

Electronic Supporting Information

For

A portable test strip fabricated of luminescence lanthanide-functionalized metal-organic frameworks for rapid and visual detection of tetracycline antibiotics

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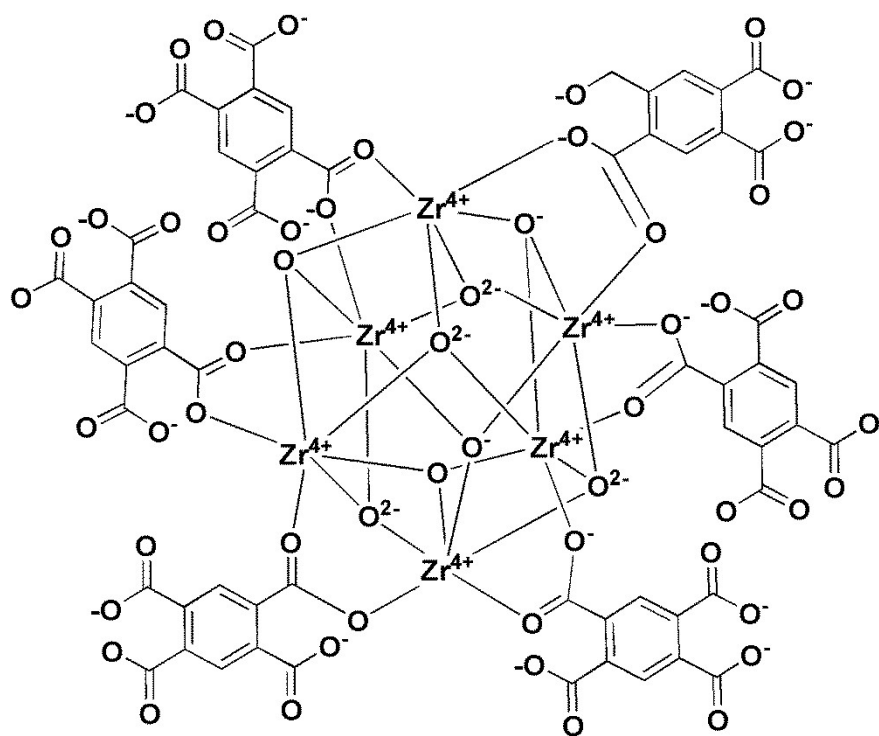


Figure S1 Structural formula of UiO-66-(COOH)₂.

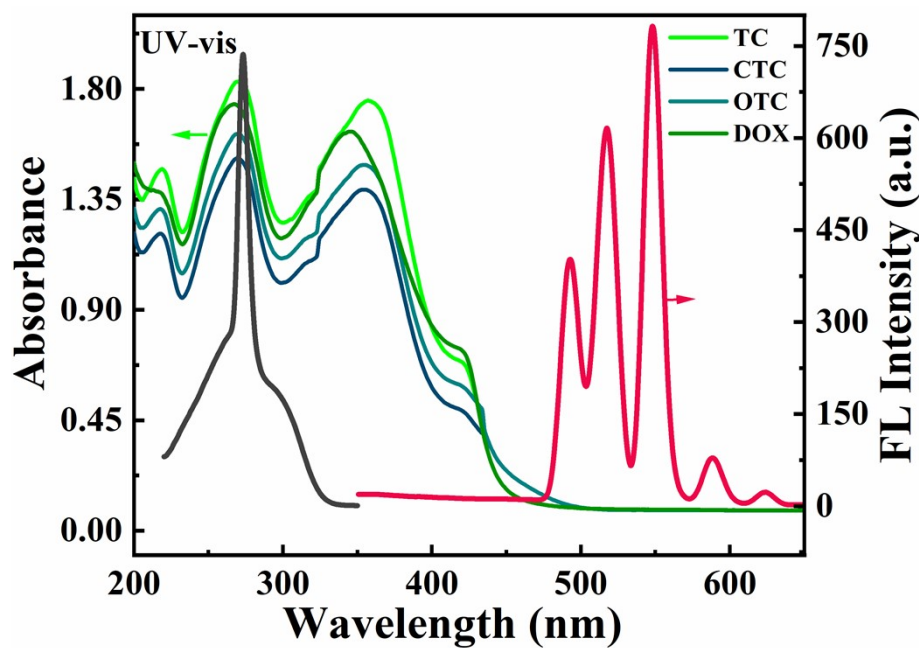


Figure S2 The UV-vis absorption spectra of the tetracycline antibiotics and the excitation and emission spectra of the ATUC.

