

Supplementary Materials: Porphyrin Cobalt(III) “Nitrene Radical” Reactivity; Hydrogen Atom Transfer from Ortho-YH Substituents to the Nitrene Moiety of Cobalt-Bound Aryl Nitrene Intermediates (Y = O, NH)

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1. Experimental Section

All NMR spectra were recorded at 293 K.

¹H-NMR: Bruker Avance 400 (400 MHz) or Mercury 300 (300 MHz), referenced internally to residual solvent resonance of CDCl₃ (δ = 7.26 ppm) or DMSO (2.50).

¹³C{¹H}-NMR: Bruker Avance 400 (101 MHz) or Bruker Avance 500 (126 MHz), referenced internally to residual solvent resonance of CDCl₃ (δ = 77.2 ppm) or DMSO-d₆ (39.5).

2. Spectra

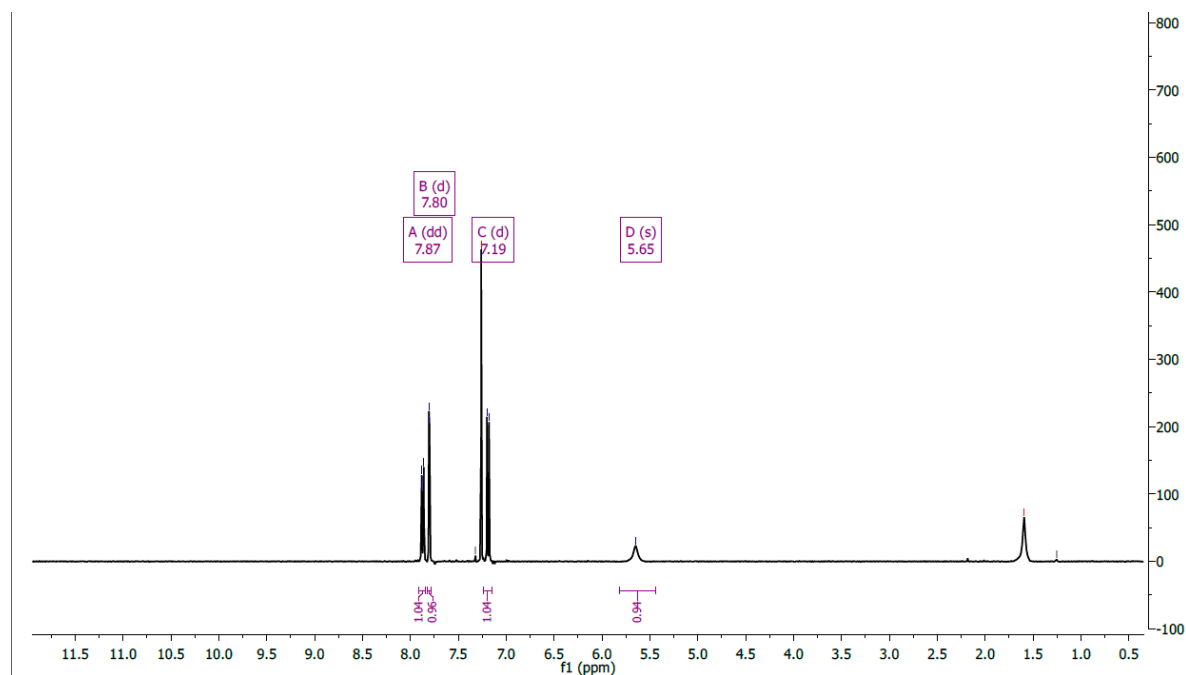


Figure S1. Cont.

