Supporting Information

Synthesis and structure-activity relationship of novel thiazole aminoguanidines against MRSA and *Escherichia coli*

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Figures S1 to S15 are ^{1}H NMR spectra, Figures S16 to S24 are ^{13}C NMR spectra, Figure S25 is computational conformation, Figures S26 to S30 are representative HPLC traces, Table S1 is docking scores, Table S2 is in silico ADMET profiling for compound 4a-o.

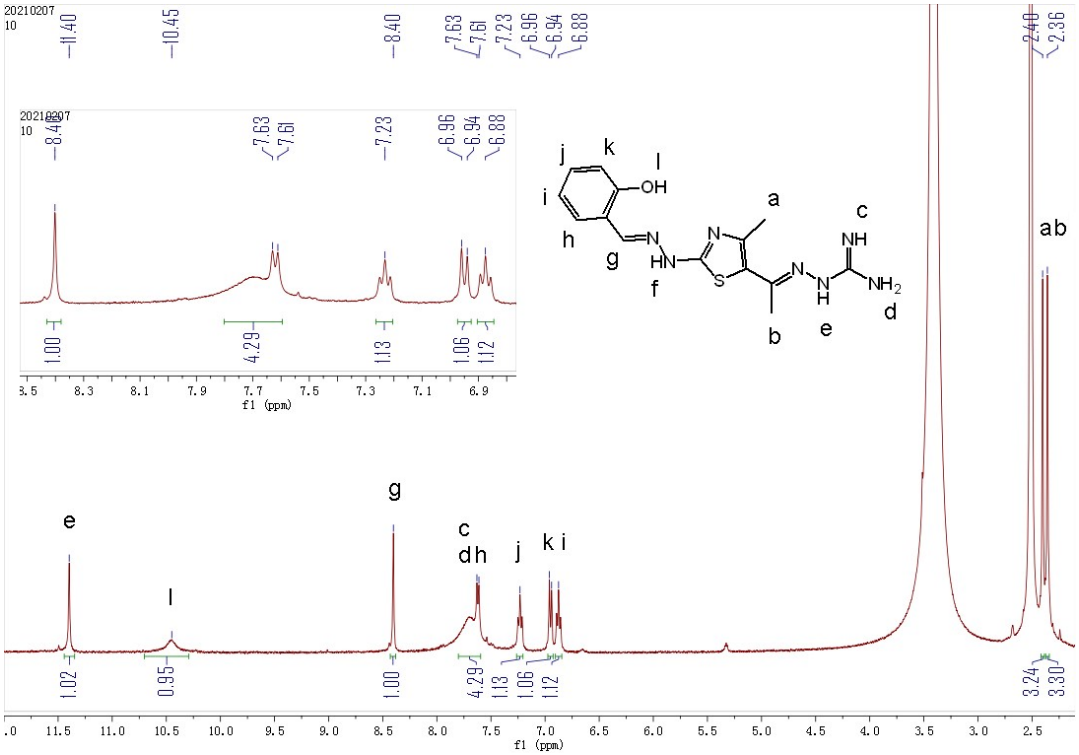


Figure S1. ^{1}H NMR spectra of compound **4a**.

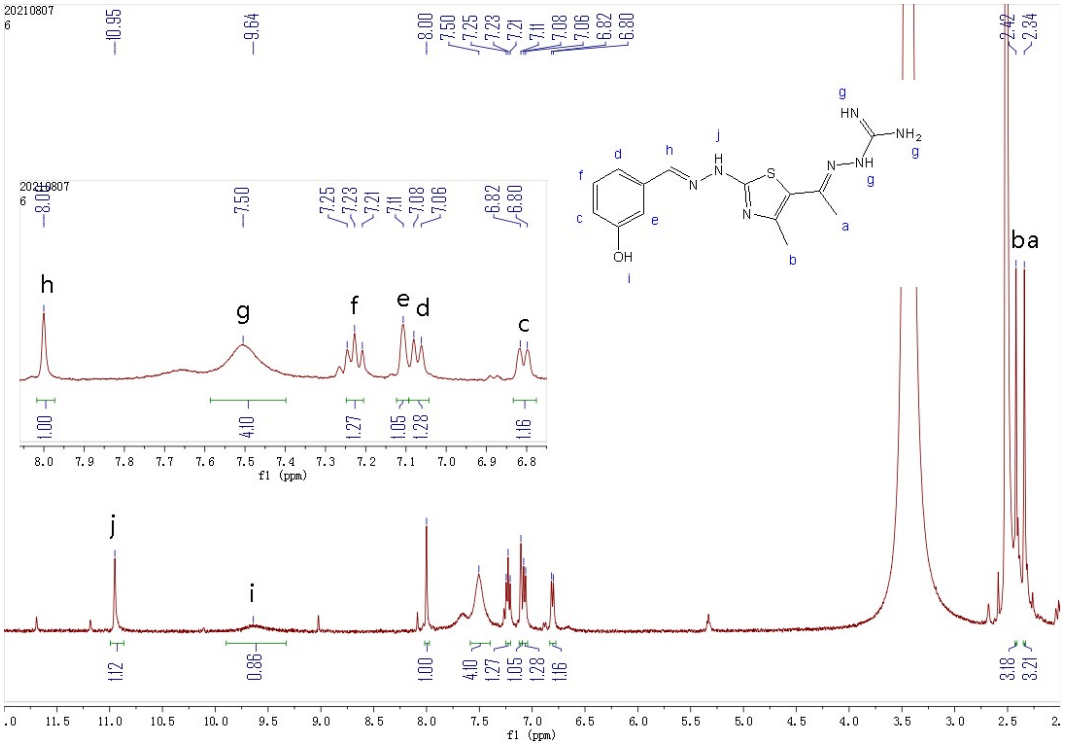


Figure S2. ^{1}H NMR spectra of compound **4b**.

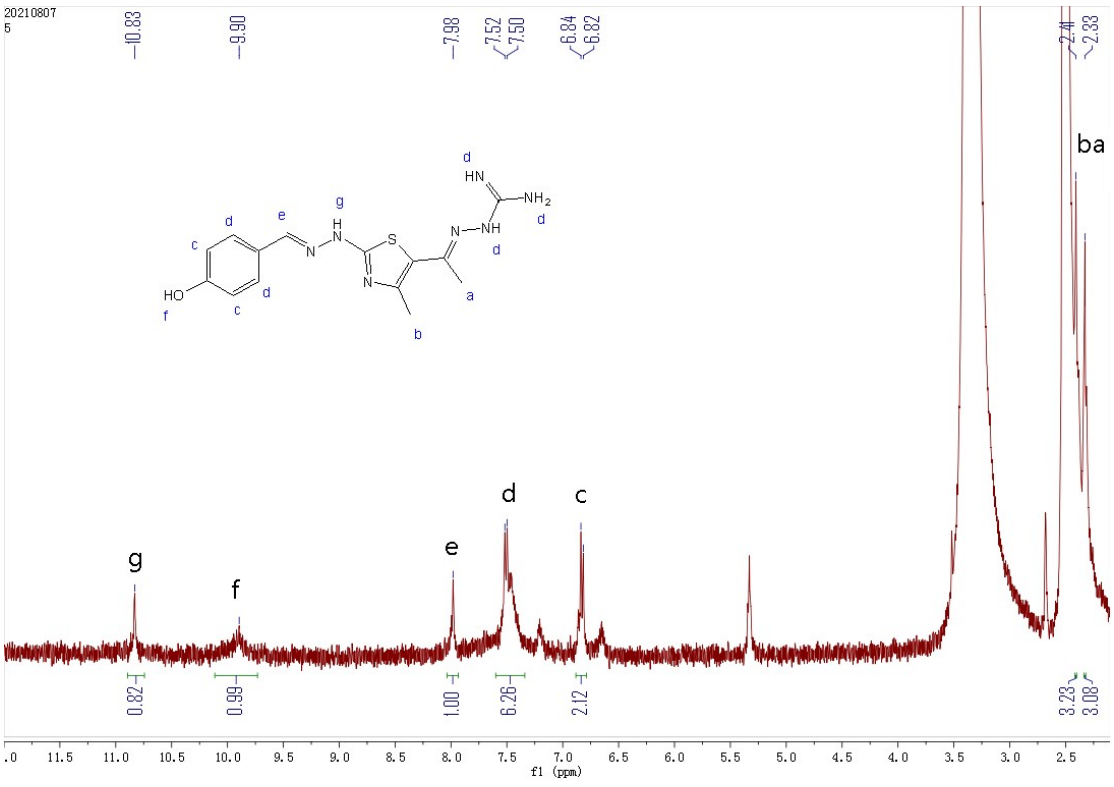


Figure S3. ^{1}H NMR spectra of compound **4c**.

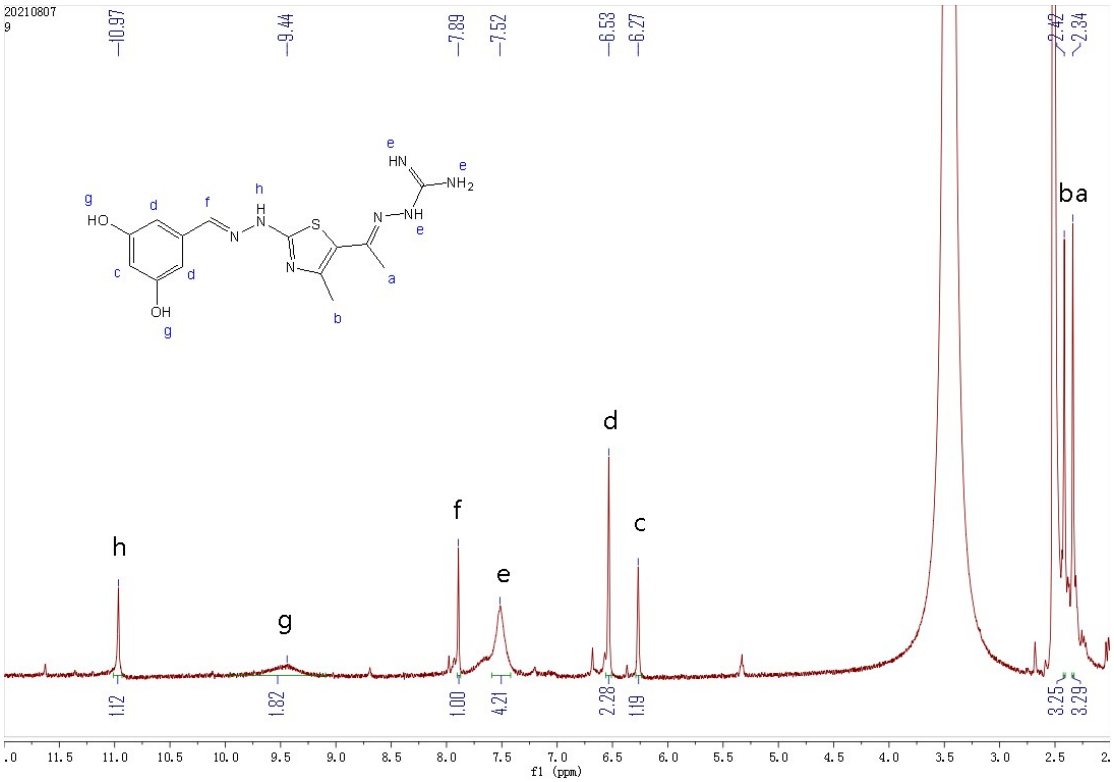


Figure S4. [1]H NMR spectra of compound **4d**.

