SUPPLEMENTARY INFORMATION

Design, Synthesis and Anticancer evaluation of Imamine-1,3,5-

triazine derivatives

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Figure 1 The IR spectrum of compound 4a



Figure 2 The ¹H NMR spectrum of compound 4a



Figure 4 The HRMS spectrum of compound 4a

2



Figure 5 The HPLC of compound 4a



Figure 6 The IR spectrum of compound 4b



Figure 8 The ¹³C NMR spectrum of compound 4b



Figure 9 The HRMS spectrum of compound 4b



Figure 10 The HPLC of compound 4b



Figure 11 The HPLC of DMSO



Figure 12 The IR spectrum of compound 4c



Figure 14 The ¹³C NMR spectrum of compound **4c**







Figure 16 The HPLC of compound 4c







Figure 18 The ¹H NMR spectrum of compound 4d



Figure 20 The HRMS spectrum of compound 4d



Figure 21 The HPLC of compound 4d



Figure 22 The IR spectrum of compound 4e



Figure 23 The ¹H NMR spectrum of compound 4e



Figure 24 The ¹H NMR spectrum of compound **4e**



Figure 26 The HPLC of compound 4e







Figure 28 The ¹H NMR spectrum of compound **4f**



Figure 30 The HRMS spectrum of compound 4f



包测奋	A Chi Z40h	m			and the second second		
峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	2.028	1792	190	0.000		() () () () () () () () () ()	
2	2.429	2299	272	0.000		V	
3	2.646	1221	116	0.000		V	
4	2.839	1177	159	0.000		V	
5	4.036	2750	281	0.000			
6	4.561	5413	257	0.000			
7	5.099	11777	519	0.000		V	
8	5.869	3048	262	0.000			
9	6.877	15631	714	0.000			
10	7.592	2238	135	0.000			
11	8.072	8062	370	0.000		V	
12	8.815	7682331	364233	0.000		SV	
13	10.025	1258	168	0.000		Т	
14	10.111	7706	231	0.000		TV	
15	14.455	3484	121	0.000			
总计		7750187	368027			с	

Figure 31 The HPLC of compound 4f







Figure 33 The ¹H NMR spectrum of compound 4g



Figure 35 The HRMS spectrum of compound 4g



峰号	保留时间	面积	局度	浓度	浓度单位	标记	化合物名
1	3.895	28350	1221	0.157			
2	6.325	326513	11851	1.808		V	
3	11.850	17708448	357481	98.035		S	
总计		18063311	370553				

Figure 36 The HPLC of compound 4g



Figure 37 The IR spectrum of compound 4h



Figure 38 The ¹H NMR spectrum of compound **4h**



Figure 39 The ¹³C NMR spectrum of compound **4h**







<峰表> 检测器A Ch1 240nm

峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	0.732	6985	417	0.042			S BORCO TOP S & A BORRON SCIENCE SERVICE
2	0.879	8665	458	0.052		V	
3	1.539	3599	586	0.022			
4	2.542	2119	394	0.013			
5	2.943	10715	761	0.065			
6	3.185	13859	1094	0.084		V	
7	3.415	36440	2633	0.221		V	
8	3.715	32185	1901	0.195		V	
9	9.192	2332	126	0.014		V	
10	9.505	4371	230	0.026	5	V	
11	10.015	10027	324	0.061		V	
12	14.420	16370717	383076	99.166			
13	17.408	2040	169	0.012			
14	17.508	4326	202	0.026		V	
总计		16508381	392369			84 • • • •	

