

Supporting information

Infection microenvironment-responsive composites based on Ag(I) complex for targeted antimicrobial treatment

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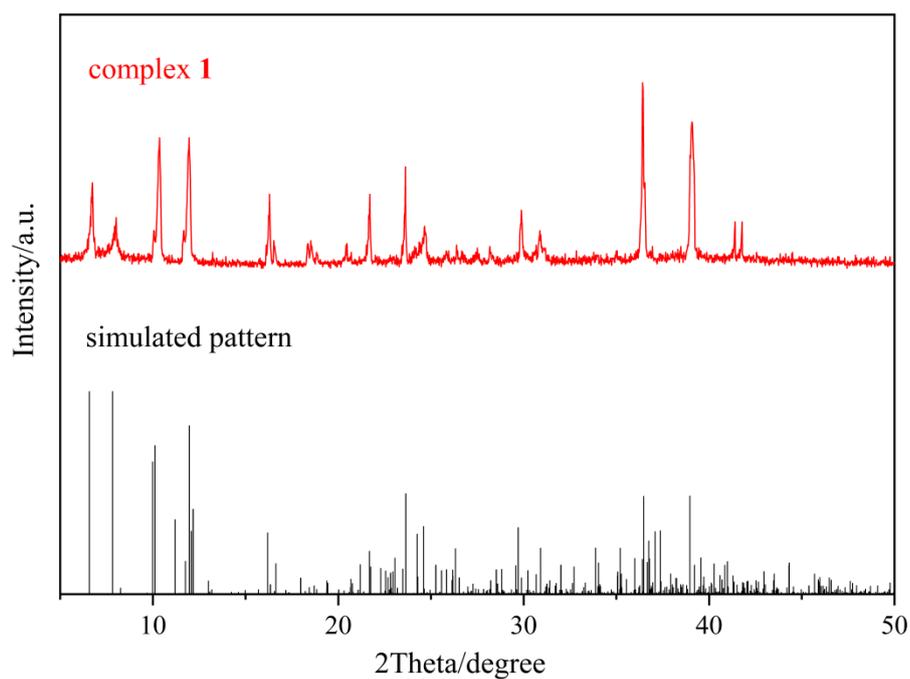


Fig. S1 Simulated and experimental XRD patterns of **1**

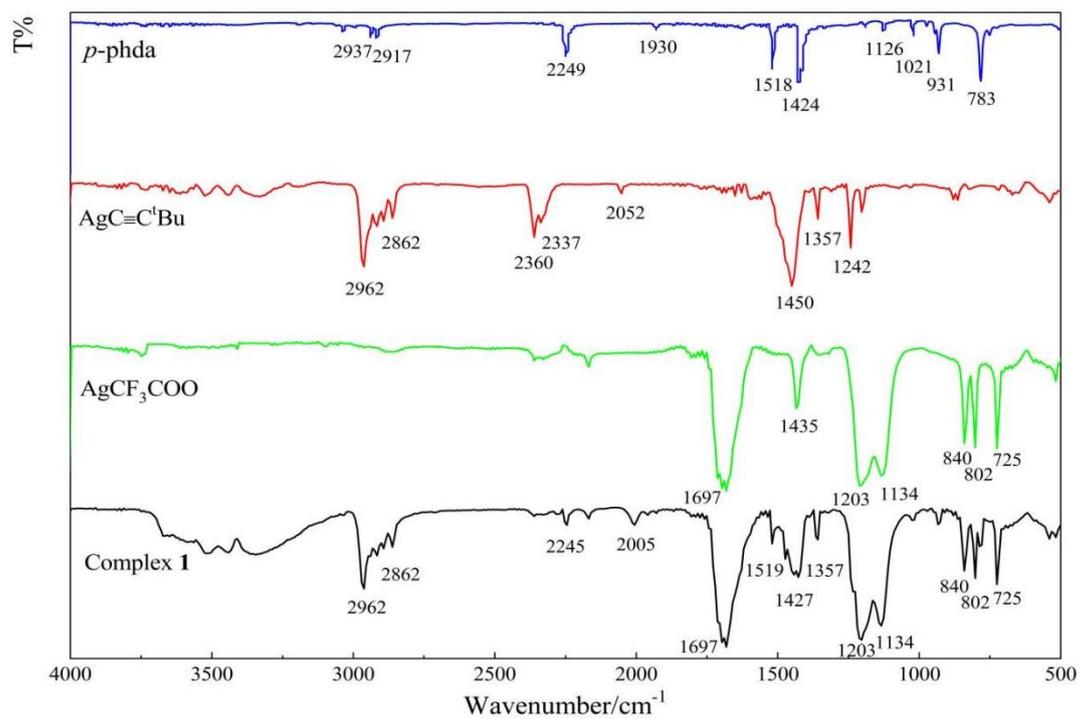


Fig. S2 FT-IR spectra of $\text{AgC}\equiv\text{C}^t\text{Bu}$, *p*-phda and **1**

Table S1 Crystallographic data of **1**.