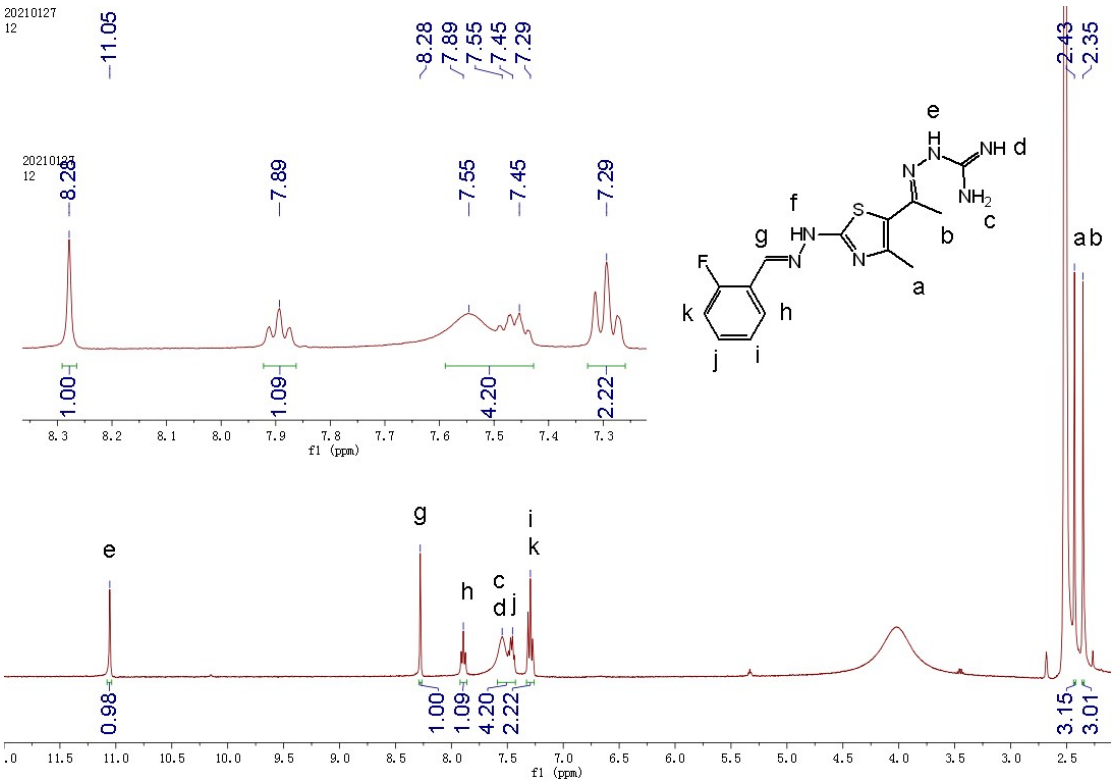


Figure S5. [1]H NMR spectra of compound **4e**.

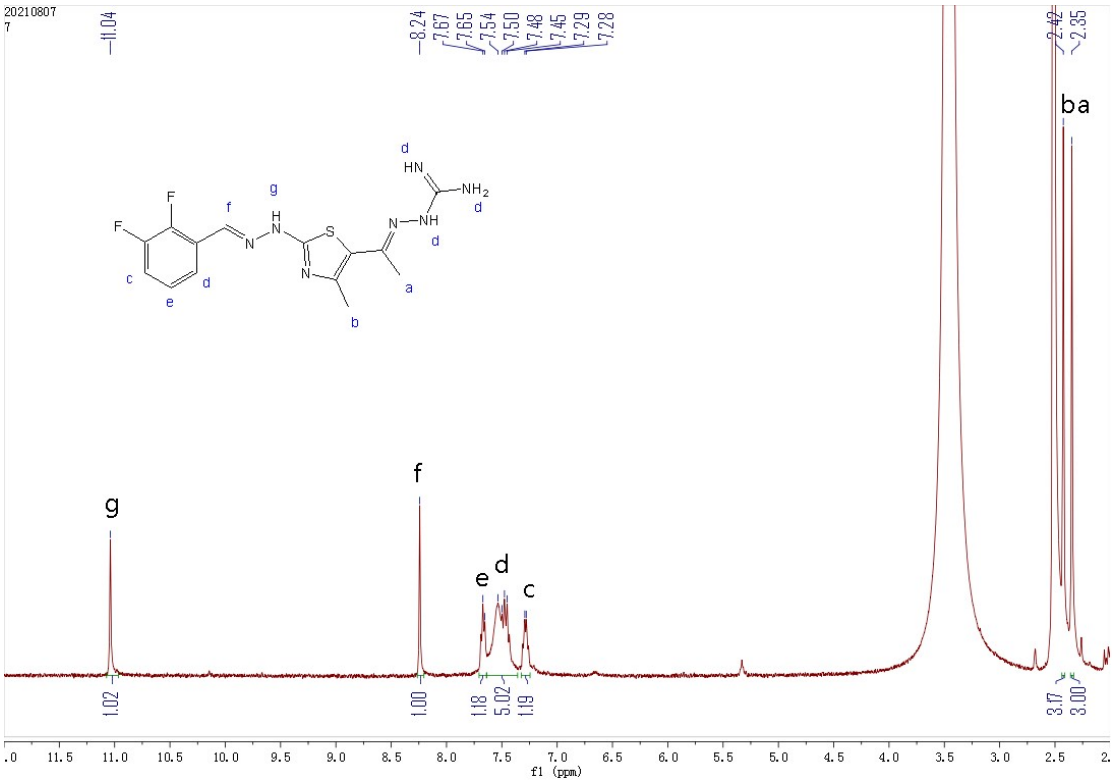


Figure S6. [1]H NMR spectra of compound **4f**.

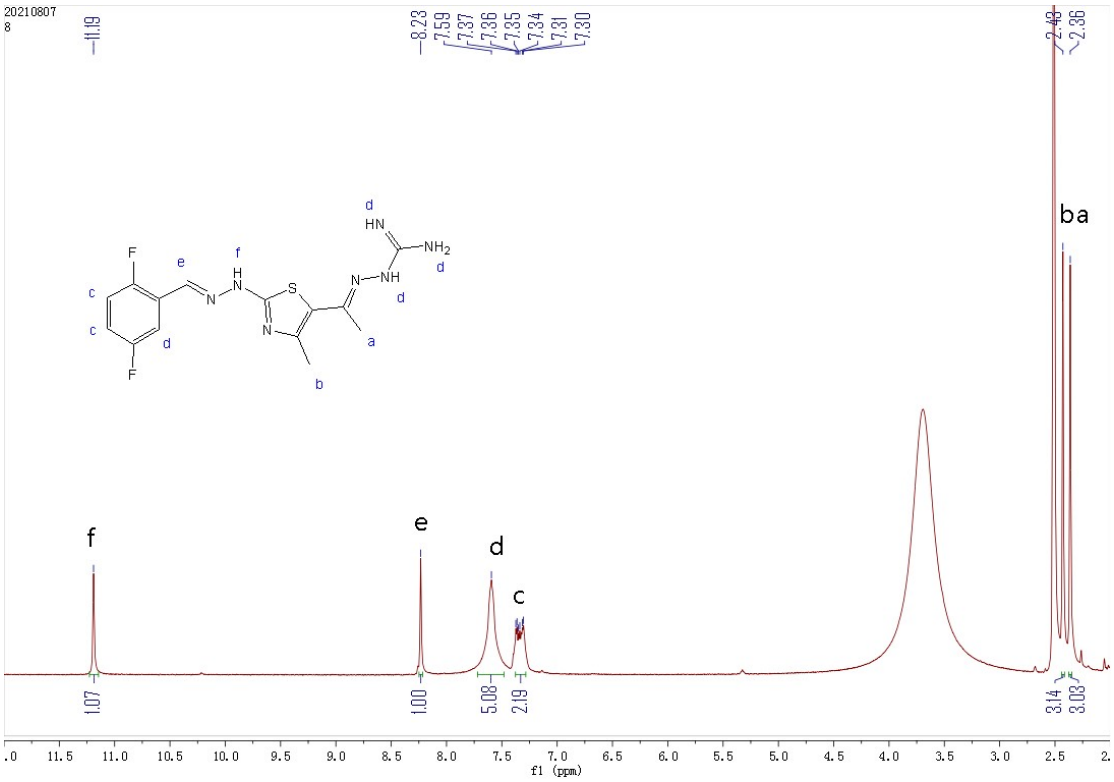


Figure S7. [1]H NMR spectra of compound **4g**.