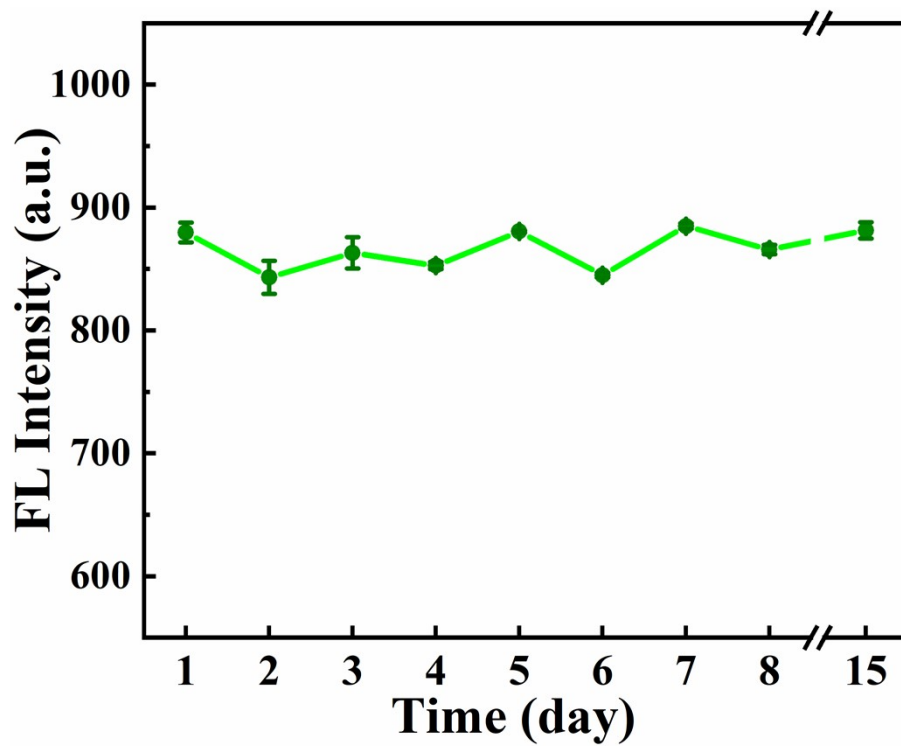


Figure S3 The long term stability of the luminescence property of the ATUC.

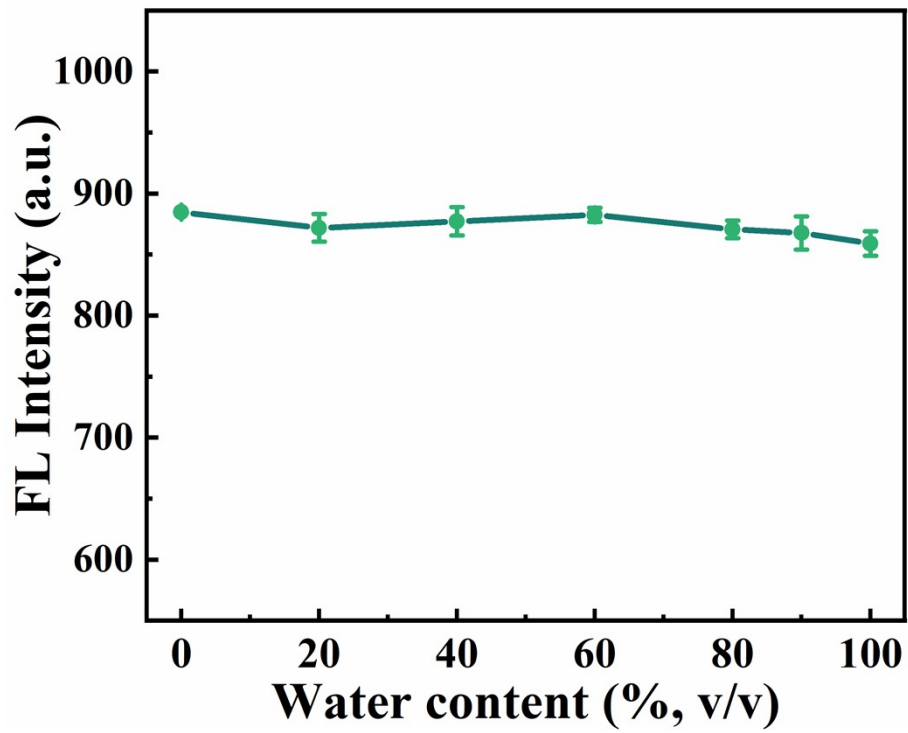


Figure S4 Effect of the different water content exposure on luminescence intensity of the ATUC MOFs.