Figure 41 The HPLC of compound 4h



Figure 42 The IR spectrum of compound 4i



Figure 43 The ¹H NMR spectrum of compound 4i



Figure 45 The HRMS spectrum of compound 4i



〈峰表〉

检测器	A Ch1	240n	m
林旦	但回	时间	

峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	1.335	2012	149	0.004		V	in all a set as a set of the
2	1.558	14652	1308	0.030		V	
3	2.395	16585	2581	0.034			
4	3.040	1898	191	0.004		V	
5	3.338	1054	128	0.002			
6	3.640	19910	1723	0.041		V	
7	3.971	24990	996	0.051		V	
8	4.905	9865	376	0.020		V	
9	5.567	3354	116	0.007		V	
10	8.150	19687	549	0.040		V	
11	8.871	13525	426	0.028		V	
12	9.258	1088	245	0.002		V	
13	9.576	11898	431	0.024		V	
14	9.917	1107	247	0.002		V	
15	10.567	26285	575	0.054		V	
16	12.005	21041	586	0.043		V	
17	12.927	62339	1518	0.127		V	
18	15.909	48644225	1120991	99.486		SV	
总计		48895516	1133136				

Figure 46 The HPLC of compound 4i







Figure 48 The ¹H NMR spectrum of compound 4j



Figure 50 The HRMS spectrum of compound 4j



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检测器	A Ch1 240n	m					
峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	2.635	1380	253	0.007			
2	2.862	1786	203	0.010			
3	3.863	10220	1039	0.055		o. O	
4	5.371	299356	11805	1.619			
5	9.324	18171909	437106	98.308		S M	
总计		18484651	450405				

Figure 51 The HPLC of compound 4j



Figure 52 The IR spectrum of compound 4k



Figure 53 The ¹H NMR spectrum of compound 4k



Figure 54 The ¹³C NMR spectrum of compound 4k







	1	1.341	2325	391	0.116	V	
	2	1.496	4874	781	0.244	V	
	3	1.593	3694	679	0.185	V	
Ì	4	1.697	3720	511	0.186	V	
	5	2.014	1436	252	0.072	V	
	6	2.140	4587	726	0.229	V	
	7	3.550	2897	179	0.145		
	8	3.750	1252	111	0.063	V	
	9	3.960	1177	93	0.059	V	
	10	17.720	1973532	41125	98.701	S	
	总计	2	1999495	44848			

Figure 56 The HPLC of compound 4k







Figure 58 The ¹H NMR spectrum of compound **4**I







〈峰表〉

/						
A Ch1 240n	m					
保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1.532	4070	612	0.026		1.0	
2.589	4095	385	0.026			
2.837	2050	240	0.013		V	
2.995	1958	233	0.013		V	
3.313	1433	209	0.009		6.5 10	
3.621	12463	1367	0.080			
4.135	37697	2296	0.243		2	
5.871	1250	108	0.008		0.00	
6.436	15411452	871244	99.506		SV	
8.847	1139	69	0.007		TV	
9.714	10430	421	0.067	16 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	Т	
	15488038	877183				
	A Ch1 240n 保留时间 1.532 2.589 2.837 2.995 3.313 3.621 4.135 5.871 6.436 8.847 9.714	A Ch1 240nm 保留时间 面积 1.532 4070 2.589 4095 2.837 2050 2.995 1958 3.313 1433 3.621 12463 4.135 37697 5.871 1250 6.436 15411452 8.847 1139 9.714 10430 15488038 15488038	A Ch1 240nm 保留时间 面积 高度 1.532 4070 612 2.589 4095 385 2.837 2050 240 2.995 1958 233 3.313 1433 209 3.621 12463 1367 4.135 37697 2296 5.871 1250 108 6.436 15411452 871244 8.847 1139 69 9.714 10430 421 15488038 877183	A Ch1 240nm 保留时间 面积 高度 浓度 1.532 4070 612 0.026 2.589 4095 385 0.026 2.837 2050 240 0.013 2.995 1958 233 0.013 3.313 1433 209 0.009 3.621 12463 1367 0.080 4.135 37697 2296 0.243 5.871 1250 108 0.008 6.436 15411452 871244 99.506 8.847 1139 69 0.007 9.714 10430 421 0.067 15488038 877183 877183 15488038	A Ch1 240nm 保留时间 面积 高度 浓度 浓度单位 1.532 4070 612 0.026 2.589 4095 385 0.026 2.837 2050 240 0.013 2.995 1958 233 0.013 3.313 1433 209 0.009 3.621 12463 1367 0.080 4.135 37697 2296 0.243 5.871 1250 108 0.008 6.436 15411452 871244 99.506 8.847 1139 69 0.007 9.714 10430 421 0.067 15488038 877183	A Ch1 240nm 保留时间 面积 高度 浓度 浓度单位 标记 1.532 4070 612 0.026 2.589 4095 385 0.026 2.837 2050 240 0.013 V 2.995 1958 233 0.013 V 3.313 1433 209 0.009 3.621 12463 1367 0.080 4.135 37697 2296 0.243 5.871 1250 108 0.008 6.436 15411452 871244 99.506 SV 9.714 10430 421 0.067 T