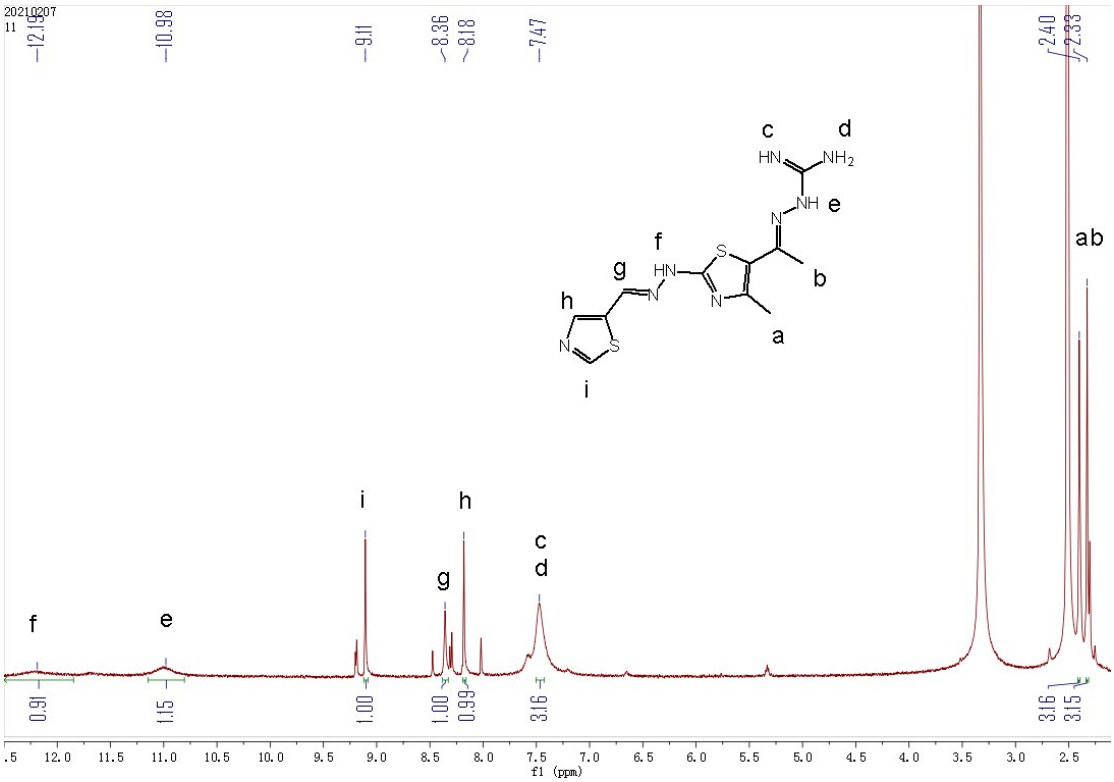


Figure S8. ^{1}H NMR spectra of compound **4h**.

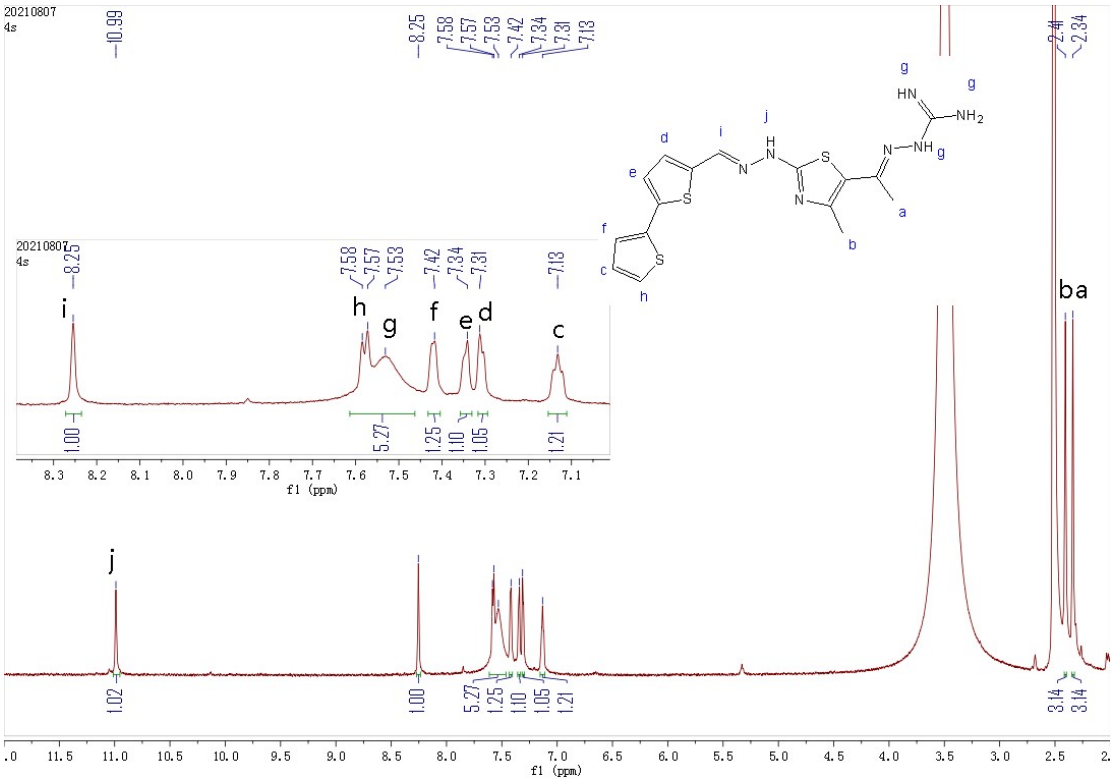


Figure S9. ^{1}H NMR spectra of compound **4i**.

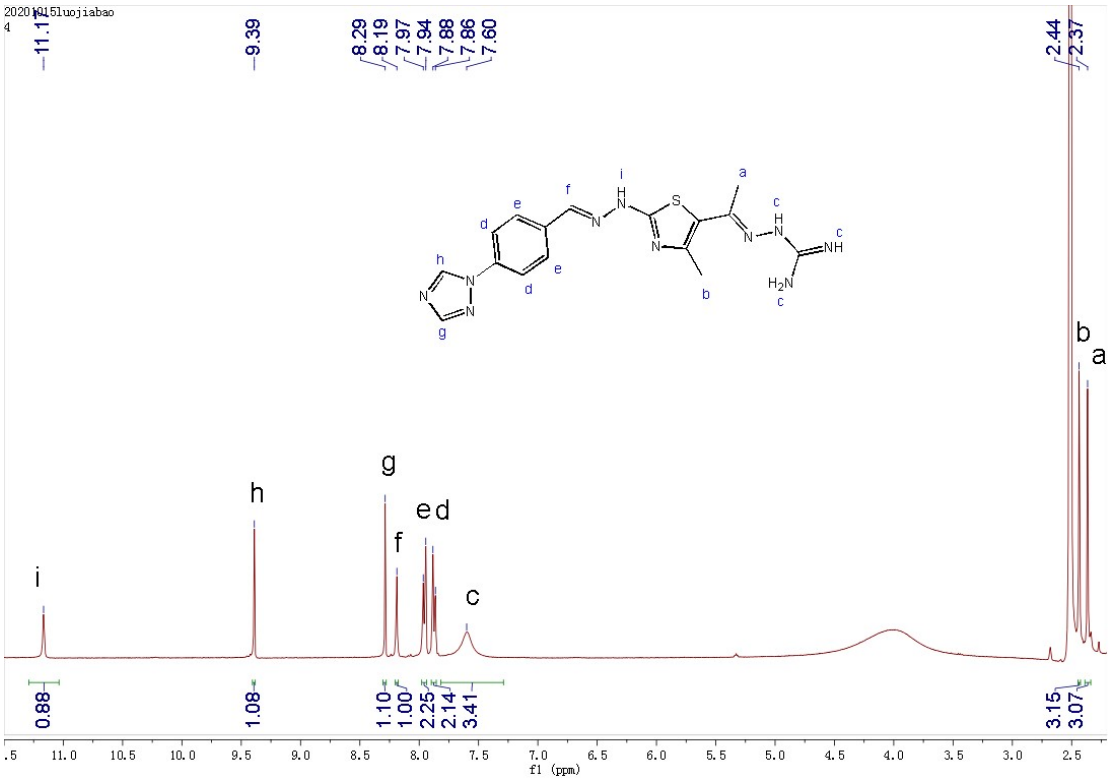


Figure S10. ^{1}H NMR spectra of compound **4j**.

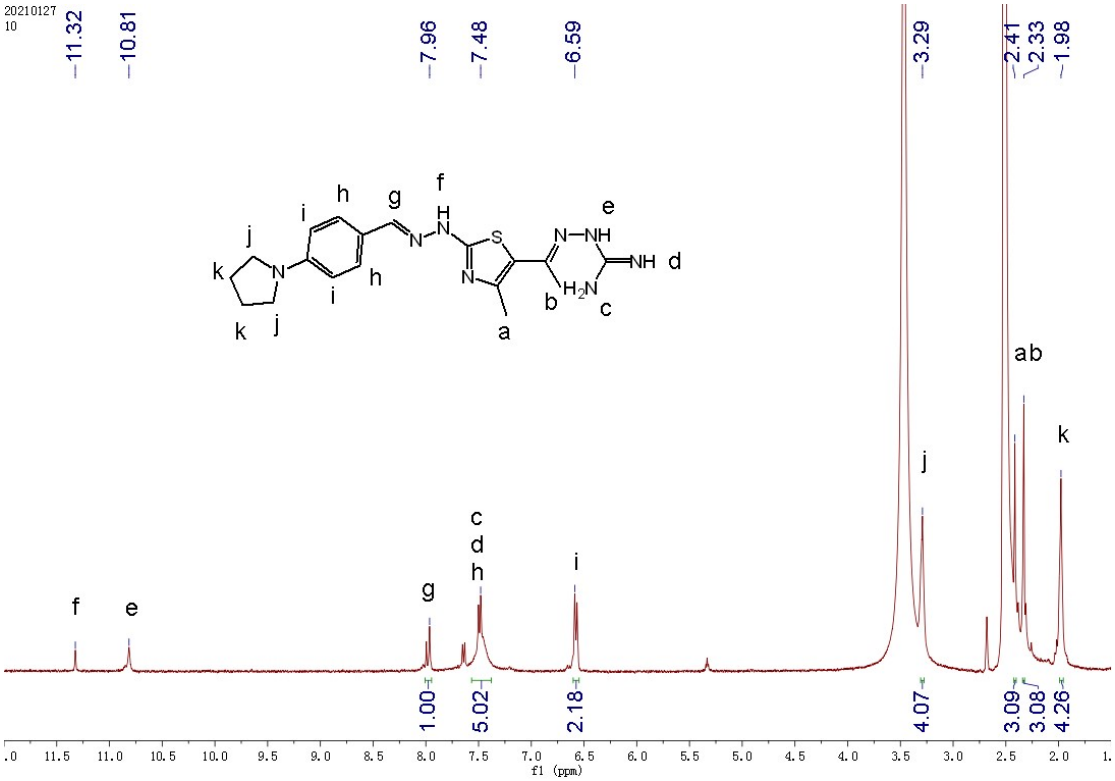


Figure S11. ^{1}H NMR spectra of compound **4k**.

