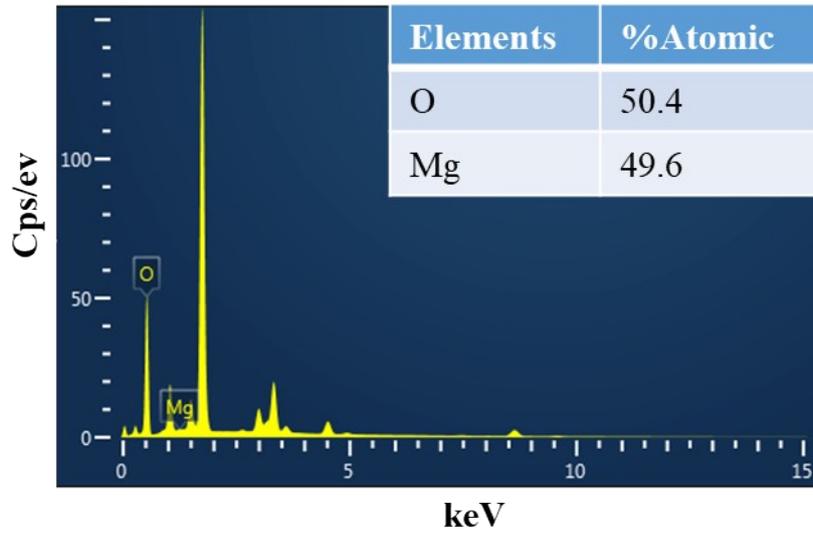


Supporting Information

Biofilm-Penetrating Nanozyme Robot for Drug-Free Inactivation of Drug-Resistant Bacteria

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a.



b.

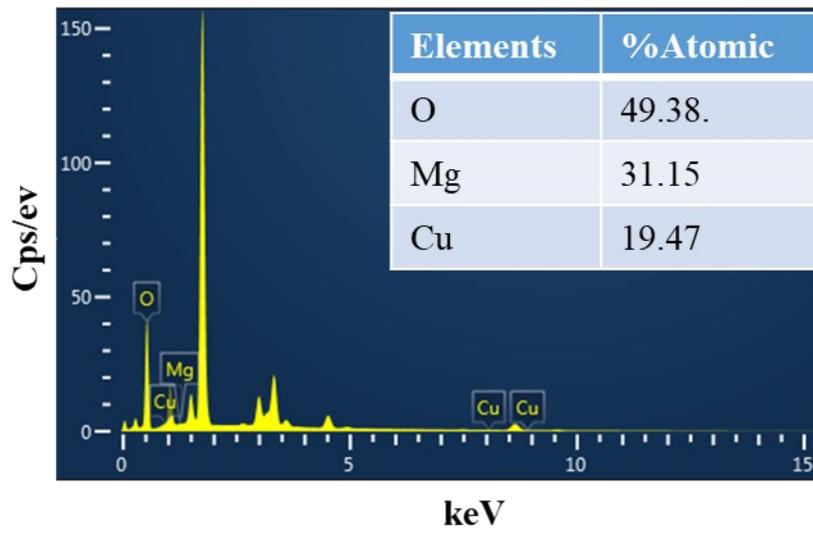


Fig S1. EDX analysis of (a) Mg and (b) MCO.