Parameters	1
Empirical formula	C ₃₄ H ₃₅ Ag ₆ F ₉ N ₂ O ₆
Formula weight / g·mol ⁻¹	1385.86
Crystal Size / mm ³	0.18×0.17×0.15
Crystal System	Orthorhombic
Space group	Pbca
a / Å	17.68875(19)
b / Å	17.4738(2)
c / Å	26.8601(3)
Volume / Å ³	8302.20(16)
Z	8
μ (CuKα) / mm ⁻¹	23.023
ρ calc / g·cm ⁻³	2.218
θ range / °	7.836-132.004
F (000)	5312.0
GOF on F ²	1.192
Independent reflections, Rint	7203, p0.0617
R/wR2 [I>2σ(I)]	0.1115/0.2448
R/wR2 [all data]	0.1167/0.2473

Table S2 Selected bond lengths of **1**

Bond	Distances (Å)	Bond	Distances (Å)
Ag1-C1	2.38(2)	Ag3-N2	2.251(19)
Ag1-C13	2.527(17)	Ag4-C7	2.110(18)
Ag1-O4	2.290(15)	Ag4-C13	2.123(18)
Ag1-O6	2.337(16)	Ag5-C1	2.27(2)
Ag2-C7	2.277(17)	Ag5-C13	2.603(17)
Ag2-C8	2.600(18)	Ag5-O1	2.476(16)
Ag2-C13	2.206(17)	Ag5-N1	2.25(2)
Ag2-C13a	2.206(17)	Ag1-C13a	2.527(17)
Ag3-N2a	2.251(19)	Ag2-C14a	2.64(2)
Ag2-C14	2.64(2)	Ag6-C1	2.43(2)
Ag3-C1	2.24(2)	Ag6-C2	2.70(2)
Ag6-C7a	2.590(17)	Ag6-C7	2.590(17)
Ag3-C7	2.503(17)	Ag6-O2	2.339(14)
Ag3-O5	2.580(16)	Ag6-O3	2.334(16)
Ag2-Ag5a	2.996(2)	Ag2a-Ag5	2.996(2)
Ag4-Ag6	2.852(19)	Ag4a-Ag6	2.852(19)
Ag2-Ag6a	3.181(2)	Ag2a-Ag6	3.181(2)
Ag2-Ag4	3.334(2)	Ag2-Ag4a	3.334(2)
Ag1-Ag4a	2.9205(19)	Ag1a-Ag4	2.9205(19)
Ag1-Ag2	3.098(2)	Ag1-Ag3	3.057(2)
Ag3-Ag5	2.9817(19)	Ag1-Ag6	3.0332(18)
Ag4-Ag5	2.867(19)	Ag3-Ag4	2.8871(19)
Ag5-Ag6	3.125(2)	Ag2-Ag3	2.998(2)

Symmetry codes a:2-x, 1-y, 1-z.