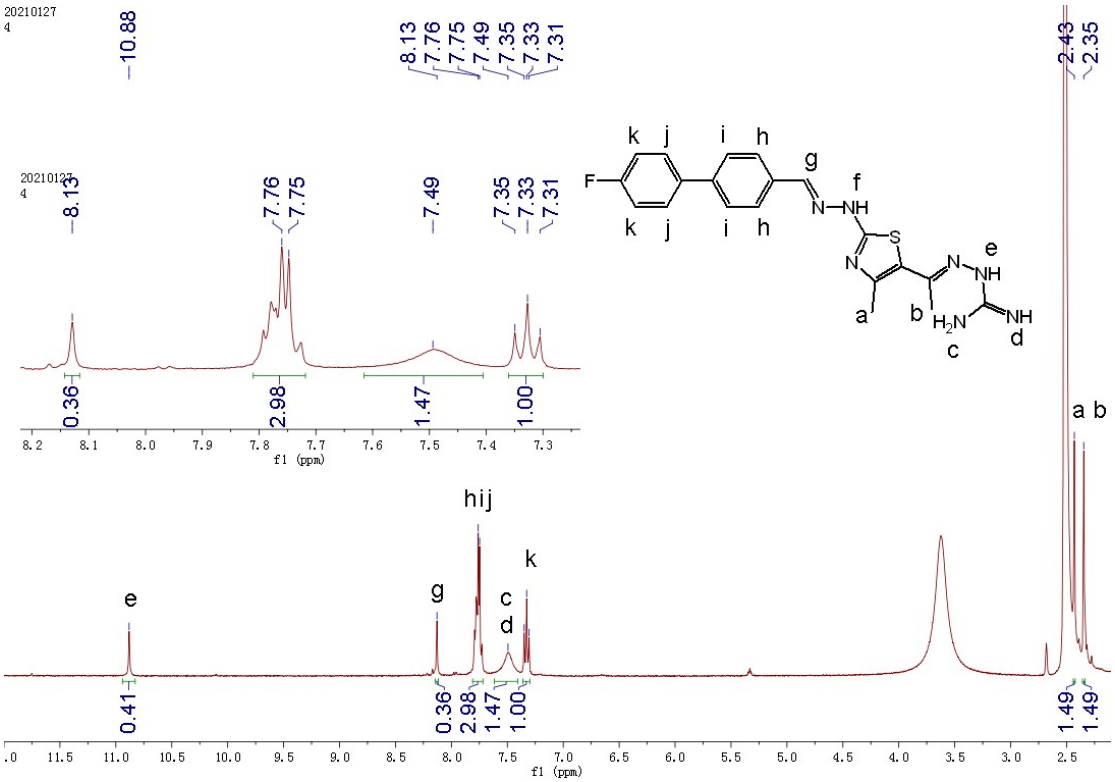


Figure S12. ^{1}H NMR spectra of compound **4l**.

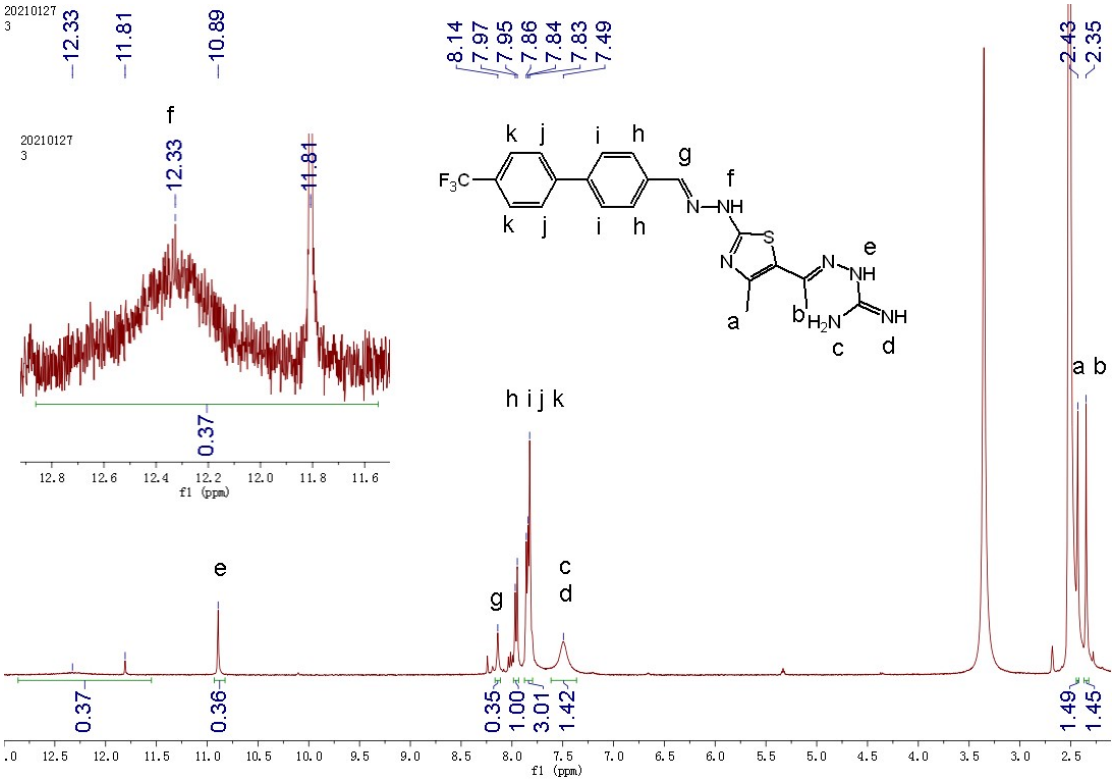


Figure S13. ^{1}H NMR spectra of compound **4m**.

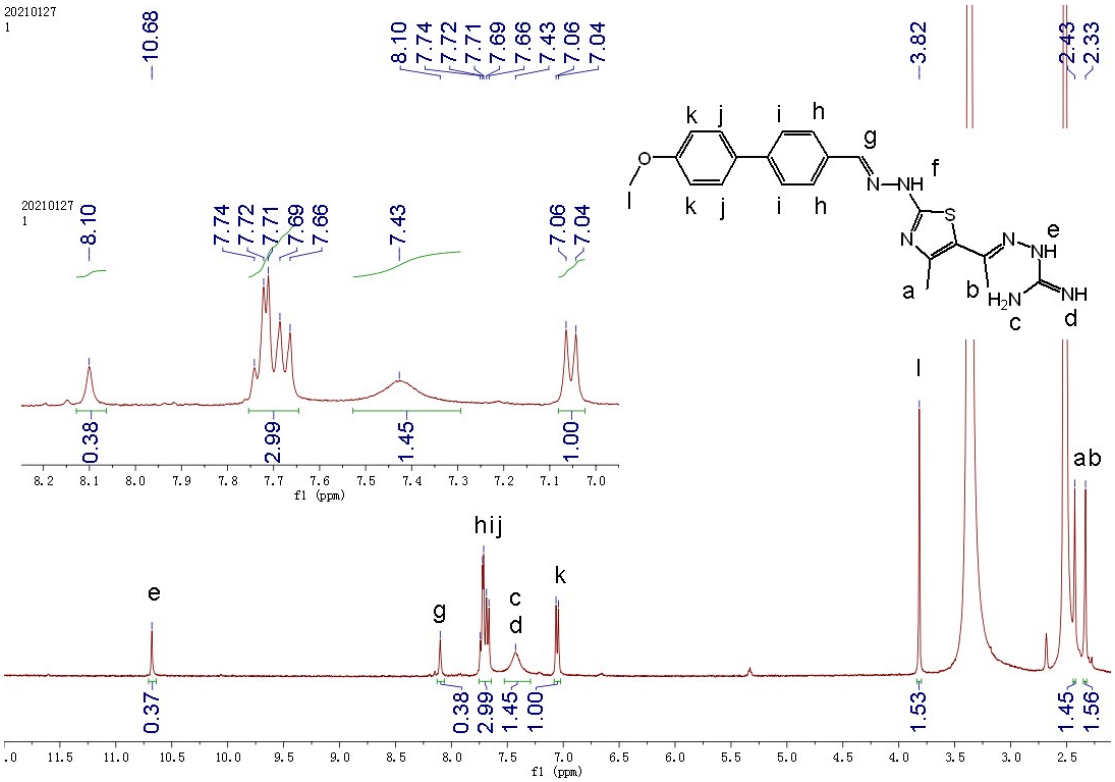


Figure S14. ^{1}H NMR spectra of compound **4n**.