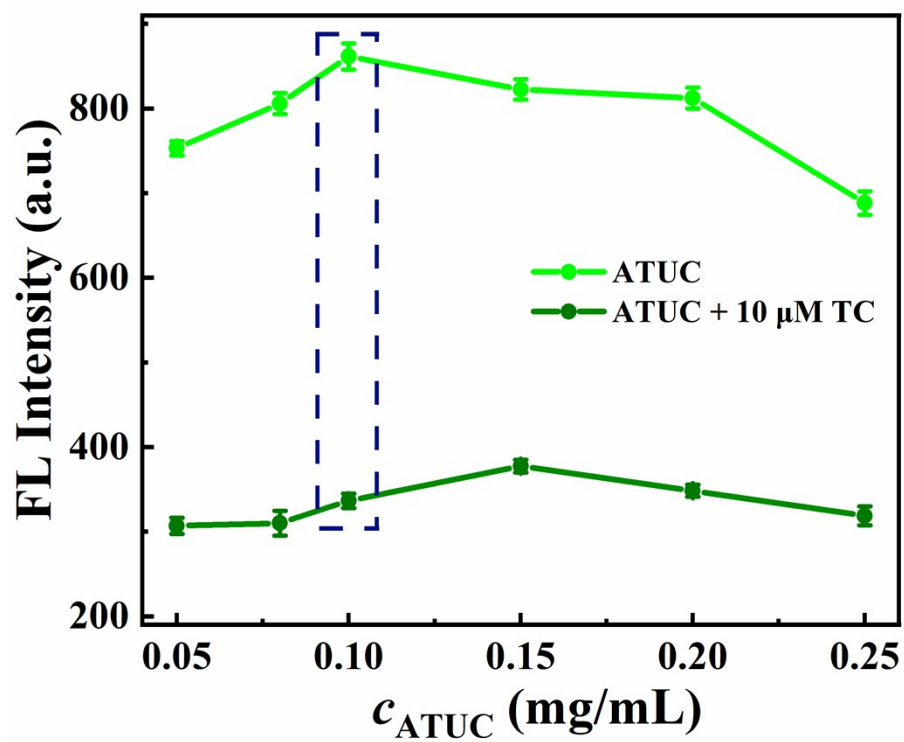


Figure S5 Effect of the probe concentration on luminescence intensity of ATUC in the absence (light green curve) and presence (dark green curve) of the TC.