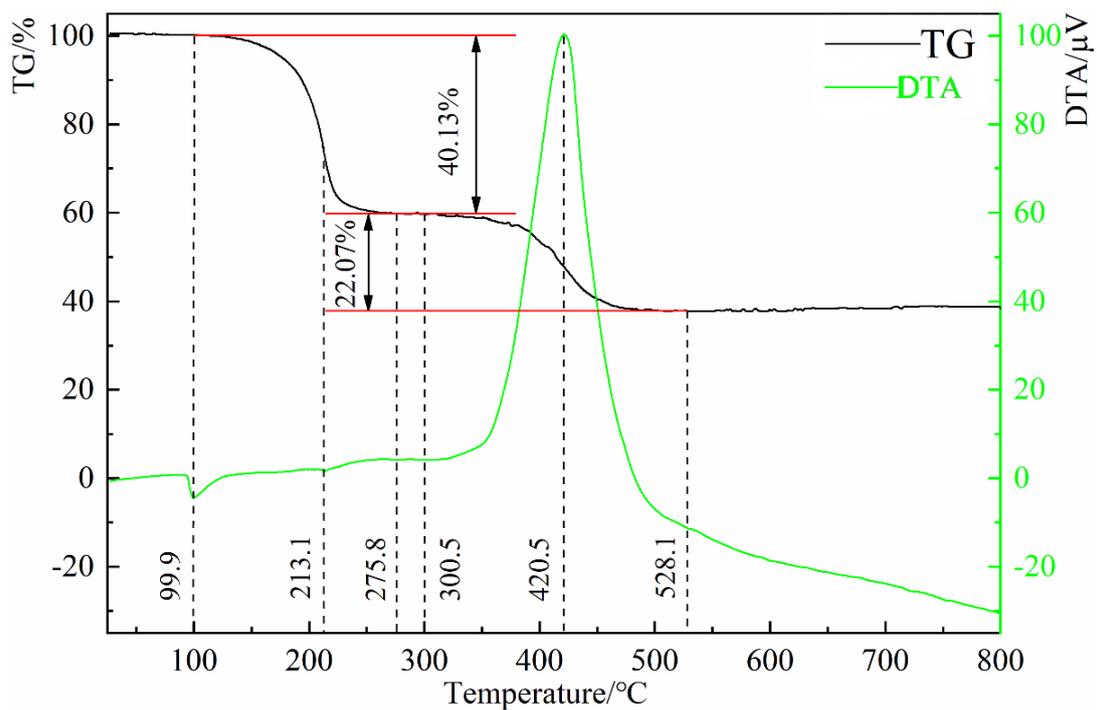


Fig. S3 TG-DTA curves of **1**

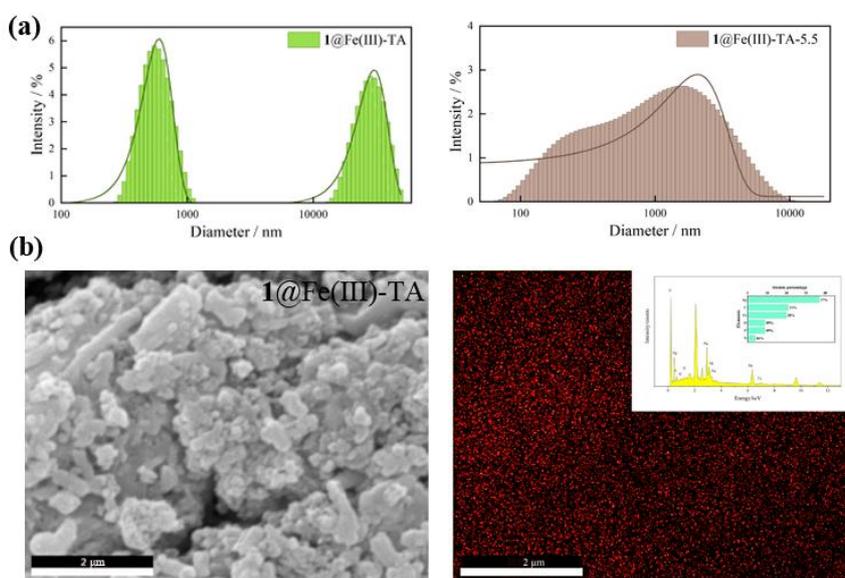


Fig. S4 DLS analysis (a) and EDAX mapping (b) of **1@Fe(III)-TA**

Note: SEM image of **1@Fe(III)-TA** here was obtained by powder pressing method.

Table S3 Diameters of inhibition zones for **1** and other references (mm)

Strains	1	AgNO ₃ ointment	cefazolin	Treated medium	Blank
<i>C. albicans</i>	16.85	8.21	8.25	6.33	6.18
<i>S. aureus</i>	10.01	7.52	29.81	6.21	6.24
<i>P. aeruginosa</i>	14.21	10.62	9.83	6.21	6.08
<i>E. coli</i>	10.89	9.23	12.84	6.16	6.23

Note: the diameter of hole is 6 mm.