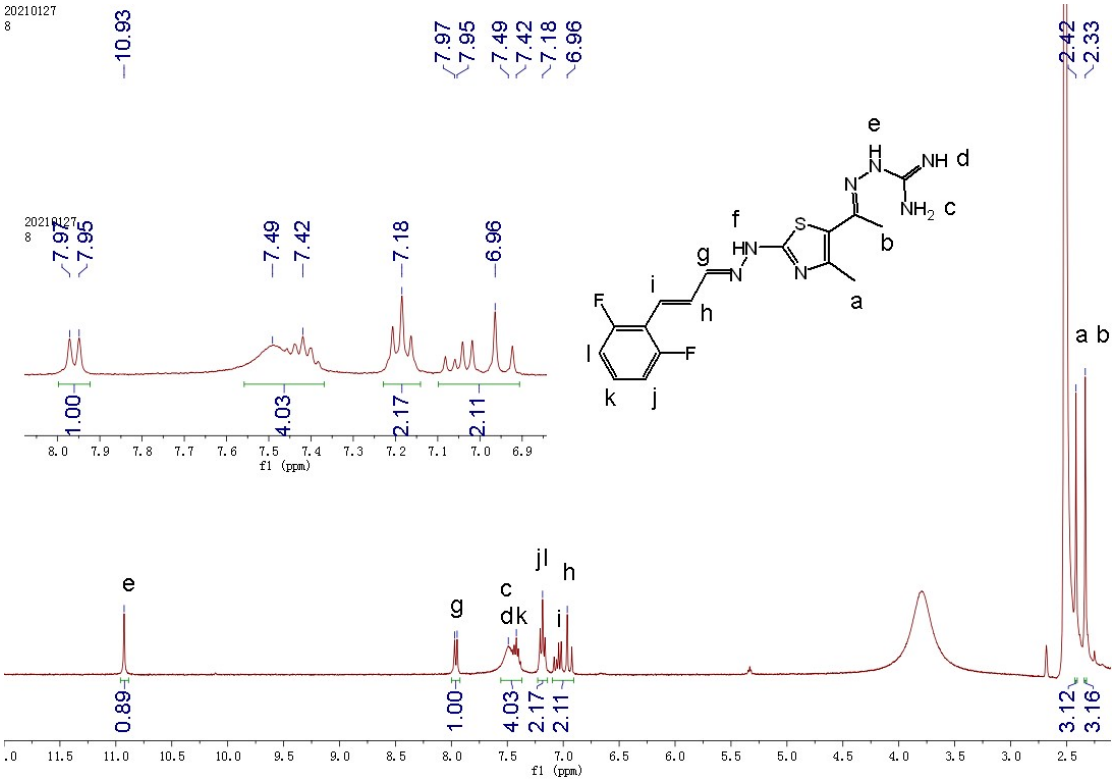


Figure S15. ^{1}H NMR spectra of compound **4o**.

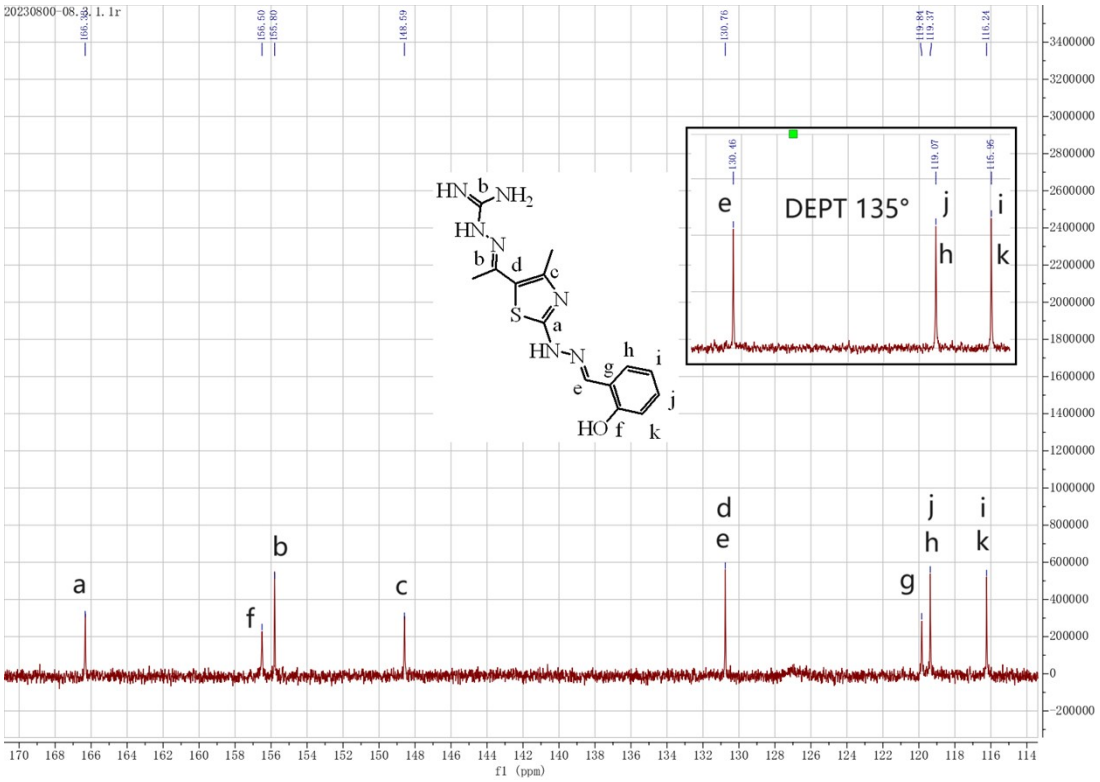


Figure S16. ^{13}C NMR spectra of compound **4a**.

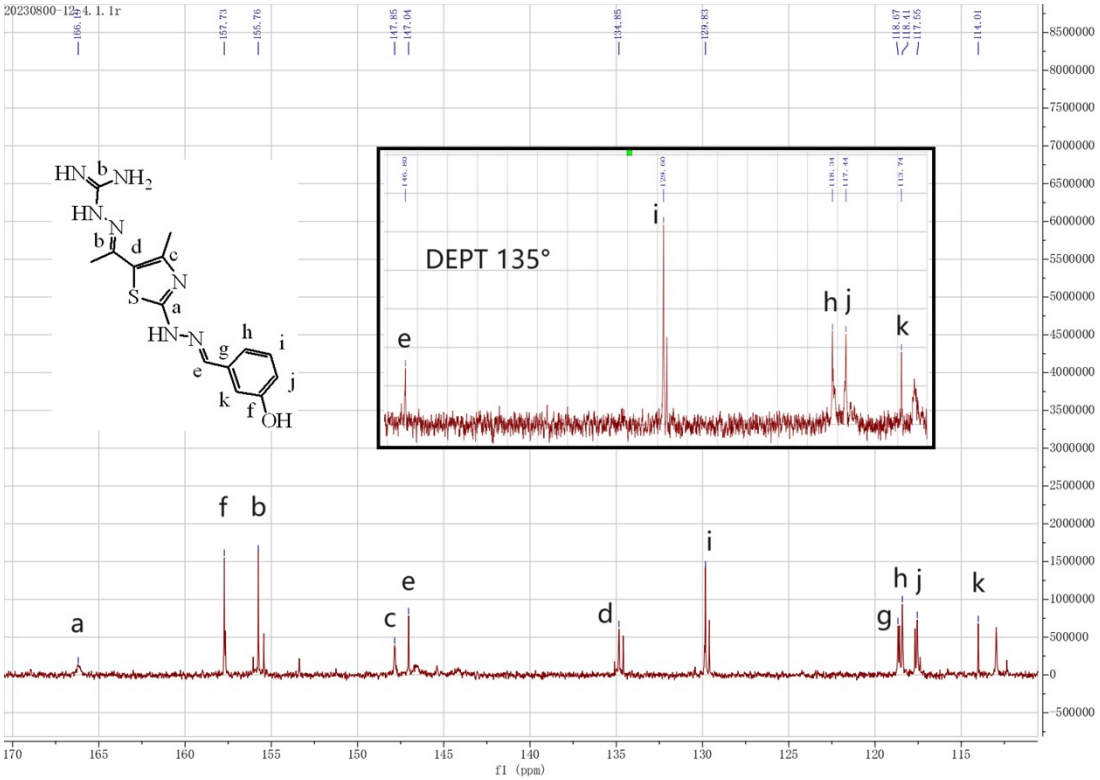


Figure S17. ^{13}C NMR spectra of compound **4b**.

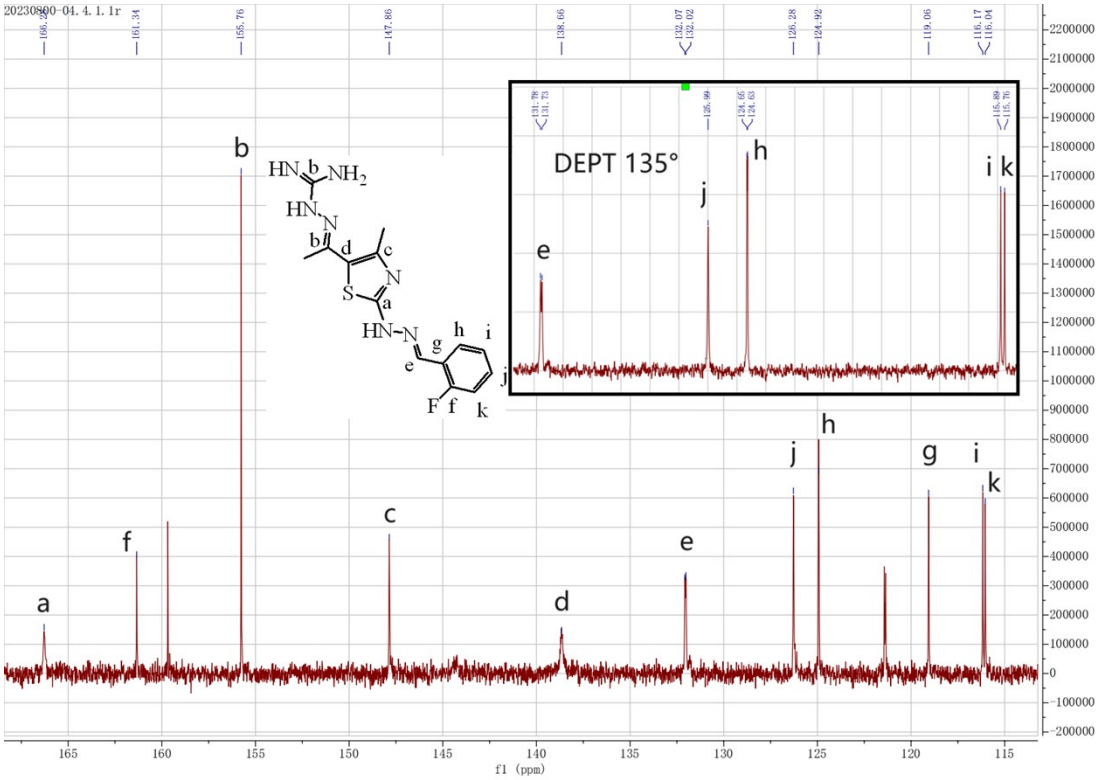


Figure S18. ^{13}C NMR spectra of compound **4e**.