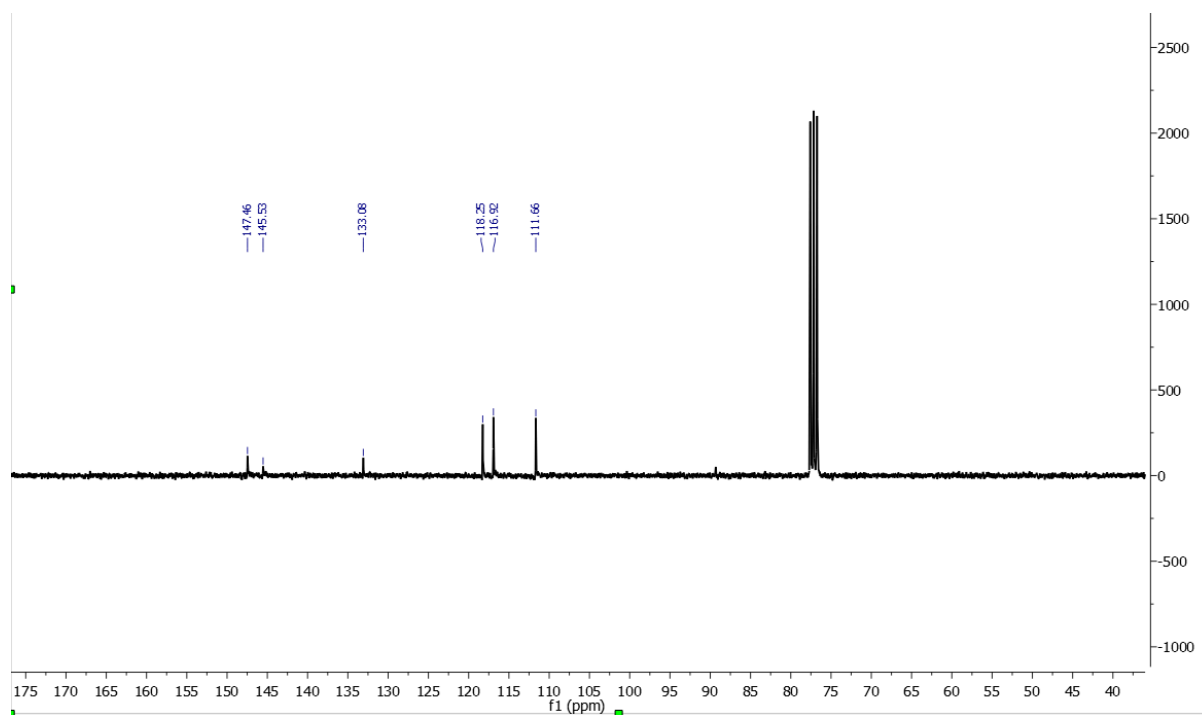


Figure S1. NMR spectra of compound 2-azido-5-nitrophenol 5.