Table S4 MIC (mg/L) and AgMIC values ($\times 10^{-5}$ mol Ag/L) of **1**

Strains	1 (MIC/ AgMIC)
<i>C. albicans</i>	32/1.39
<i>S. aureus</i>	128/5.54
<i>P. aeruginosa</i>	128/5.54
<i>E. coli</i>	128/5.54

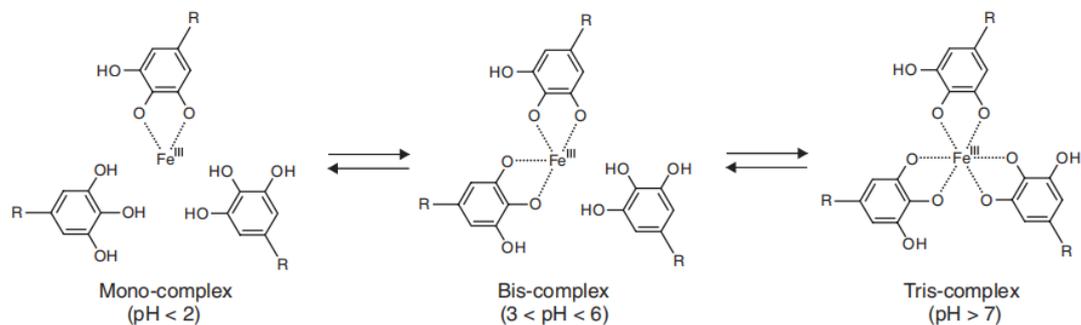
Table S5 Diameters of inhibition zones for **1** and composites before and after treatment (mm)

Strains	1	1 @HA	1 @ Fe(III)-TA	1 @HA-HAase	1 @ Fe(III)-TA-5.5
<i>C. albicans</i>	10.33	10.23	11.10	10.86	11.20
<i>S. aureus</i>	11.32	12.12	10.95	11.83	10.12
<i>P. aeruginosa</i>	13.64	10.32	9.56	14.56	15.26
<i>E. coli</i>	13.42	9.56	10.23	11.45	12.21

Note: The diameters of **1** are different from those in Table S3 because they were conducted respectively in different agar plates.

Table S6 MIC values (mg/L) of **1** and composites before and after treatment

Strains	1	1 @HA	1 @Fe(III)-TA	treated 1 @HA	Treated 1 @Fe(III)-TA
<i>C. albicans</i>	32	512	>1024	64	512
<i>S. aureus</i>	128	256	>1024	256	256
<i>P. aeruginosa</i>	128	64	1024	64	256
<i>E. coli</i>	128	128	1024	64	256



Scheme S1 The principle of pH-response of Fe(III)-TA complex^[1]

[1] Hirotaka Ejima, Joseph J. Richardson, Kang Liang, et al. One-Step Assembly of Coordination Complexes for Versatile Film and Particle Engineering[J]. Science, 2013, 314: 154-157.

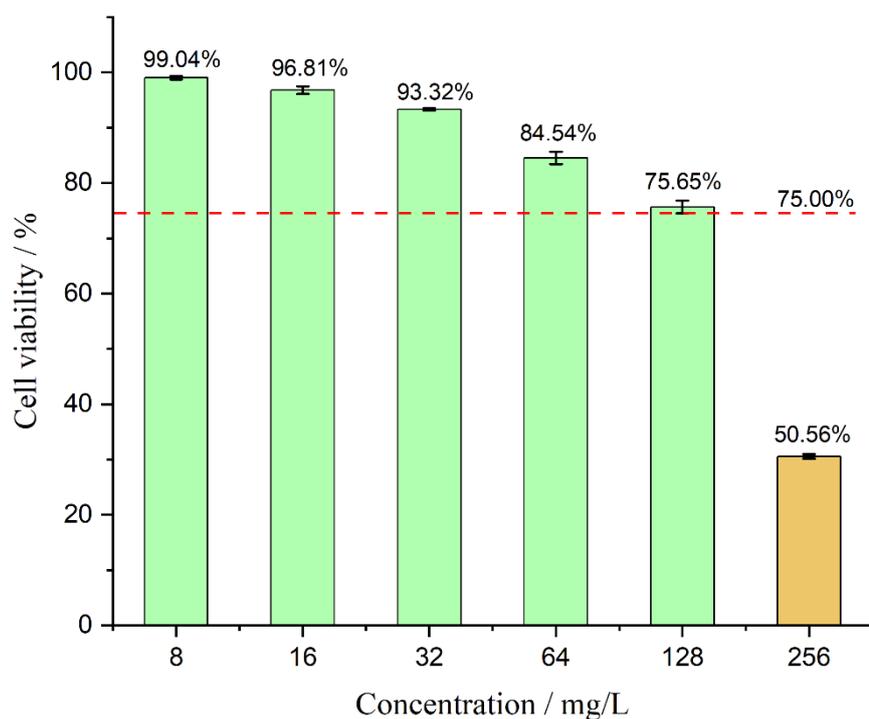


Fig. S5 Cell viability of **1** with different concentrations