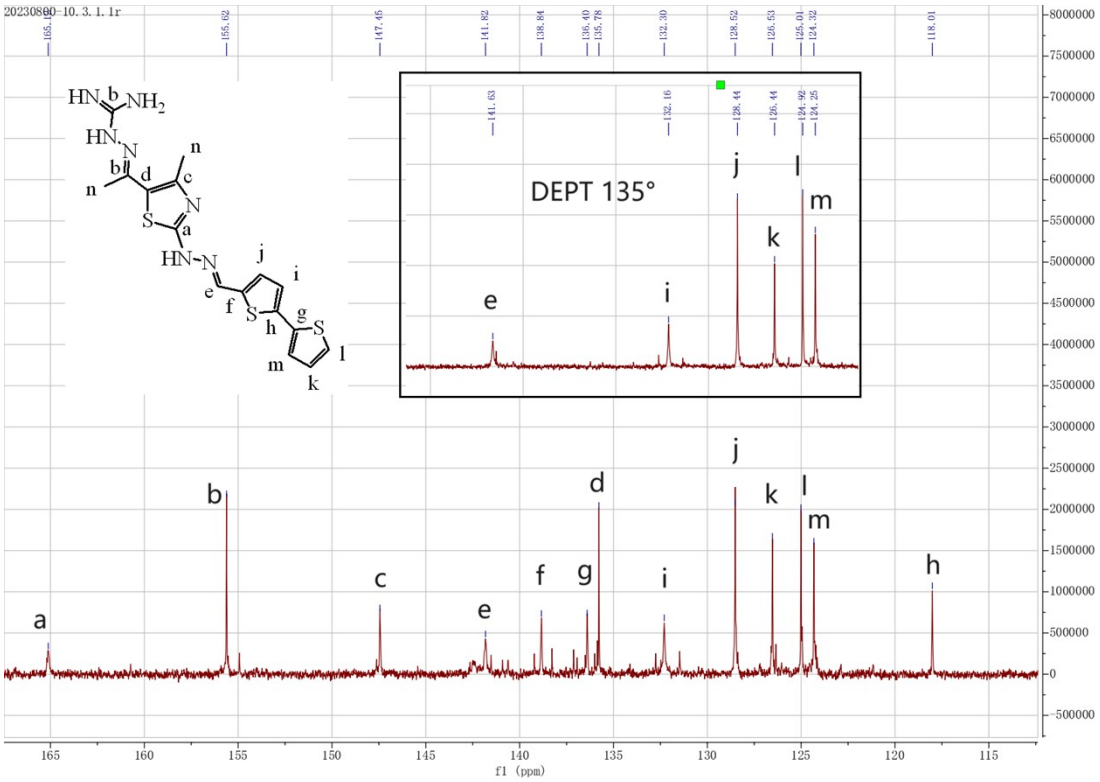


Figure S19. ^{13}C NMR spectra of compound **4i**.

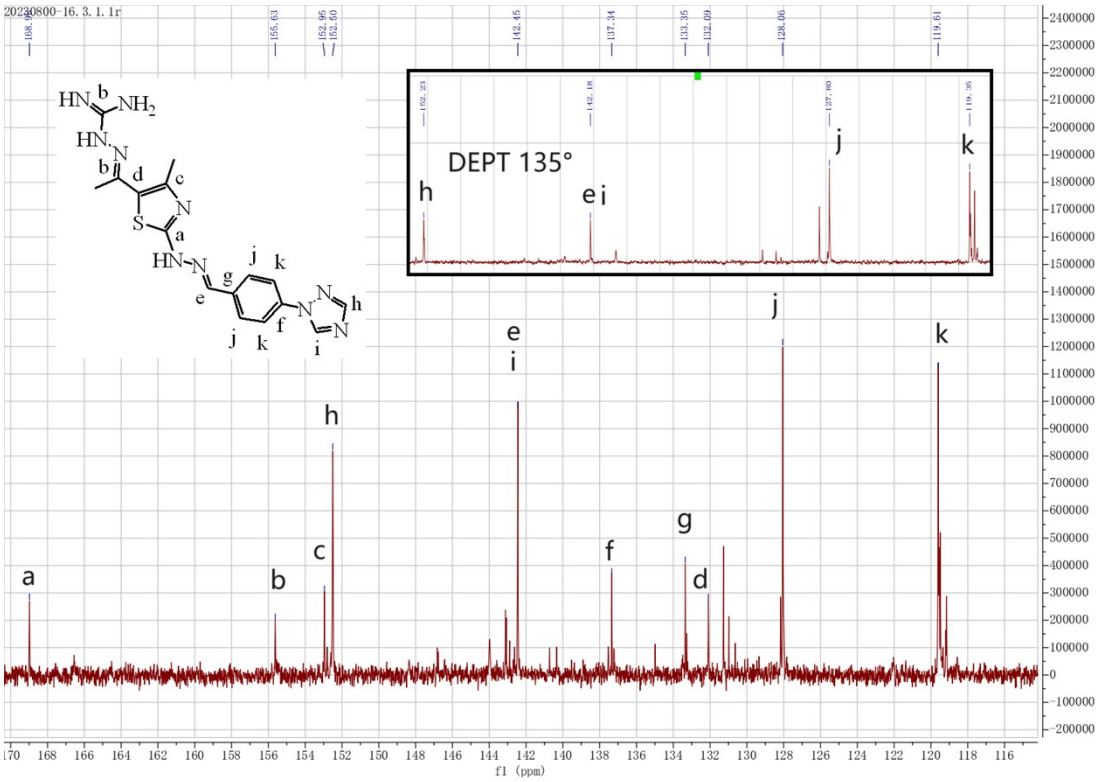


Figure S20. ^{13}C NMR spectra of compound **4j**.

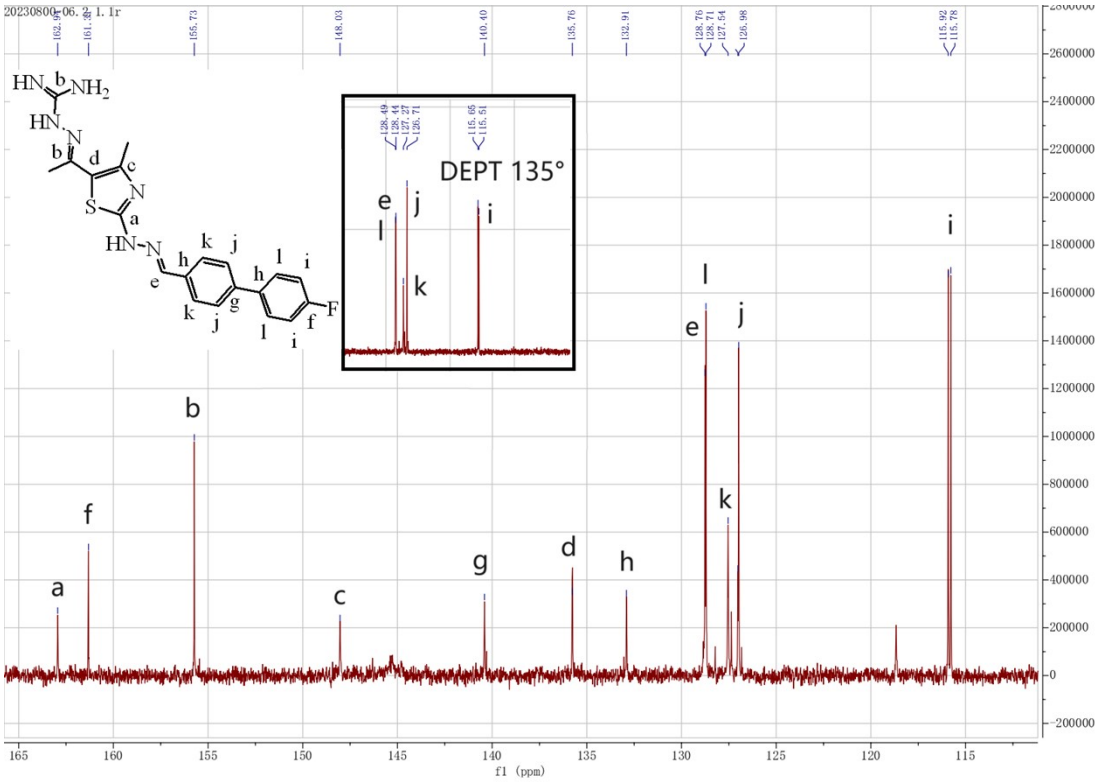


Figure S21. ^{13}C NMR spectra of compound **4l**.

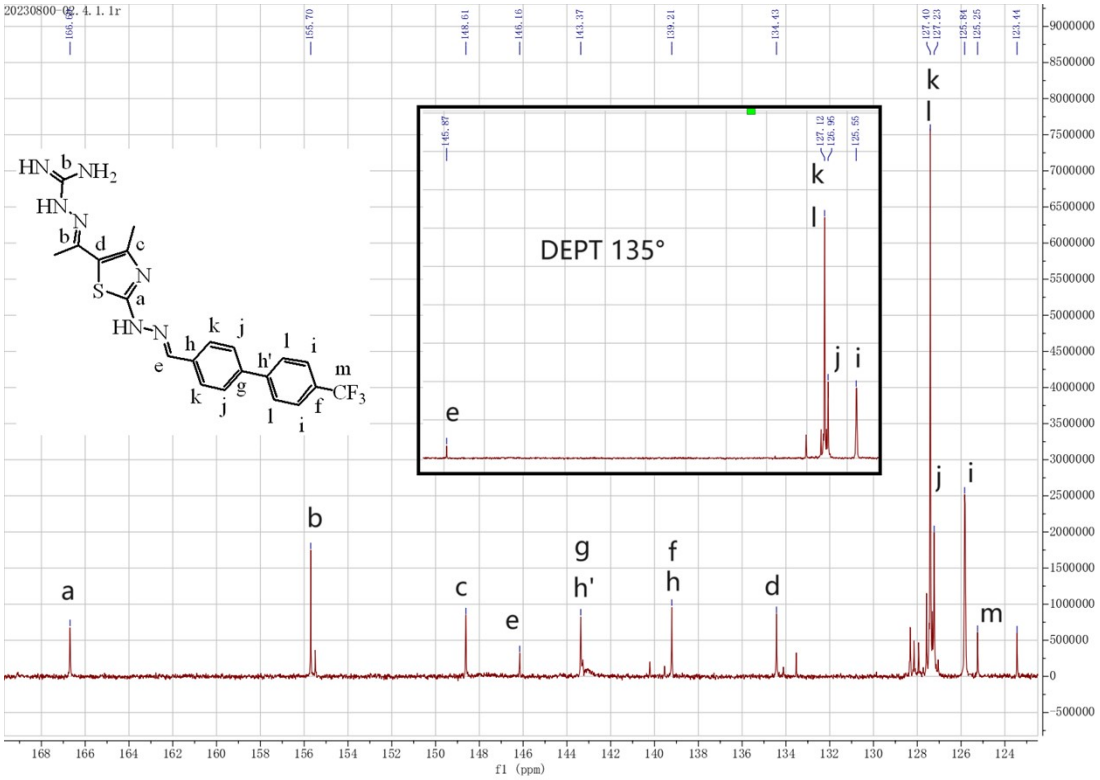


Figure S22. ^{13}C NMR spectra of compound **4m**.