Figure 61 The HPLC of compound 41







Figure 63 The ¹H NMR spectrum of compound **4m**



Figure 65 The HRMS spectrum of compound 4m



〈峰表〉

检测器	A Ch1 240n	m					
峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	1.515	12151	1067	0.297		V	
2	2.614	2362	389	0.058		1 () ()	
3	3.051	2742	249	0.067			
4	3.388	1846	212	0.045			
5	3.729	22139	1646	0.541		V	
6	4.110	14123	1011	0.345		V	
7	4.541	13192	434	0.323		V	
8	5.183	4187	198	0.102		V	
9	5.842	4051	268	0.099		and a second	
10	9.126	4012405	262424	98.122		M	
总计		4089199	267898				

Figure 66 The HPLC of compound 4m



Figure 67 The IR spectrum of compound 4n



Figure 68 The ¹H NMR spectrum of compound **4n**



Figure 69 The ¹³C NMR spectrum of compound **4n**







Figure 71 The HPLC of compound 4n







Figure 73 The ¹H NMR spectrum of compound 40



Figure 75 The HRMS spectrum of compound 40





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检测器	A Ch1 240n	m		s dentri agenti a		s manifest of an	
峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	1.546	5517	628	0.044		a se standard a	
2	3.056	7214	527	0.058			
3	3.341	11452	734	0.091		V	
4	3.635	28037	1771	0.224		V	
5	3.965	20888	1274	0.167		V	
6	4.306	25897	860	0.207		V	
7	5.138	12895	756	0.103			
8	5.384	48736	848	0.389		V	
9	8.941	16167	410	0.129			
10	15.853	12340554	257002	98.588		S	
总计		12517357	264811				

Figure 76 The HPLC of compound 40



Figure 77 The IR spectrum of compound 4p



Figure 78 The ¹H NMR spectrum of compound **4p**



Figure 79 The ¹³C NMR spectrum of compound **4p**







Figure 81 The HPLC of compound 4p

Compound	4a			
Formula	$C_{24}H_{25}Cl_4N_9$			
Formula weight	461.96			
Crystal shape/color	Plate/yellow			
Temperature/K	296.15			
Crystal system	triclinic			
Space group	P-1			
a/Å	9.478(4)			
b/Å	12.216(5)			
c/Å	13.705(6)			
$\alpha/^{\circ}$	105.816(5)			
β/°	107.239(6)			
γ / °	101.579(6)			
Volume /Å3	1388.1(10)			
Z	2			
$\rho_{calc} g/cm^3$	1.391			
μ/mm^{-1}	0.458			
F (000)	600.0			
Crystal size/mm ³	$0.21 \times 0.15 \times 0.11$			

Table 1 Crystallographic data for compound 4a

Radiation	MoKa ($\lambda = 0.71073$)				
2Θ range for data collection/ $^{\circ}$	3.328 to 55.108				
Index ranges	$-8 \le h \le 12, -15 \le k \le 15, -17 \le l \le 17$				
Reflections collected	8622				
Independent reflections	6174 [Rint = 0.0214, Rsigma = 0.0432]				
Data/restraints/parameters	6174/103/337				
Goodness-of-fit on F ²	1.070				
Final R indexes $[I > = 2 \sigma (I)]$	R1 = 0.0806, $wR2 = 0.2349$				
Final R indexes [all data]	R1 = 0.1091, wR2 = 0.2625				
Largest diff. peak/hole / e Å $^{-3}$	0.74/-0.71				