

Supplementary Information

Self-Complementary Hydrogen-Bond Interaction of Guanosine: a Hub for Constructing Supra-Amphiphilic Polymers with Controlled Molecular Structure and Aggregate Morphology

Qian Xiao, Fei Song,* Wu-Cheng Nie, Xiu-Li Wang, Yu-Zhong Wang

Center for Degradable and Flame-Retardant Polymeric Materials, College of Chemistry, State Key Laboratory of Polymer Materials Engineering, National Engineering Laboratory of Eco-Friendly Polymeric Materials (Sichuan), Sichuan University, Chengdu 610064.

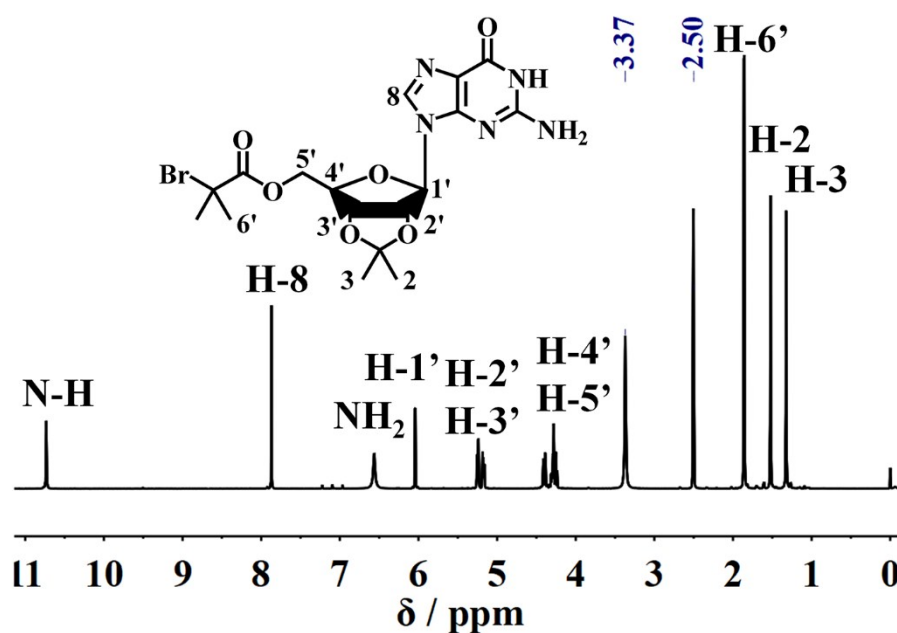


Figure S1. ¹H NMR spectrum of G-Br.

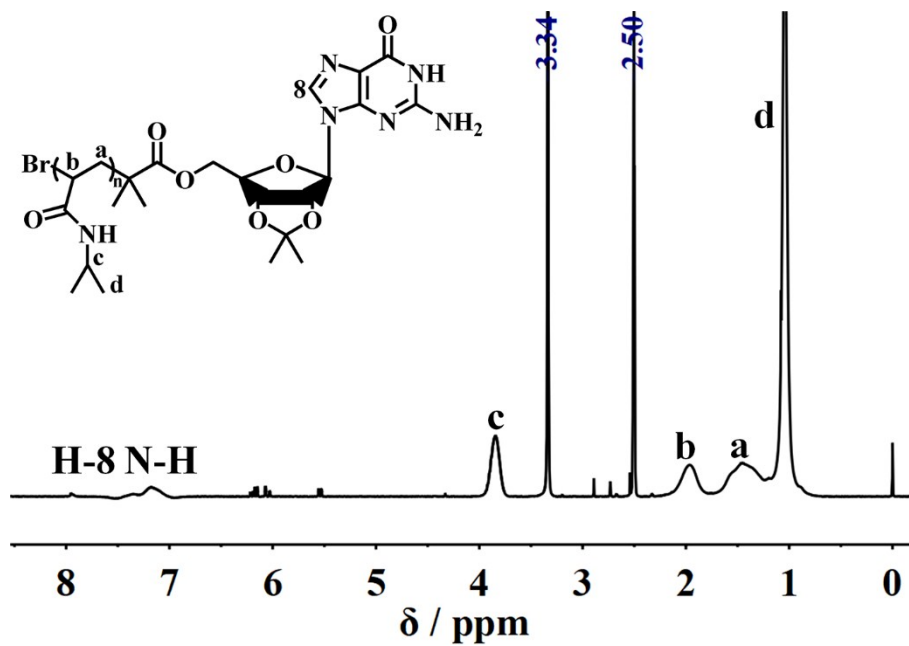


Figure S2. ¹H NMR spectrum of G-PNIPAM.