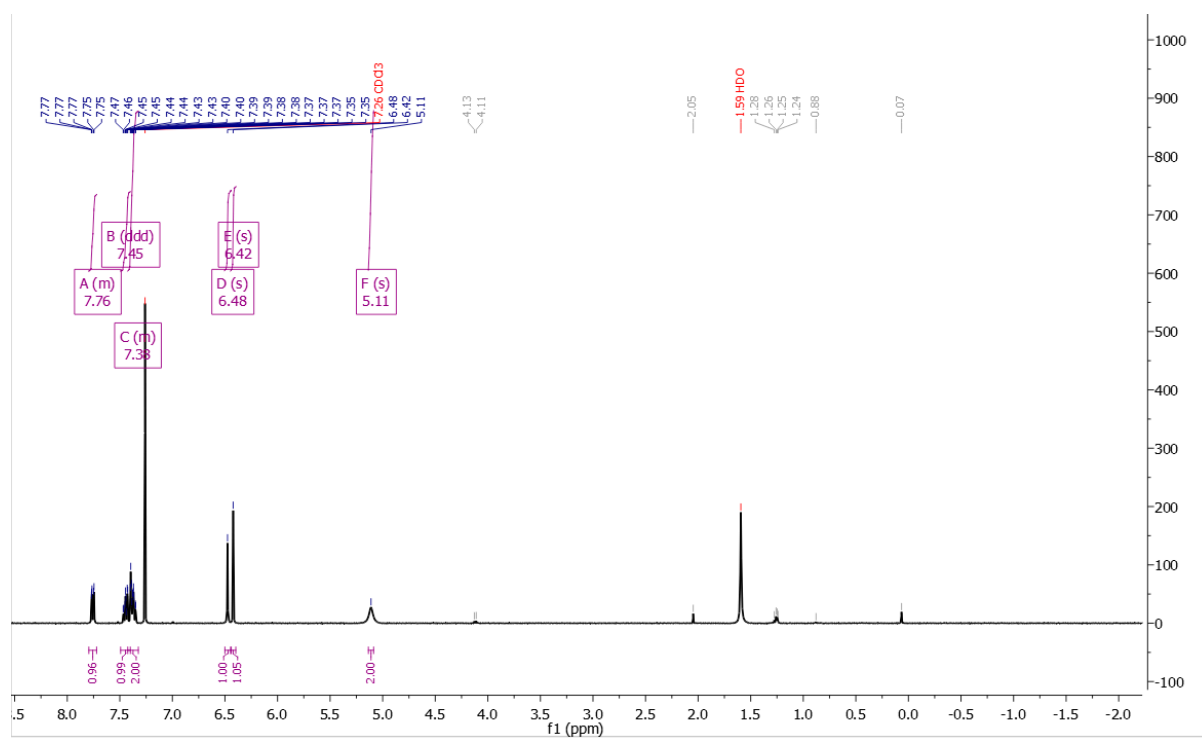


Figure S2. Cont.

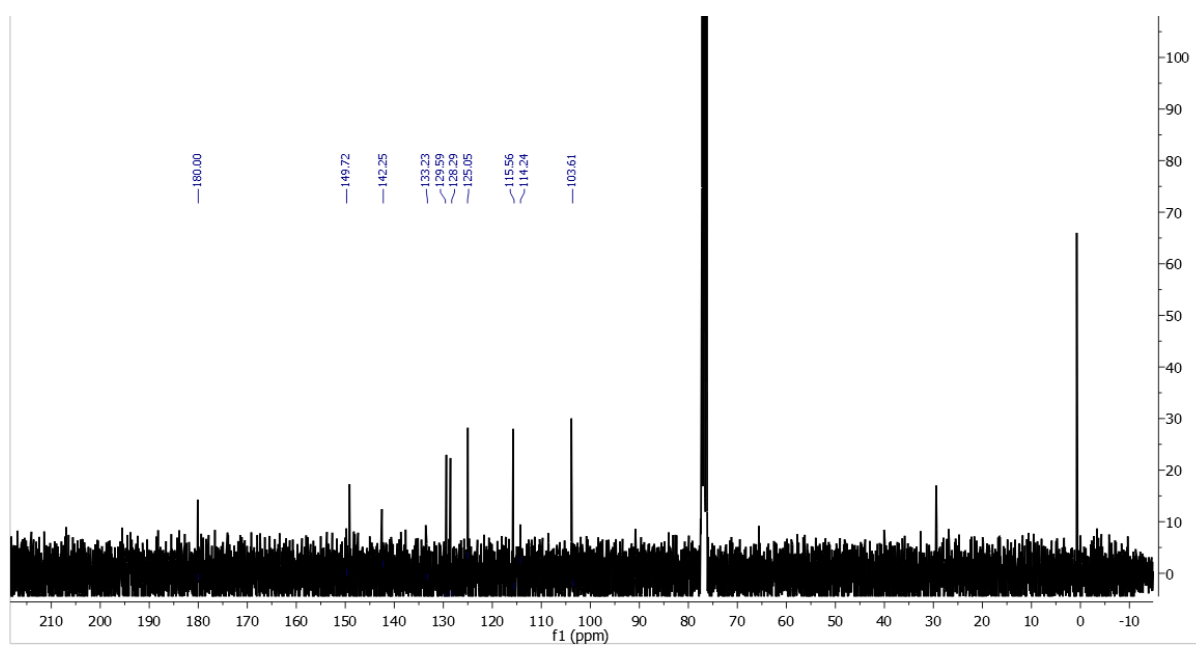


Figure S2. NMR spectra of product 3.

