

Supporting information

Activity Enhancement of G-quadruplex/hemin DNAzyme by Spermine

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Reagents and Instruments

All DNA sequences were synthesized by Sunbiotech (Beijing, China). Spermine was obtained from Sigma. Spermidine was obtained from Acros Organics. Putrescine was obtained from Alfa Aesar. 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) diammonium salt (ABTS, diammonium salt) was obtained from Amresco. 3,3',5,5'-tetramethylbenzidine (TMB) was obtained from J&K Scientific. Hemin and all other chemicals were purchased from Beijing XinjingKe Biotechnology Co., Ltd (Beijing, China). All solutions were prepared with deionized water purified by a Milli-Q system (Millipore, USA). The spectrum analyses were recorded on SpectraMax M5 (Molecular Devices Corporation, USA).

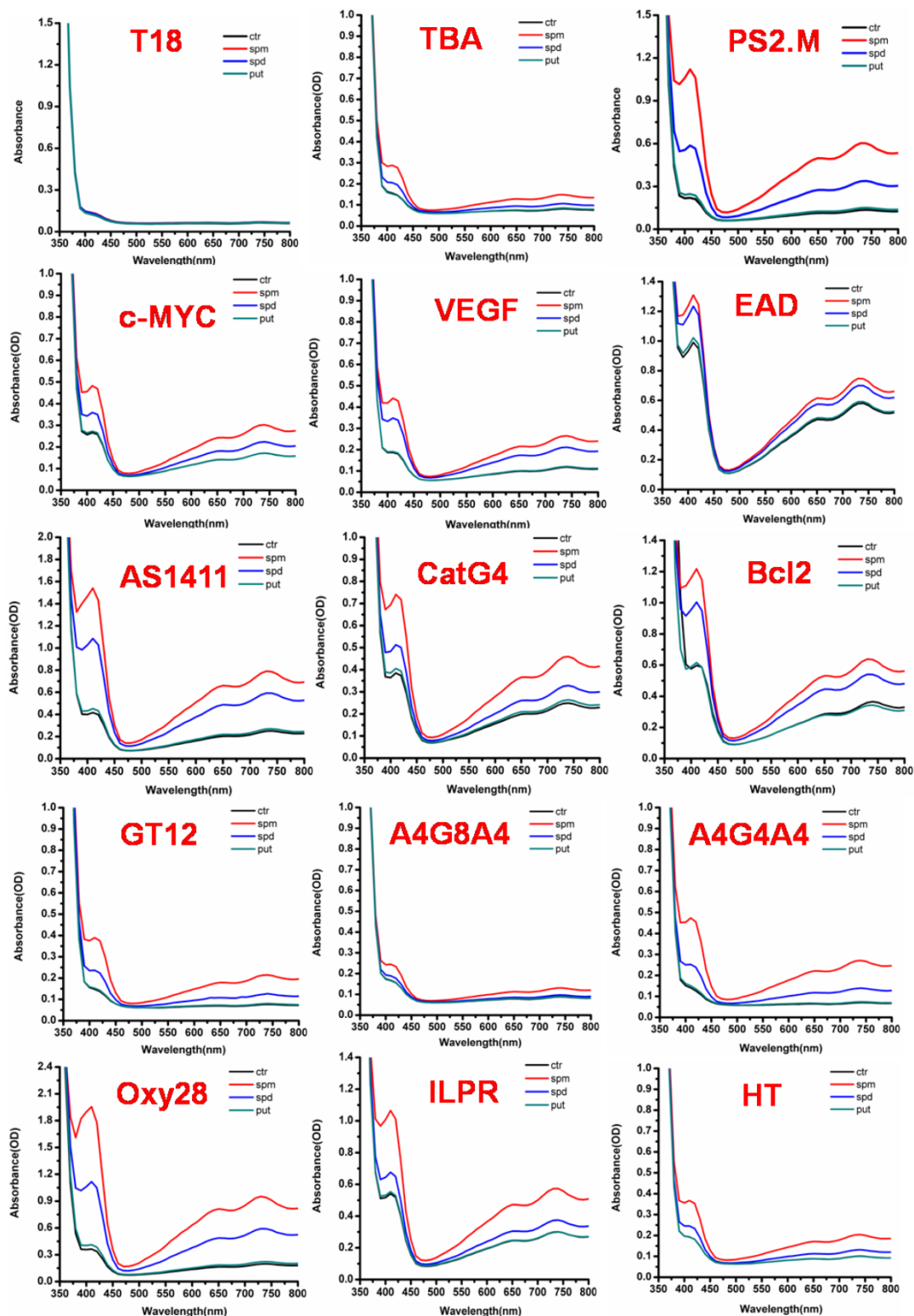


Fig. S1. Effects of polyamines on the catalytic activity of G-quadruplex-hemin DNAzymes. [Non-G-quadruplex: T18] = 2 μ M, [Antiparallel G-quadruplex: TBA] = 2 μ M, [Parallel G-quadruplex: PS2.M, c-MYC, VEGF, EAD, AS1411, CatG4, Bcl2] = 0.5 μ M, [Intramolecular G-quadruplex: GT12, A4G8A4, A4G4A4] = 2 μ M, [Mixed G-quadruplex: Oxy28, ILPR, HT] = 2 μ M, [hemin] = 1 μ M, [polyamines] = 1 mM, [ABTS] = 0.4 mM, [H₂O₂] = 0.6 mM.