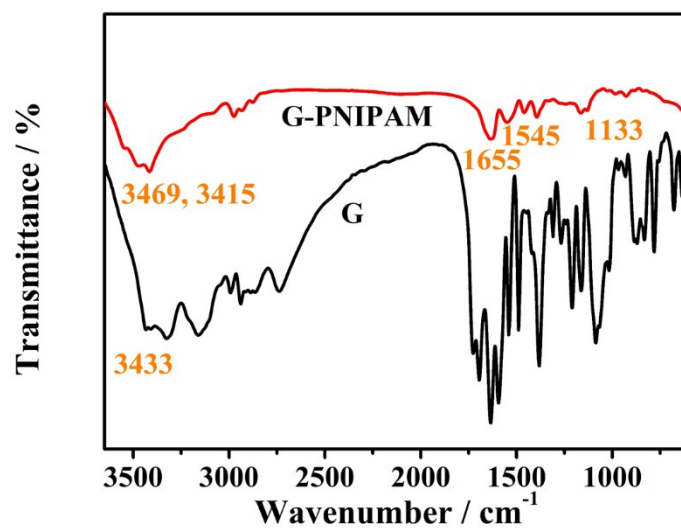


Figure S3. FT-IR spectra of G and G-PNIPAM.

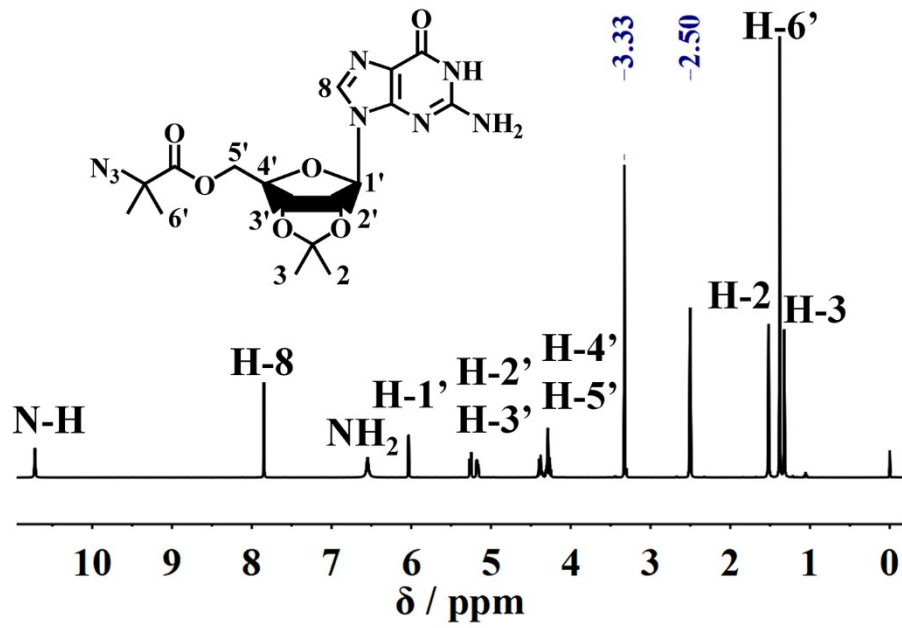


Figure S4. ^1H NMR spectrum of G- N_3 .