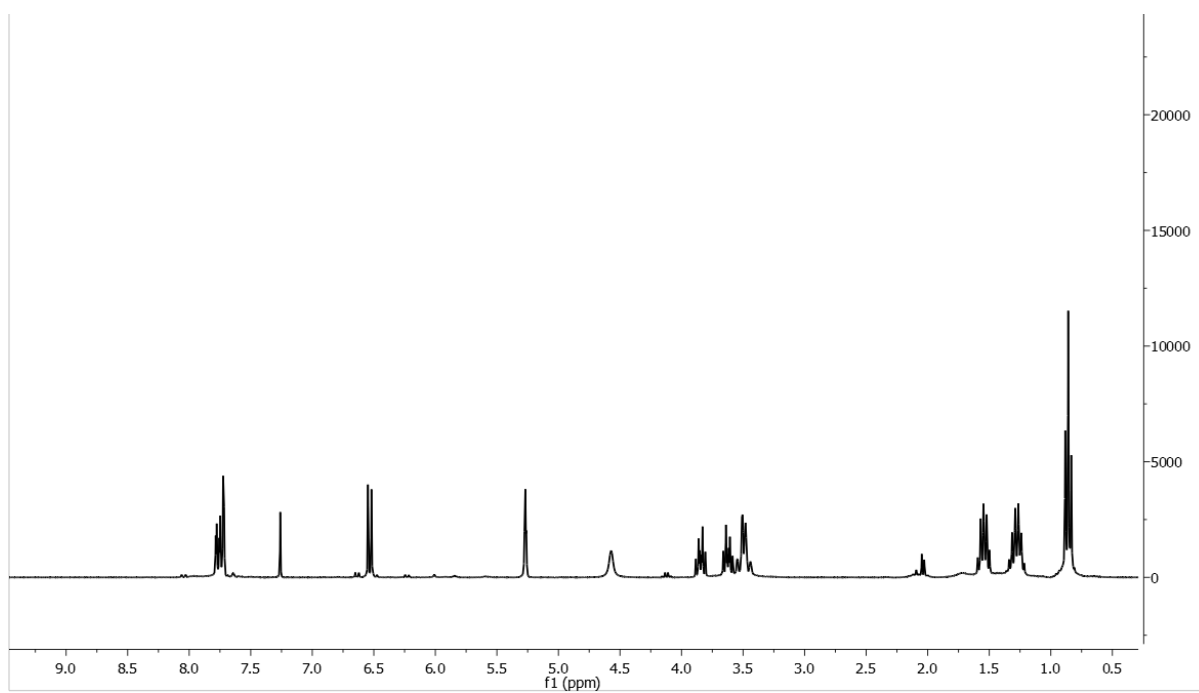


Figure S3. Cont.