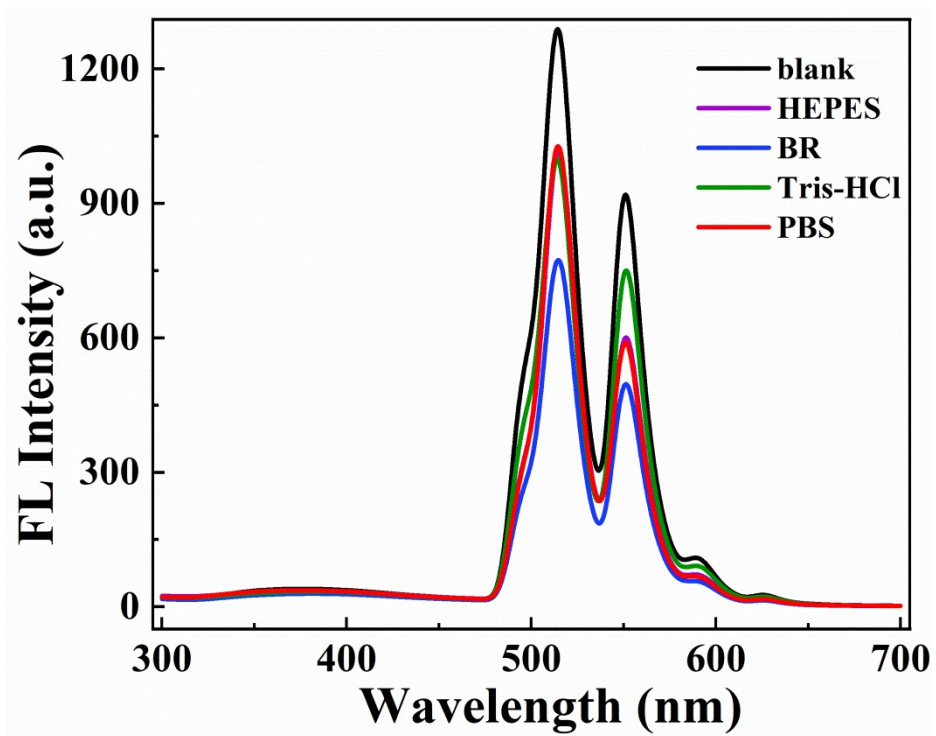


Figure S6 Effect of the type of buffer solution on the luminescence intensity of the ATUC. Concentration of the ATUC, 0.1 mg/mL.

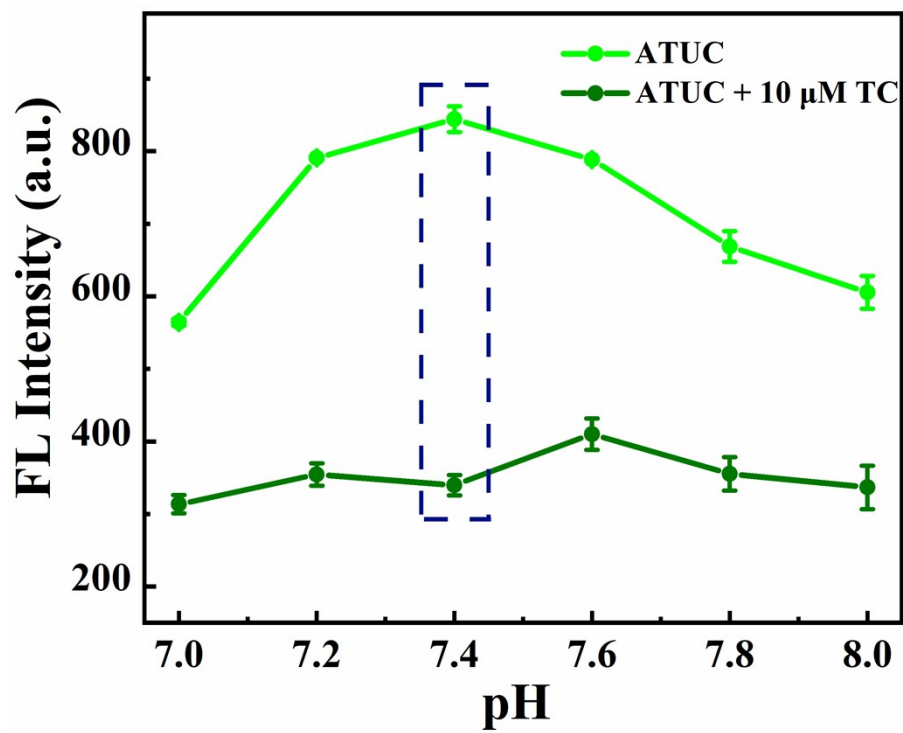


Figure S7 Effect of pH on the luminescence intensity of the ATUC in the absence (light green curve) and presence TC (dark green curve). Concentration of the ATUC, 0.1 mg/mL.