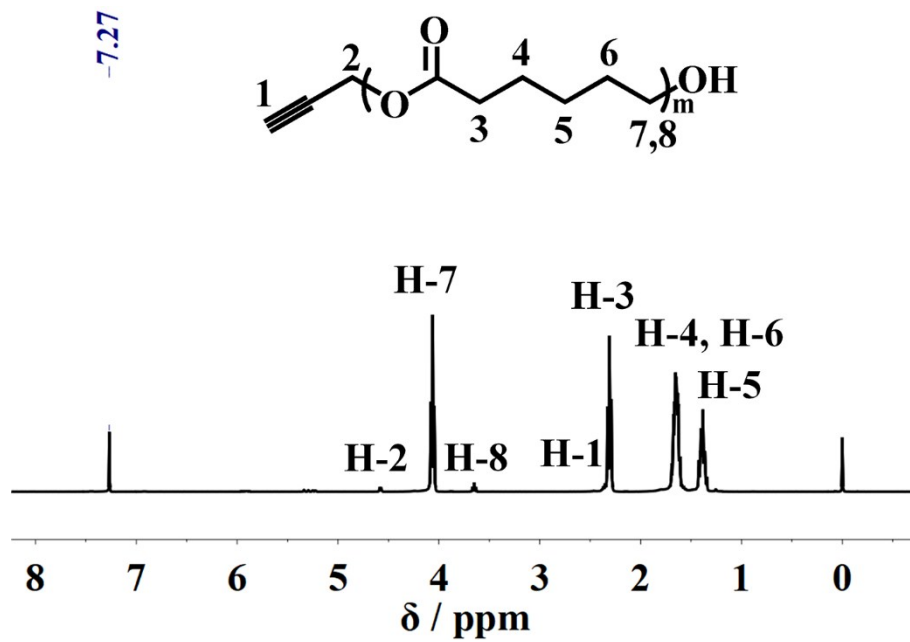


Figure S5. ^1H NMR spectrum of PCL-alkyne.

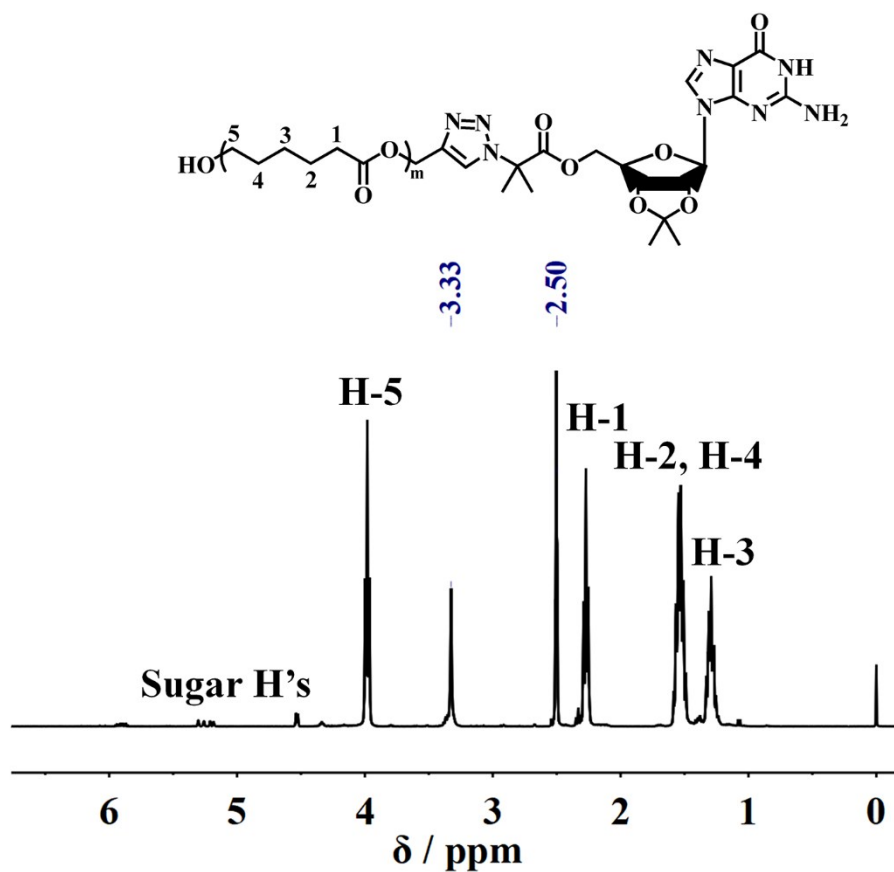


Figure S6. ^1H NMR spectrum of G-PCL.