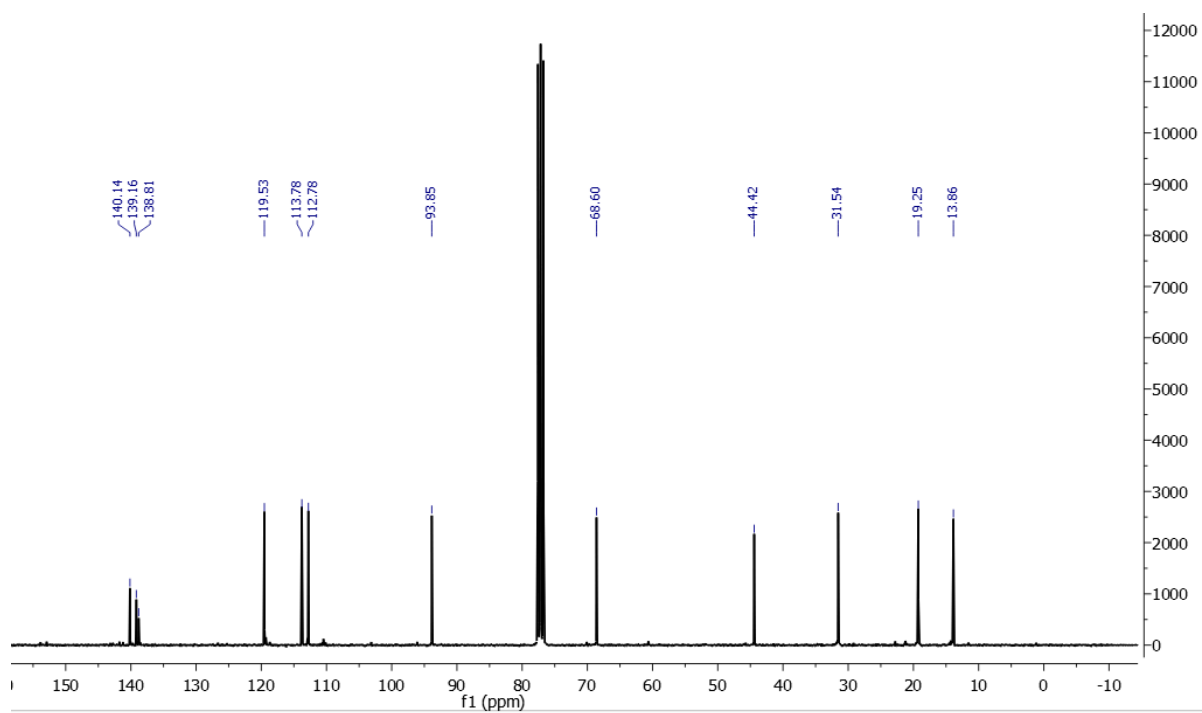


Figure S3. NMR spectra of product 6.

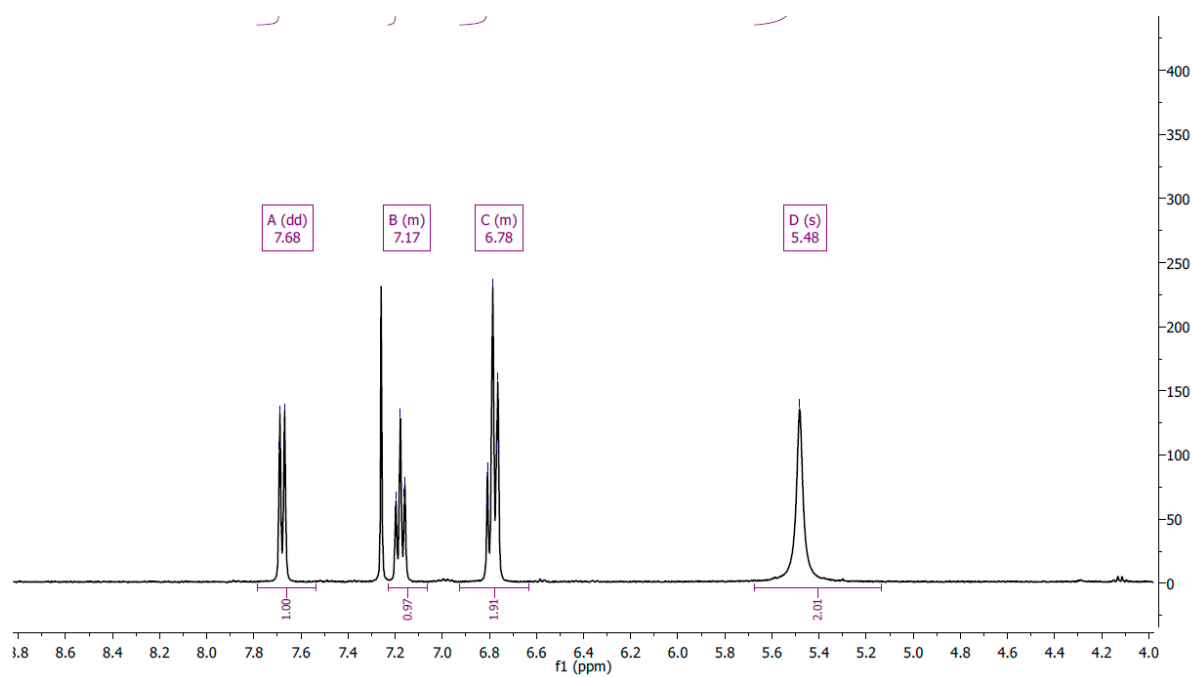


Figure S4. Cont.