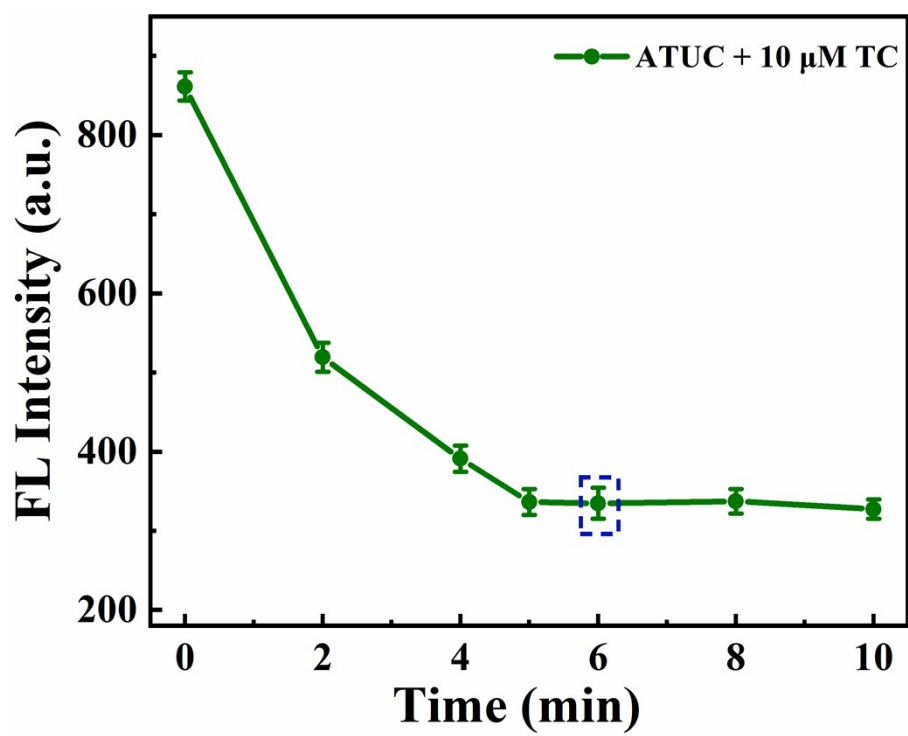


Figure S8 Optimization of the incubation time between the ATUC and the TC. Concentration of the ATUC, 0.1 mg/mL.

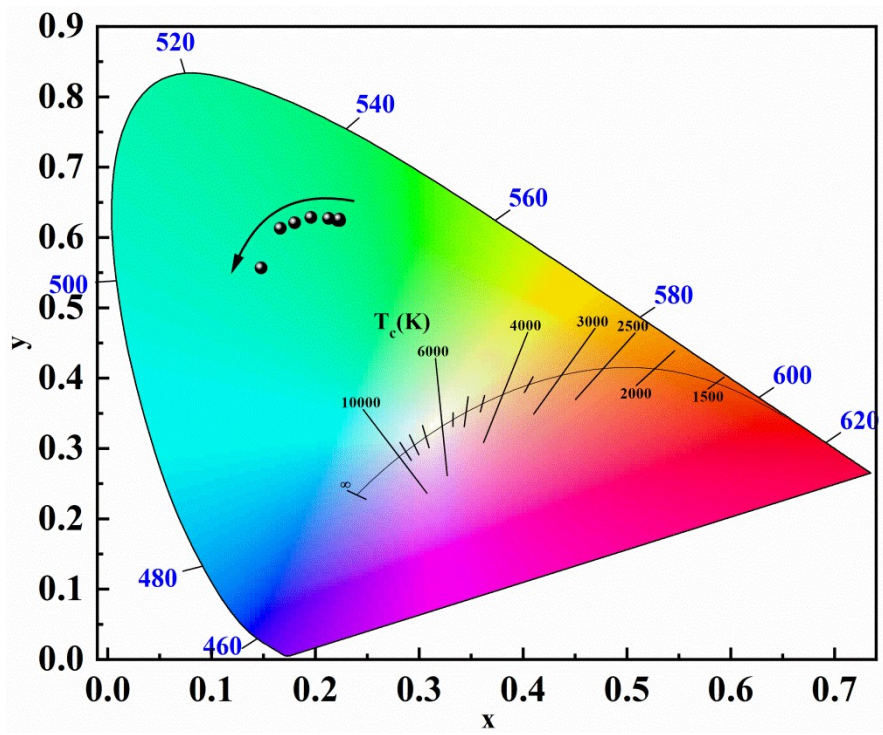
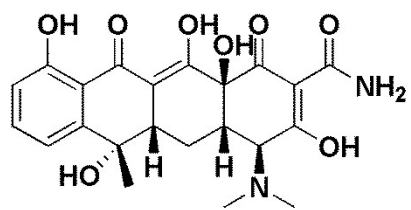
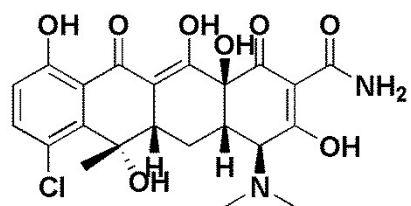


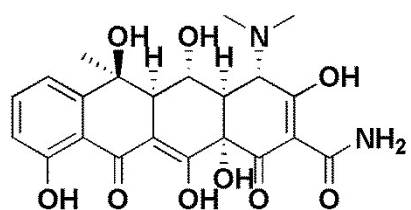
Figure S9 CIE coordinates of the emission spectra of the ATUC solution.