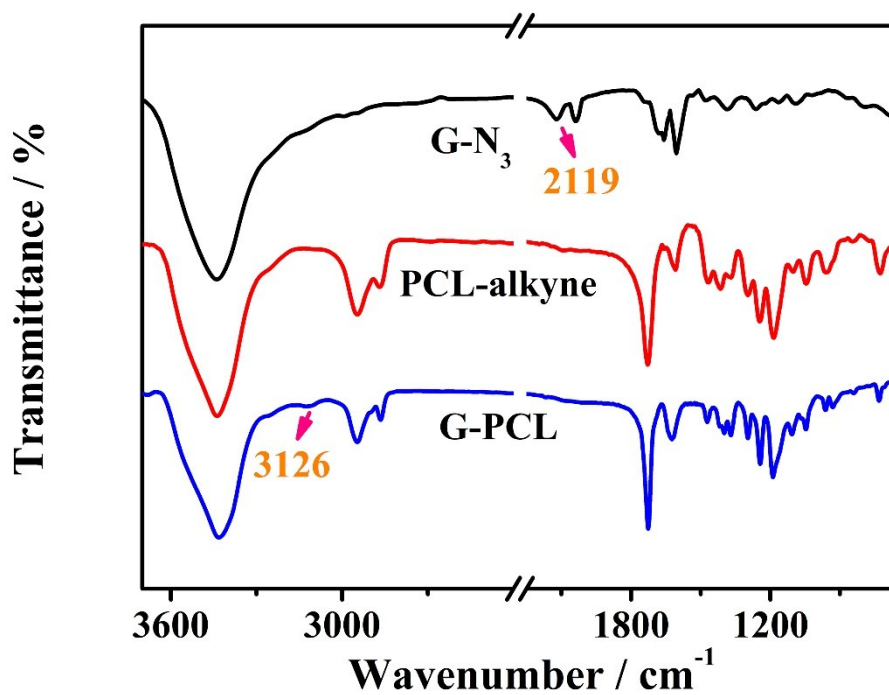


Figure S7. FT-IR spectra of G- N_3 , PCL-alkyne and G-PCL.

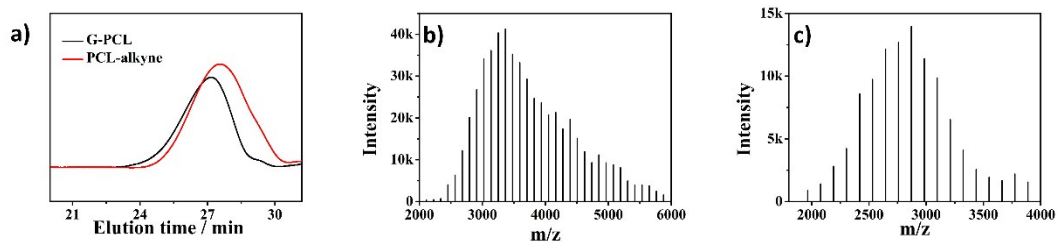


Figure S8. (a) SEC traces of G-PCL and PCL-alkyne using THF as the eluent. MALDI-TOF-MS traces of (b) G-PNIPAM and (c) G-PCL.

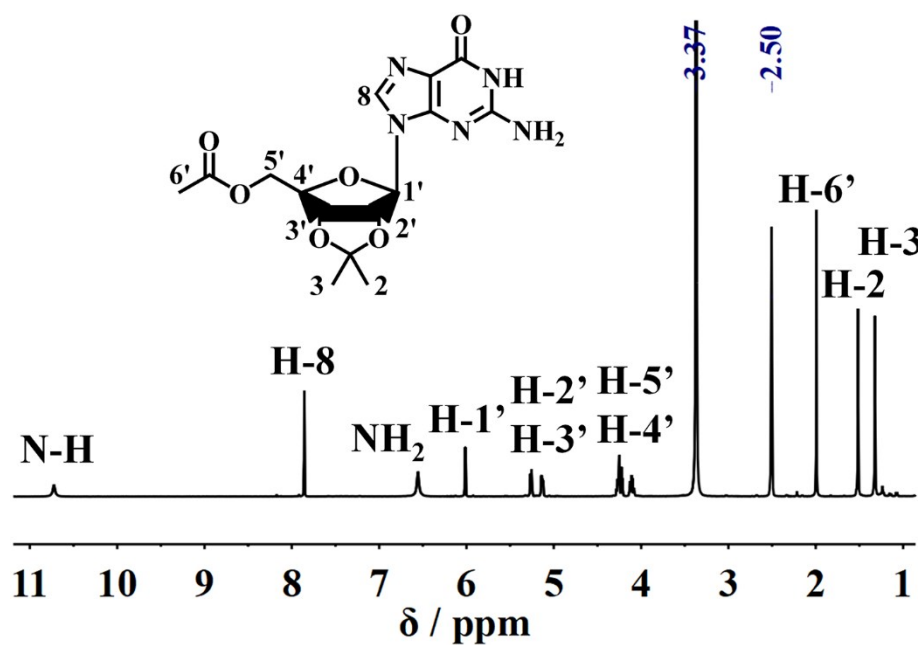


Figure S9. ¹H NMR spectrum of G-OAc.