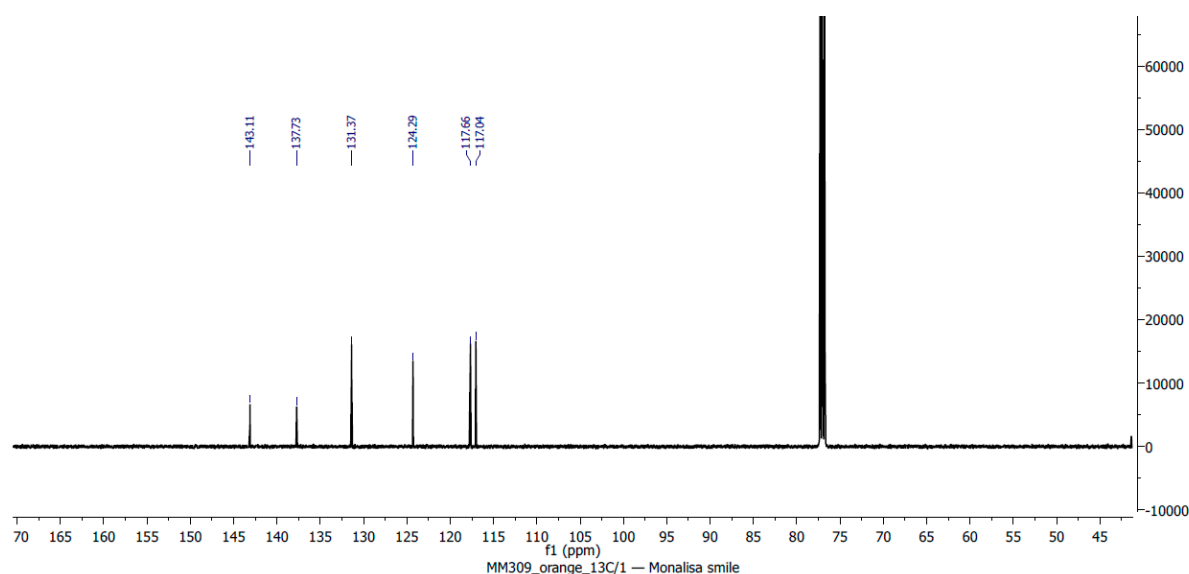


Figure S4. NMR spectra of product 8.

3. Computational Tables

Table S1. SCF energies, enthalpies and free energies of the compounds involved in the HAT step described in Figure 2 in the main text in Hartree (BP86, def2-TZVP, disp3).

	E (SCF)	G	G_corr	H_corr	H
2A	-2938.29618	-2937.99037	0.30581	0.39329	-2937.90289
2B	-2938.28968	-2937.98881	0.30087	0.38904	-2937.90064
2C	-2938.31264	-2938.0076	0.30504	0.39402	-2937.91862

Table S2. SCF energies, enthalpies and free energies of the compounds involved in the HAT step described in Figure 4 in the main text in Hartree (BP86, def2-TZVP, disp3).

	E (SCF)	G	G_corr	H_corr	H
3A	-2918.49820	-2918.18056	0.31763	0.40610	-2918.09210
3B	-2918.47866	-2918.16598	0.31268	0.40124	-2918.07742
3C	-2918.50309	-2918.18553	0.31755	0.40644	-2918.09665

Table S3. SCF energies, enthalpies and free energies of the compounds involved in the HAT step described in Figure 6 in the main text in Hartree (BP86, def2-TZVP, disp3).