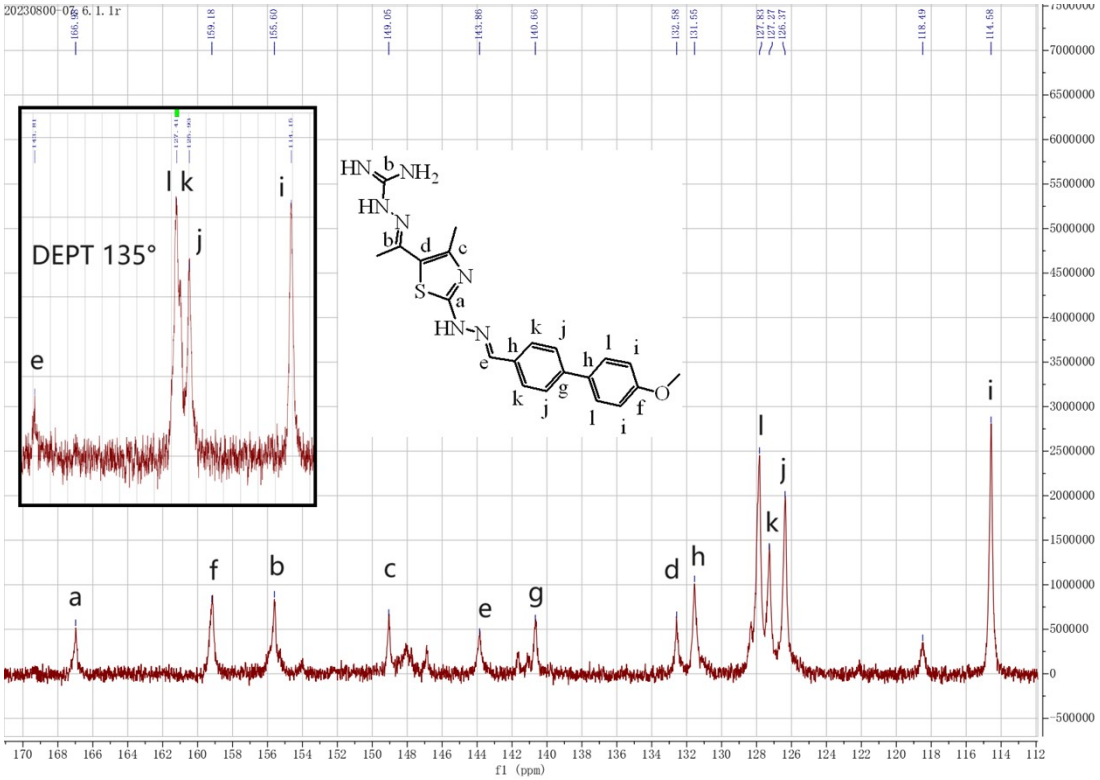


Figure S23. ^{13}C NMR spectra of compound **4n**.

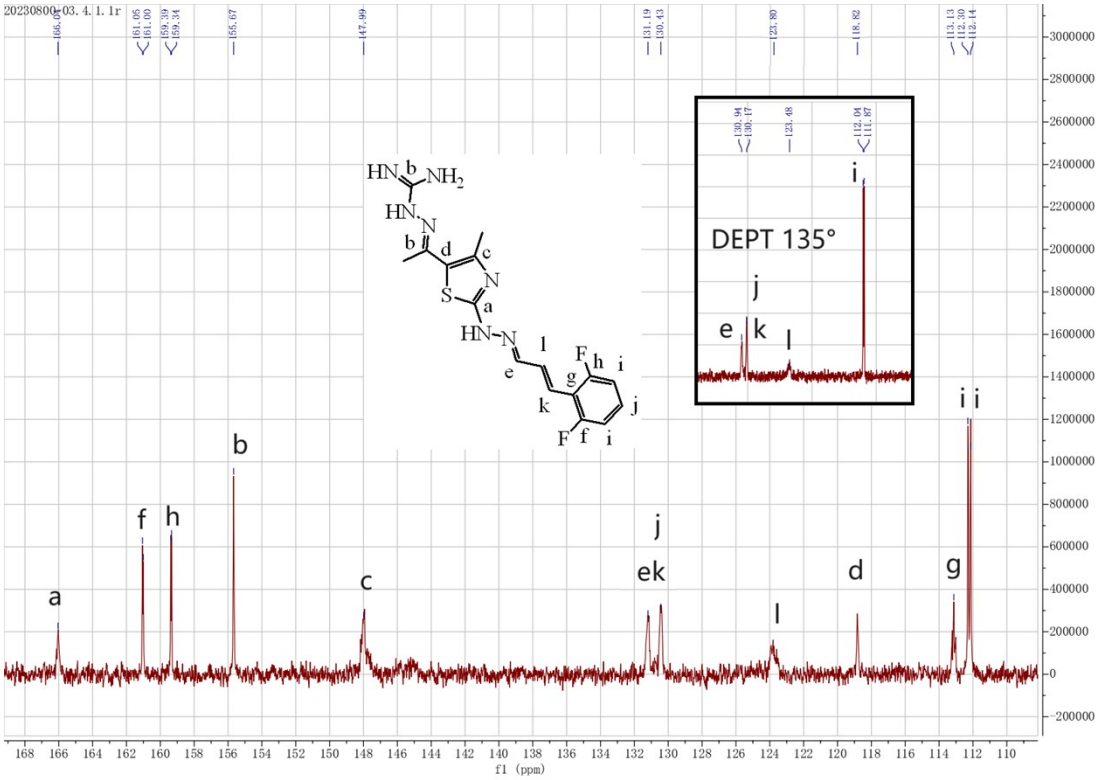


Figure S24. ^{13}C NMR spectra of compound **4o**.

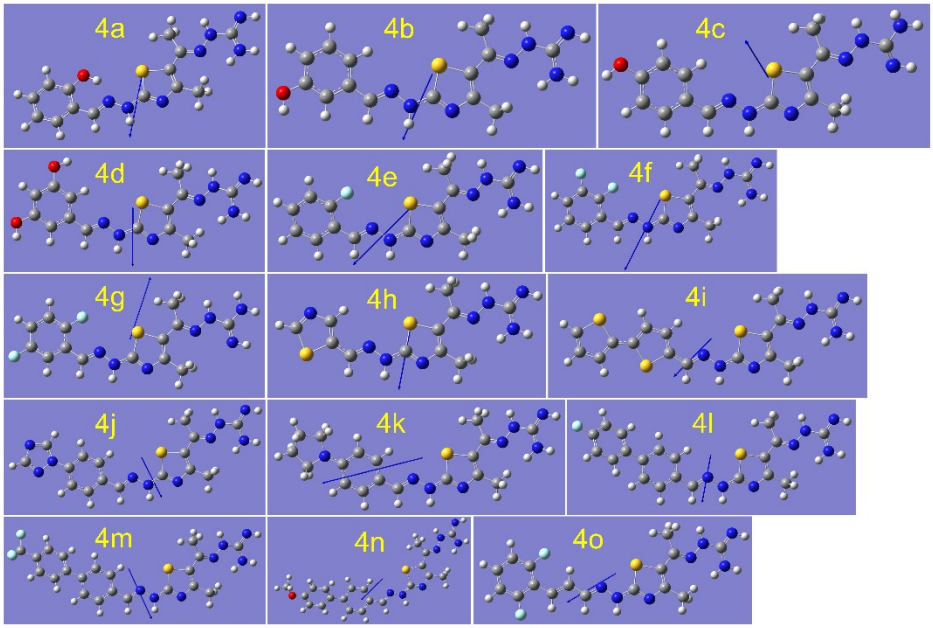
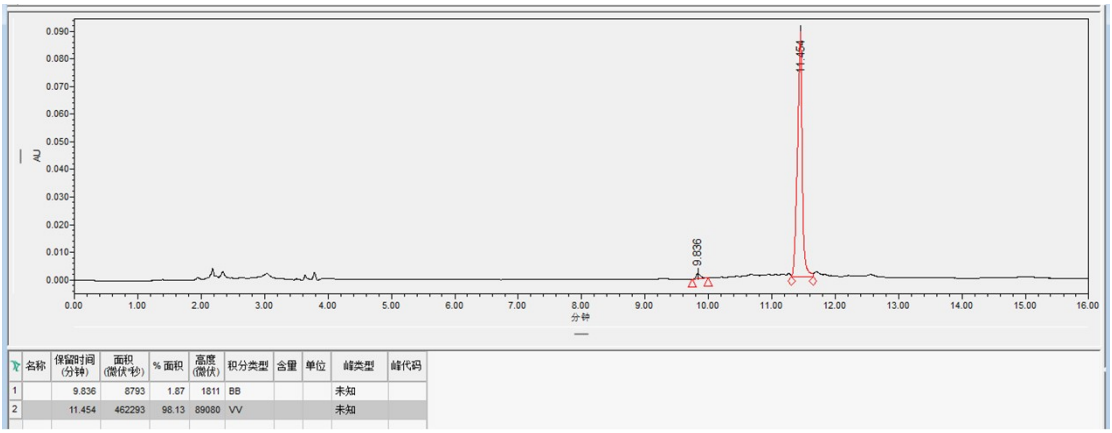
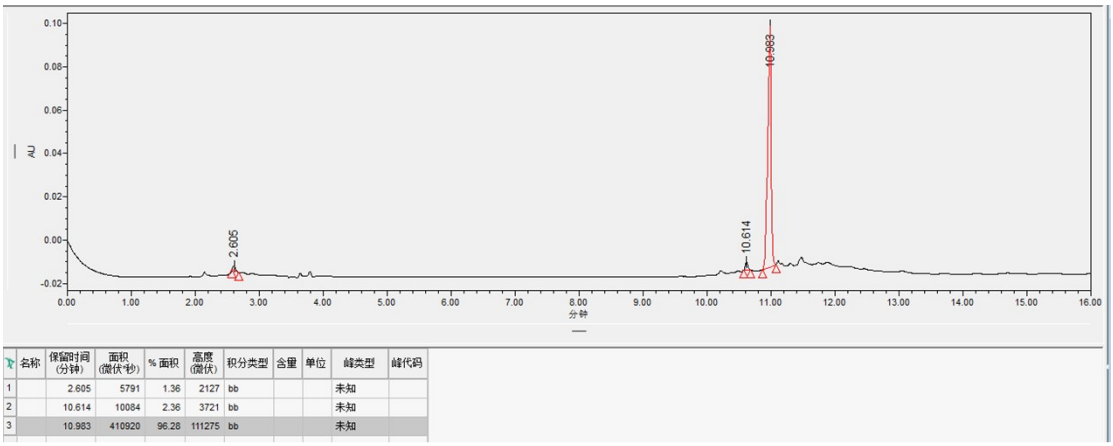


Figure S25. Computational conformation and dipole moment of compound **4a-o** (B3LYP/6-31g).