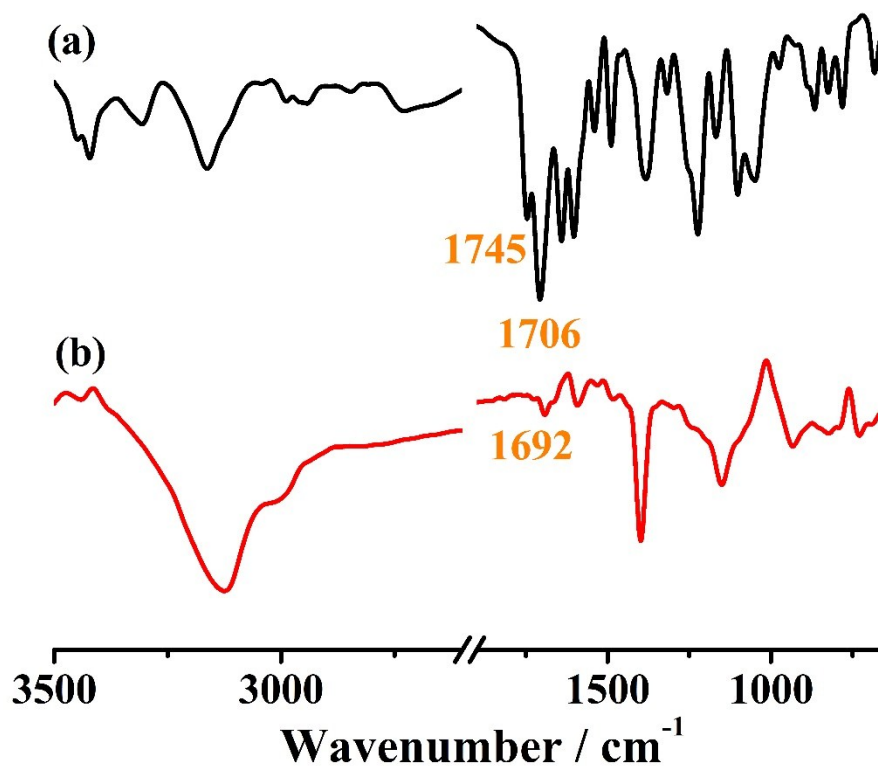


Figure S10. FT-IR spectra of G-OAc (a) in solid state and (b) CHCl_3 .