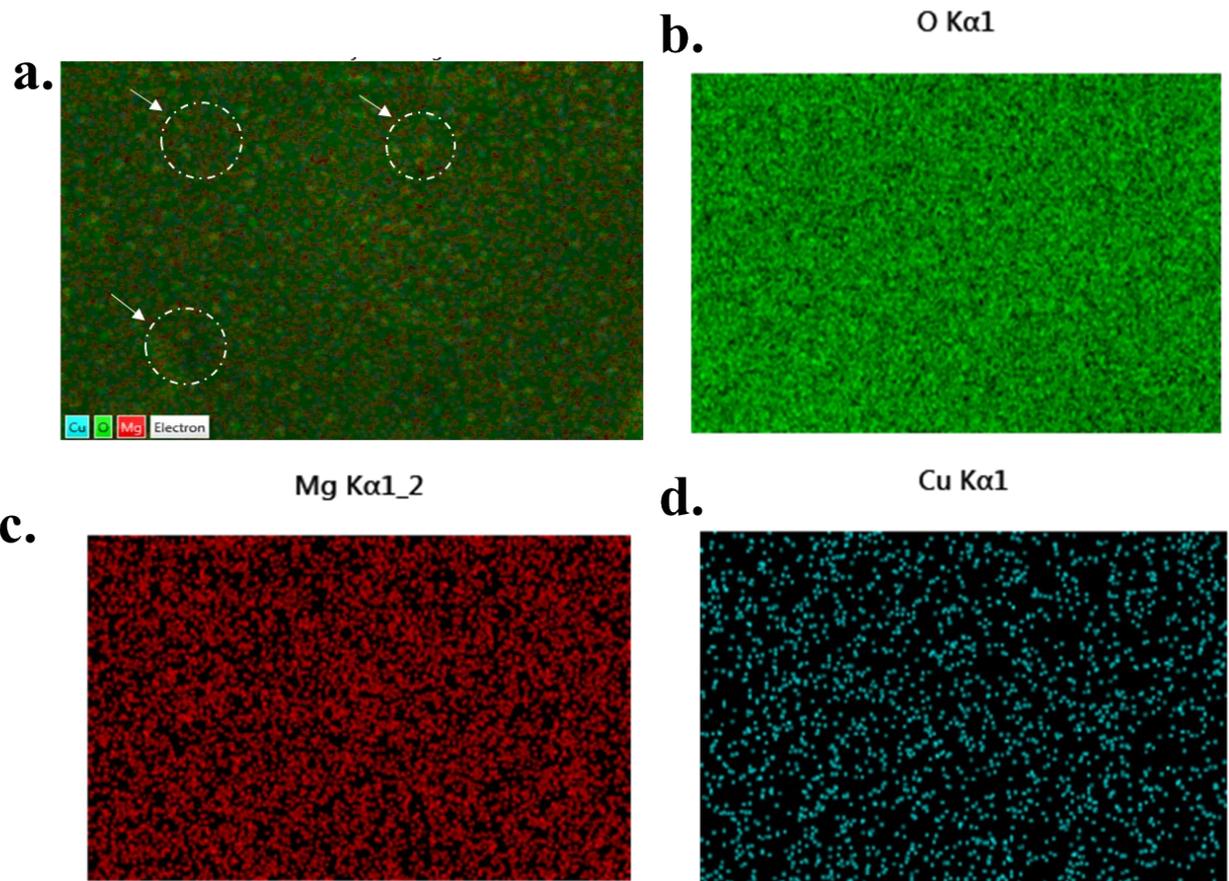


Fig S2. (a-d) SEM /Elemental Mapping of MCO nanobots.

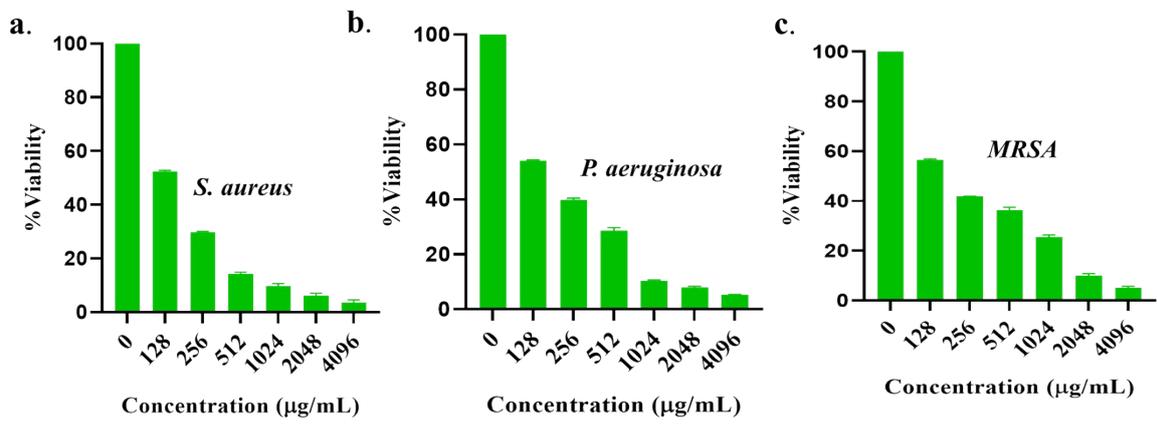


Fig S3. (a-c) Minimum Bactericidal concentration of MCO nanobots.

