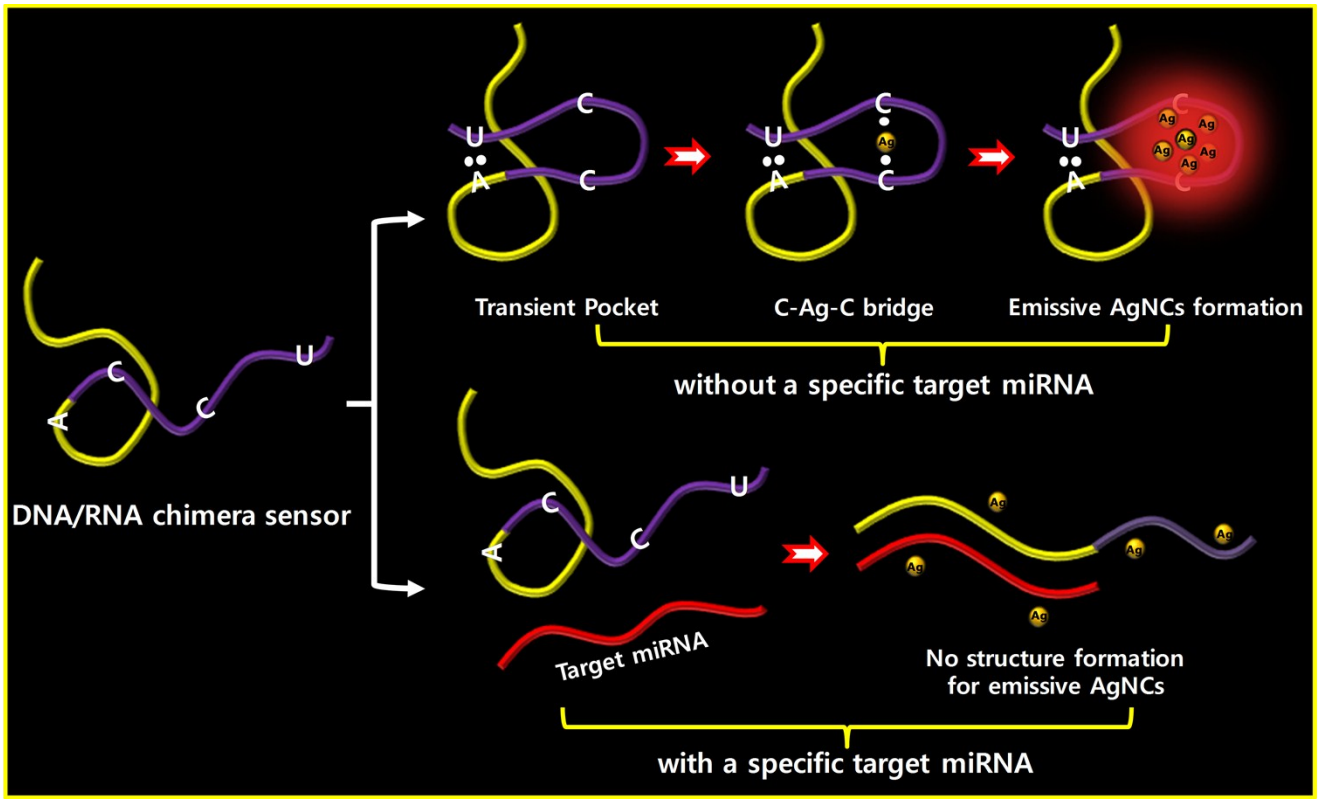
Supplementary Figure S2. Target miRNA sequences used in this study.



Supplementary Figure S3. Target sensitivity of two DNA probes against miR-200c. A) The emission intensity of DNA-12nt-RED-200c probe was diminished 3.6 fold by miR-200c. B) The emission intensity of D-12nt-R-23nt-200c probe was diminished 2.9 fold by miR-200c. These results suggest that the secondary structure of DNA-12nt-RED-200c is more stable than target accessibility.



Supplementary Figure S4. Comparison of emission intensity between 25 °C and 75 °C. A) The emission intensity of DNA-12nt-RED-200c probe was diminished 2.3 fold under 75°C. B) The emission intensity of D-12nt-R-23nt-200c probe was diminished 10 fold under 75°C. These results suggest that the secondary structure of DNA-12nt-RED-200c is more stable than that of D-12nt-R-23nt-200c.



Supplementary Figure S5. A summarized scheme of DNA/RNA chimera sensor strategy