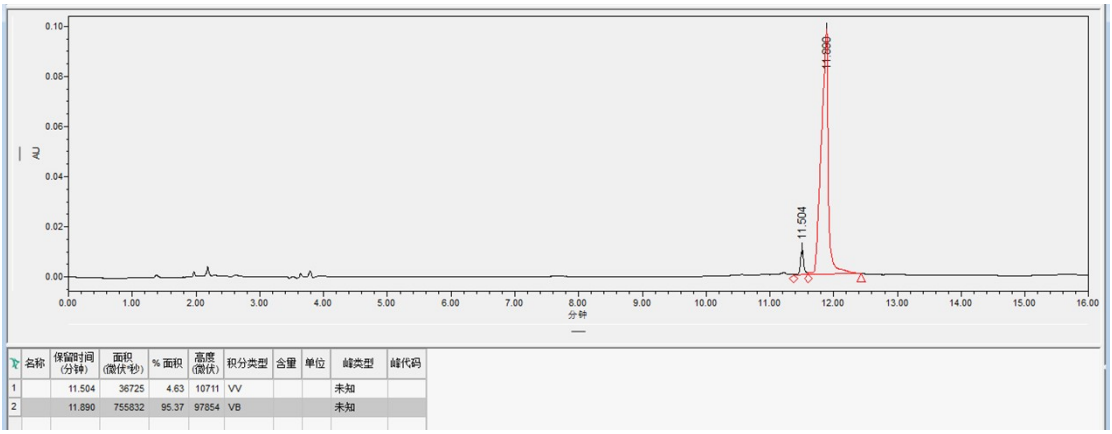
	名称	保留时间 (分钟)	面积 (微伏*秒)	% 面积	高度 (微伏)	积分类型	含量	单位	峰类型	峰代码
1		9.836	8793	1.87	1811	BB			未知	
2		11.454	462293	98.13	89080	VV			未知	

Figure S26. HPLC Traces, HPLC report of **4b**.



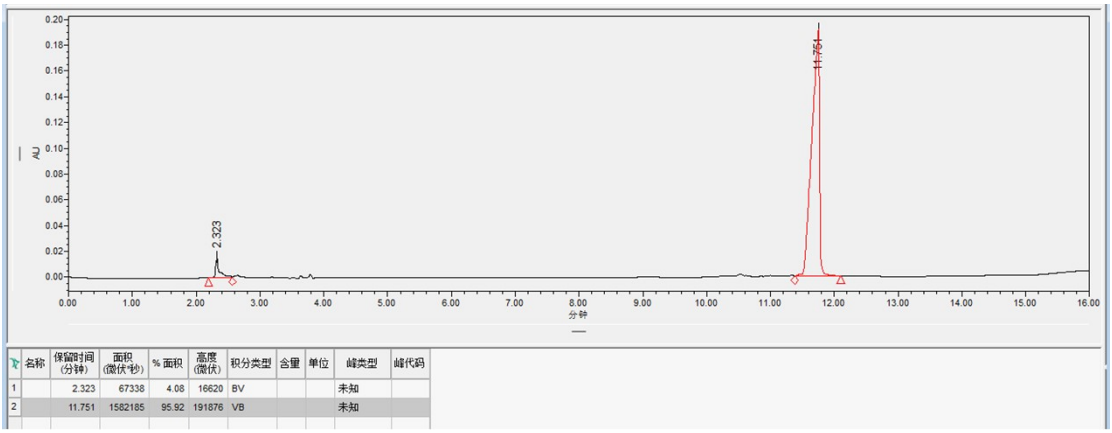
	名称	保留时间 (分钟)	面积 (微伏*秒)	% 面积	高度 (微伏)	积分类型	含量	单位	峰类型	峰代码
1		2.605	5791	1.36	2127	bb			未知	
2		10.614	10084	2.36	3721	bb			未知	
3		10.983	410920	96.28	111275	bb			未知	

Figure S27. HPLC Traces, HPLC report of **4d**.



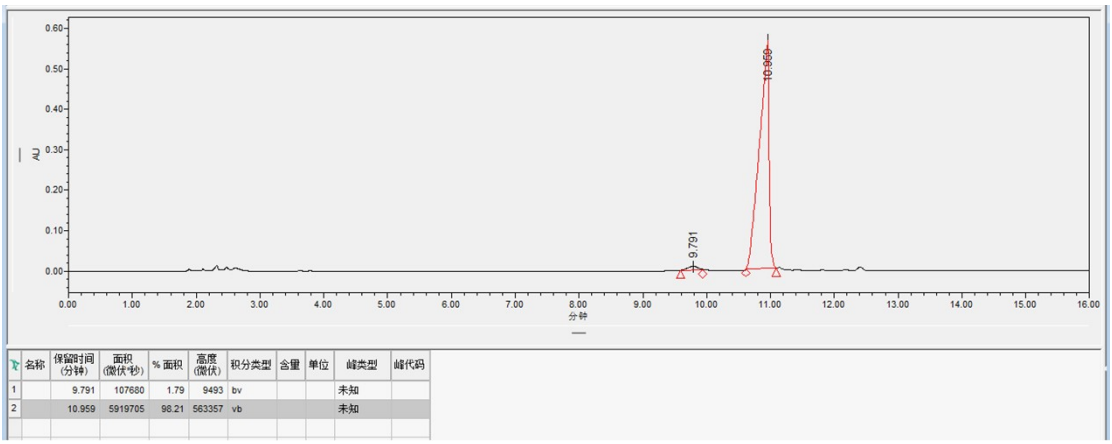
	名称	保留时间 (分钟)	面积 (微伏*秒)	% 面积	高度 (微伏)	积分类型	含量	单位	峰类型	峰代码
1		11.504	36725	4.63	10711	VV			未知	
2		11.890	755832	95.37	97854	VB			未知	

Figure S28. HPLC Traces, HPLC report of **4i**.



	名称	保留时间 (分钟)	面积 (微伏*秒)	% 面积	高度 (微伏)	积分类型	含量	单位	峰类型	峰代码
1		2.323	67338	4.08	16620	BV			未知	
2		11.751	1582185	95.92	191876	VB			未知	

Figure S29. HPLC Traces, HPLC report of **4k**.



	名称	保留时间 (分钟)	面积 (微伏*秒)	% 面积	高度 (微伏)	积分类型	含量	单位	峰类型	峰代码
1		9.791	107680	1.79	9493	bv			未知	
2		10.959	5919705	98.21	563357	vb			未知	

Figure S30. HPLC Traces, HPLC report of **4o**.

Table S1. Docking scores of compounds **4a**–**o** with UPPS (PDB code: 4h8e).

Compound Number	Score (kcal/mol)
4a	−9.3
4b	−9.2
4c	−9.2
4d	−8.8
4e	−9.8
4f	−10.0
4g	−9.7
4h	−8.5
4i	−10.4
4j	−10.0
4k	−10.2
4l	−11.8
4m	−11.8
4n	−11.3
4o	−10.1

Table S2. In silico ADMET profiling of compounds **4a-o**.

Compound	Absorption		Distribution		Metabolism		Excretion [a]		Toxicity	
	HIA	HOB	BBB	PPB	CYP2C9 substrate	CYP2C9 inhibition	CL (mL/min/kg)	$T_{1/2}$ (hour)	Carcinogenicity (binary)	Ames mutagenesis
4a	+	+	+	0.674	+	+	2.706 [b]	0.607	−	+ [b]
4b	+	− [b]	+	0.633	+	+	2.410 [b]	0.613	−	+ [b]
4c	+	− [b]	+	0.612	+	+	2.550 [b]	0.677	−	+ [b]
4d	+	− [b]	+	0.631	+	−	2.283 [b]	0.747	−	+ [b]
4e	+	+	+	0.633	+	−	2.582 [b]	0.229	−	+ [b]
4f	+	+	+	0.608	+	−	2.593 [b]	0.153	−	+ [b]
4g	+	+	+	0.656	+	−	2.610 [b]	0.112	−	+ [b]
4h	+	+	−	0.483	+	−	2.263 [b]	0.525	−	+ [b]
4i	+	+	−	0.836	+	−	2.608 [b]	0.015	−	+ [b]
4j	+	+	−	0.585	−	+	2.567 [b]	0.575	−	+ [b]
4k	+	+	+	0.723	−	−	2.264 [b]	0.184	−	+ [b]
4l	+	+	+	0.789	+	+	2.959 [b]	0.064	−	+ [b]
4m	+	+	+	0.903	+	+	3.144 [b]	0.034	−	+ [b]
4n	+	+	+	0.873	+	+	2.935 [b]	0.123	−	+ [b]
4o	+	+	+	0.663	+	−	2.869 [b]	0.215	−	+ [b]

Note: HIA, human intestinal absorption. HOB, human oral bioavailability. BBB, blood brain barrier penetration. PPB, plasma protein binding. CL, clearance. $T_{1/2}$, half-life time. The data in the table are calculated using admetSAR from http://lmmd.ecust.edu.cn/admetsar2. [a], the data are calculated using ADMETlab 2.0 from https://admetmesh.scbdd.com. [b], it means poor.