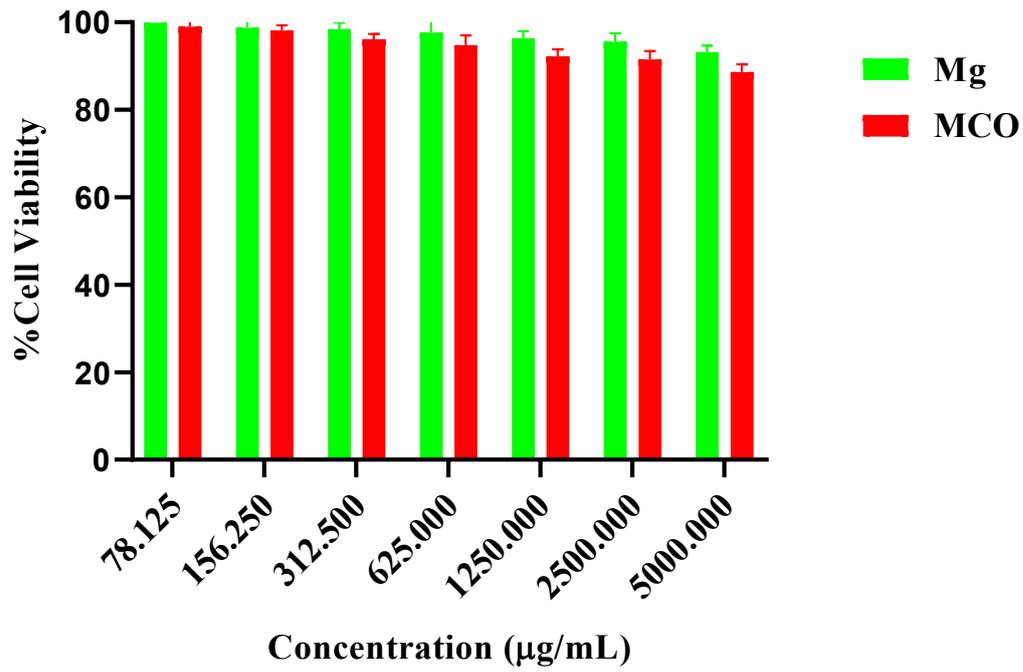


Fig S4. Cell viability assay of Mg and MCO nanobots on NIH3T3 cells.

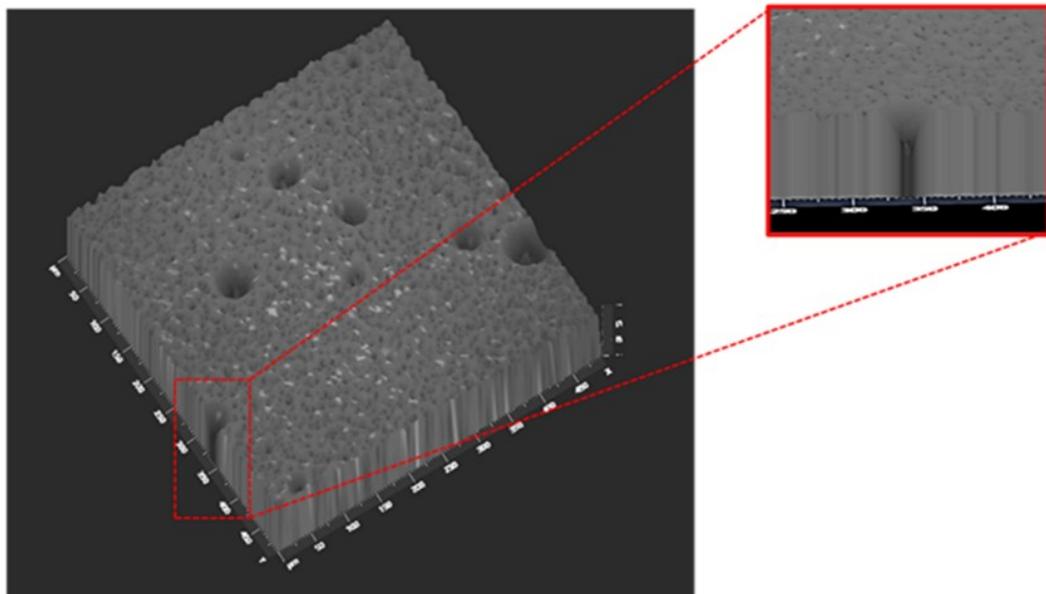


Fig S5. 3D image showing penetration of nanobot in biofilm.

Supplementary Table S1. Total propulsion time of MCO in various media.

	MCO propulsion time (h)	
NaHCO₃ Conc. (M)	0	1.0
PBS	~ 0.20	> 3.5
Serum	~ 0.42	> 4.5

Supplementary Table S2. Comparison of Micro/Nanomotors with current studies.

Sr. No.	Assay	Micro/Nanomotor	Concentration	Bacteria	Efficiency	Reference
1	Antibacterial activity by colony numbers	DPNMs	1 mg/mL	Staphylococcus aureus	~ 90%	<i>Wang et al., Adv. Sci.</i> 2024, 11, 2305063
2	Antibacterial activity by colony numbers	Fe SA/NPCs + PMS	0.2 mg/mL	E. coli	~ 100%	<i>Yang et al., Small</i> 2022, 18, 2104941
3	Antibacterial activity by colony numbers	Ag/Mg Micromotors	5 mg in 200 μ L E. coli suspension containing 1 M NaHCO ₃	E. coli	~ 90 %	Nano-Micro Lett. (2016) 8(2):157–164
4	Antibacterial activity by colony numbers	MCO	0.256 mg/mL	Staphylococcus aureus	~ 90%	Current