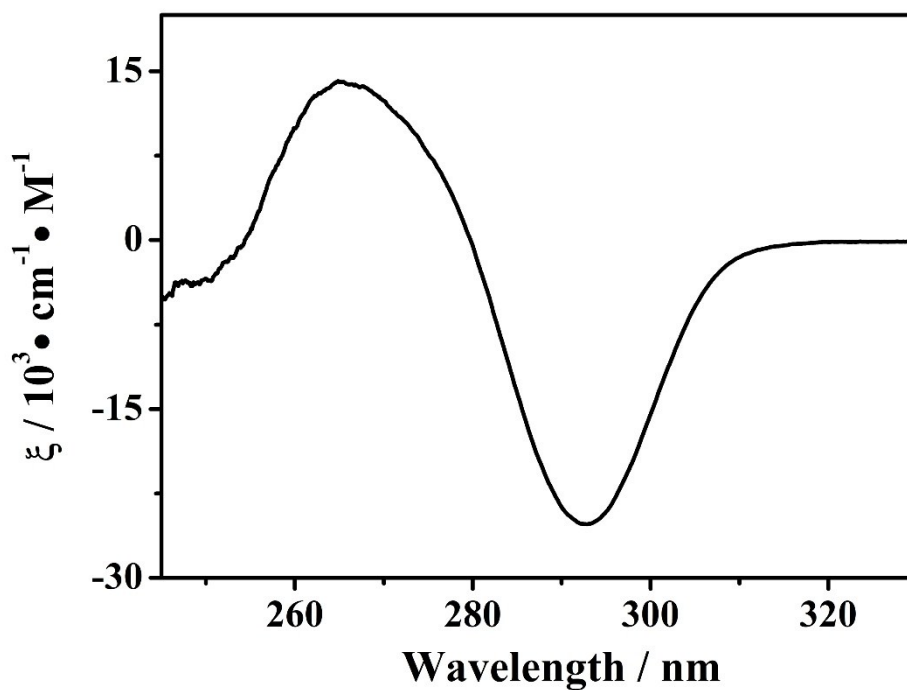


Figure S11. Circular dichroism (CD) spectrum of G-OAc at 0.04 mg/mL in CHCl_3 .

Table S1. Theoretical and actual weight mixing ratios of G-PNIPAM versus G-PCL

Sample	$m_{\text{G-PNIPAM}} : m_{\text{G-PCL}}^{\text{a}}$	$m_{\text{G-PNIPAM}} : m_{\text{G-PCL}}^{\text{b}}$
P1	9.0:1.0	9.3:0.7
P2	7.0:3.0	7.8:2.2
P3	4.0:6.0	4.4:5.6

^a Mixing weight ratios of G-PNIPAM versus G-PCL as designed.

^b Mixing weight ratios of G-PNIPAM versus G-PCL that is determined by ¹H-NMR measurement after dialysis.

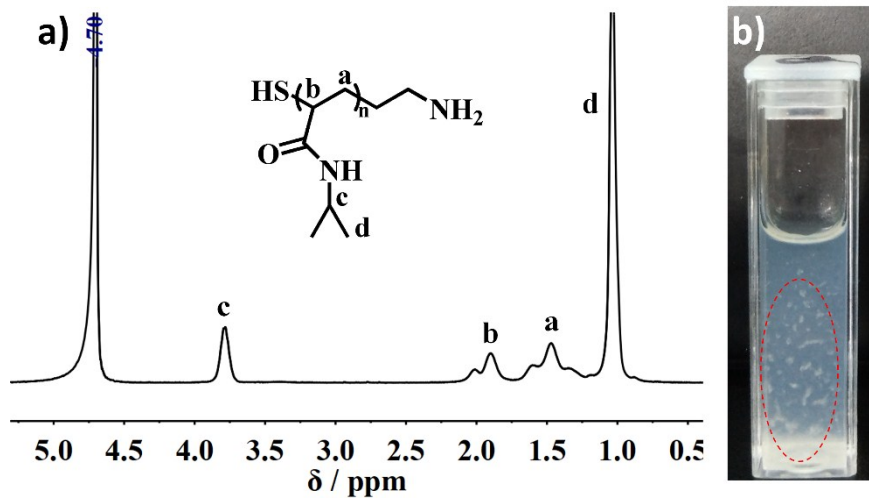


Figure S12. (a) ¹H NMR spectrum of PNIPAM-NH₂, and (b) Digital photograph of the mixture solution containing PNIPAM-NH₂ and G-PCL (weight ratio: 7.0:3.0).

Shape Evolutionary Mechanism of Self-Assembly in SAPs

As reported,^{10, 11} the morphology of polymer assemblies or aggregates can be indicated by the hydrophilic-hydrophobic blocks ratio. Generally, the hydrophilic volume fraction (f) parameter was used to reflect the change of SAPs to some extent. As equation (1)^{10, 11}:

$$f = \frac{\sum V_{\text{philic}}}{\sum V_{\text{total}}} = \frac{\sum \frac{M_{\text{philic}}}{\rho_{\text{philic}}}}{\sum \frac{M_{\text{philic}}}{\rho_{\text{philic}}} + \sum \frac{M_{\text{phobic}}}{\rho_{\text{phobic}}}} \times 100\% \quad (1)$$

The M_i is different block molar mass in the total molecular weight of the block copolymer, and ρ_i is the density of different blocks, 1.269 g/cm³ for PNIPAM,¹² and 1.130 g/cm³ for PCL.¹³ When $f > 50\%$, spherical micelles were expected to form, worm-like micelles when $40\% < f < 50\%$, vesicles or other lamellar structures for $f < 40\%$.^{10, 11}

Reference

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