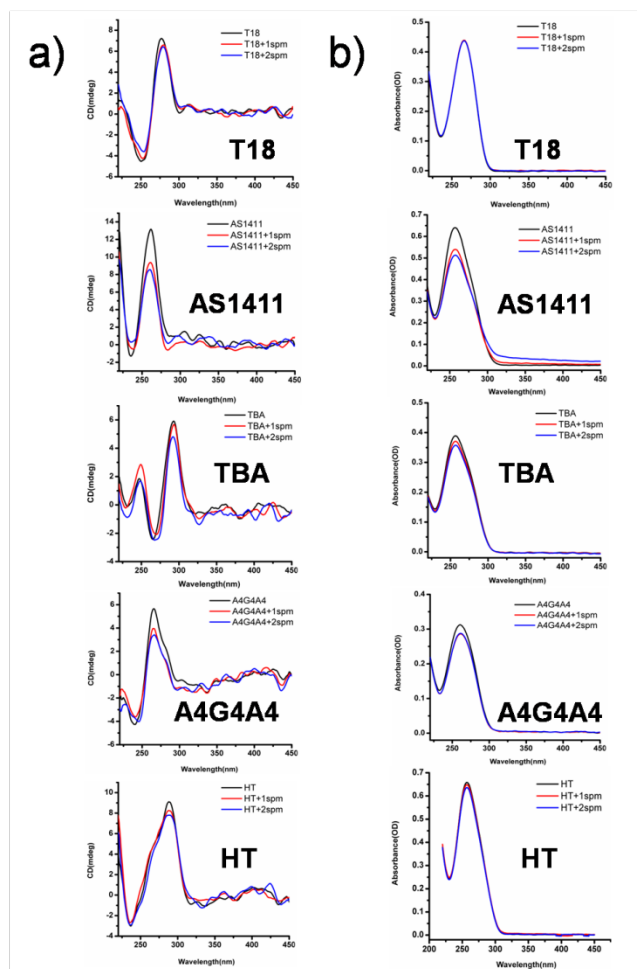


Fig. S2. Effects of spermine on the CD (a) and UV/Vis (b) spectra of different types of G-quadruplex. [G-quadruplex] = 3 μ M, [spermine] = 1 or 2 mM.

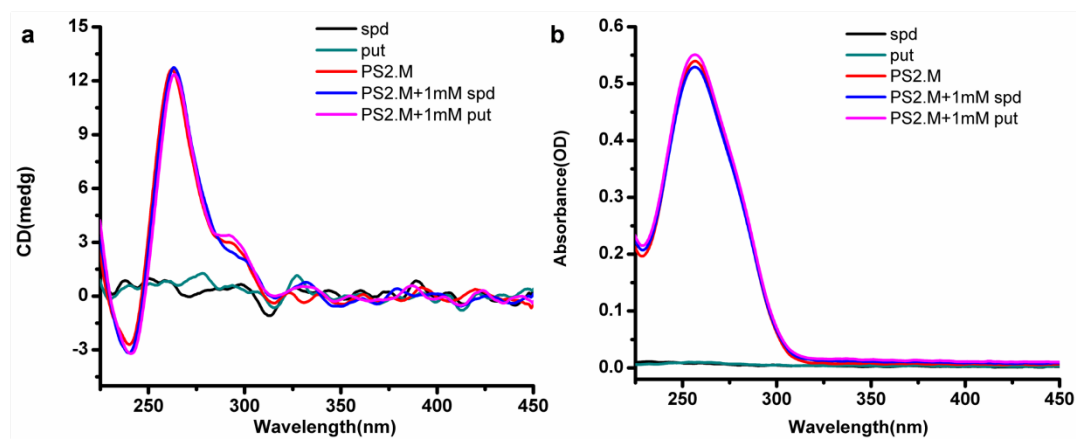


Fig. S3. Effects of spermidine and putrescine on the CD (a) and UV/Vis (b) spectra of PS2.M. [PS2.M] = 3 μ M, [spermidine] or [putrescine] = 1 mM.