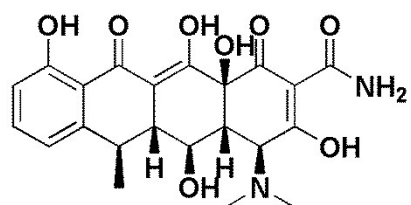
Tetracycline



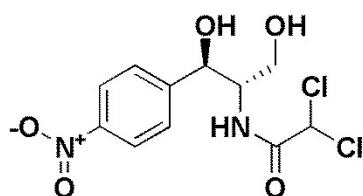
Chlortetracycline



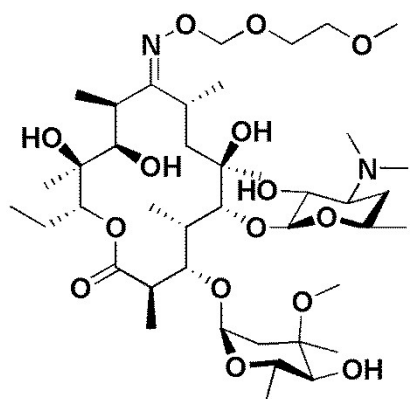
Oxytetracycline



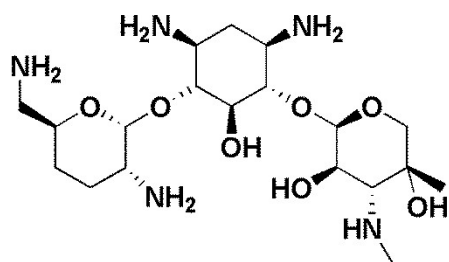
Doxycycline



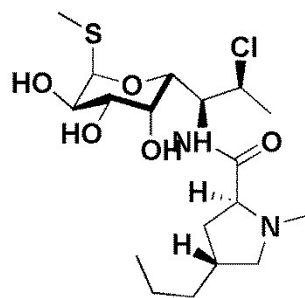
Chloramphenicol



Roxithromycin



Gentamicin



Clindamycin

Figure S10 The structures of the several kinds of antibiotics.

Table S1 A brief summary of various methods for detection of tetracycline antibiotics.

Method	Material used	Sample	Linear range	LOD	Measure time	Reference
HPLC	-	milk	-	0.95~3.6 µg/L	20 min	1
LC-MS/MS	-	fish	-	12.53~19.01 µg/kg	20 min	2
Colorimetric	AuNCs-Aptamer	drug and milk	1~16 µM	46 nM	1.5 h	3
ECL	RuSiNPs	drug	0.1~100 µM	0.23 µM	-	4
Electrochemical	PEC aptasensor G/BiYWO ₆ /Ce:CdS	Drug	1.0×10 ⁻² µg/L	0.01 ng/mL	-	5
CE	-	tap water	0.03~5 µg/ mL	8.1~14.5 µg/L	2.6 min	6
Fluorescent	NH ₂ -MIL-53(Al)	milk	0~73 µM	26.16 µM	30 s	7
Fluorescent	Silver nanoparticles (AgNPs)	drug	0.1~6.0 mg/L	1.4/0.43 nM	-	8
Fluorescent	CdTe QD-SiO ₂	milk and serum	0~15 µM	0.14 µM	4 h	9
Fluorescent	Eu-MOF	milk and beef	0~140 M	39.8 µM	1 min	10
Fluorescent	Tb-MOF	water	0~50 µM	1.95/2.77 nM	1 min	11
Fluorescent	Ag ⁺ /Tb ³⁺ @Uio-66 (COOH) ₂	milk and honey	0.1~100 µM	11.4/20.6/9.1/9.6 nM	6 min	This work

Notes and references

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