	E (SCF)	G	G_corr	H_corr	H
4A	-3227.02126	-3226.62744	0.38199	0.5198	-3226.50146
4B	-3227.02225	-3226.60617	0.41609	0.52110	-3226.97014
4C	-3227.06315	-3226.64472	0.41843	0.52372	-3227.58687

3.1. X,Y,Z Coordinates of Compound 2A in Figure 2 in Main Text (BP86, def2-TZVP, disp3)

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Energy = -2938.3767558710

C -0.1000685 0.0070748 2.6874809
 C 0.5318198 0.0973631 3.9773508
 C 1.8382627 0.4243430 3.7570128
 C 1.9930823 0.5947604 2.3362556

H	0.0300678	-0.0911988	4.9222908
N	0.8026184	0.3229538	1.6848677
C	3.1264653	1.1123197	1.7304336
H	4.0088926	1.2770414	2.3478306
C	3.1533687	1.5563900	0.4183848
C	2.5370051	2.0512071	-1.6316560
C	3.8333686	2.6497223	-1.4289484
C	4.2284188	2.3170485	-0.1666014
H	4.3675806	3.2284919	-2.1773163
H	5.1508141	2.5751033	0.3463224
N	2.1161533	1.4146612	-0.4822334
C	1.8734009	2.0246507	-2.8480705
H	2.3170602	2.5665626	-3.6829197
C	0.7456916	1.2591285	-3.0986344
C	-0.8653401	-0.2171744	-2.8704433
C	-0.7912032	0.1035675	-4.2733262
C	0.1885080	1.0423422	-4.4111031
H	-1.4322234	-0.3255861	-5.0383733
H	0.5311694	1.5385448	-5.3148578
N	0.0695307	0.5082744	-2.1590206
C	-1.8071440	-1.0611882	-2.3050390
H	-2.4932077	-1.5858504	-2.9692861
C	-1.3914286	-0.4482343	2.4763084
H	-2.0091901	-0.6643142	3.3472871
C	-1.8879223	-0.7770607	1.2251548
C	-3.1108074	-1.5015395	0.9994232
C	-3.1685314	-1.7759201	-0.3361843
C	-2.0122119	-1.1668951	-0.9388642
H	-3.8143156	-1.7779853	1.7797068
H	-3.9394704	-2.3093582	-0.8851543
N	-1.2228654	-0.5680053	0.0275789
H	2.6298477	0.5791539	4.4849028
Co	0.5238868	0.2631578	-0.2487425
N	1.5069792	-1.2158937	-0.6359598
C	1.5402940	-2.3863351	-0.0261767
C	1.9939175	-5.0055626	0.9094028
C	2.5186268	-3.2823381	-0.6625876
C	0.8184004	-2.9077756	1.0962364
C	1.0403584	-4.1871565	1.5515880
C	2.7349192	-4.5675039	-0.1930995
H	0.0869390	-2.2738288	1.5841691
H	0.4953531	-4.5895653	2.4030500
H	3.4645650	-5.2207404	-0.6673177
O	3.1928934	-2.7925309	-1.7145499
H	2.8147426	-1.8643719	-1.7919898
N	2.2184746	-6.3611540	1.4149137
O	3.0616254	-7.0649812	0.8375141
O	1.5527328	-6.7330572	2.3956437

3.2. X,Y,Z Coordinates of Compound 2B in Figure 2 in Main Text (BP86, def2-TZVP, disp3)

Energy = -2938.3703671230

C	-0.1099678	0.0354651	2.6910147
C	0.5250115	0.1219400	3.9795563
C	1.8319685	0.4435863	3.7566796
C	1.9844156	0.6117139	2.3356431
H	0.0242290	-0.0657501	4.9251323
N	0.7900342	0.3505792	1.6864044
C	3.1242809	1.1079354	1.7257807
H	4.0080664	1.2683494	2.3423602
C	3.1630427	1.5276146	0.4068251
C	2.5667162	1.9959036	-1.6561419
C	3.8695748	2.5779797	-1.4550127
C	4.2517323	2.2615475	-0.1848443
H	4.4178611	3.1334225	-2.2107017
H	5.1754056	2.5131907	0.3287304
N	2.1271709	1.3851443	-0.4974901
C	1.9102954	1.9593772	-2.8751251
H	2.3673865	2.4783494	-3.7171235
C	0.7728729	1.2069666	-3.1163606
C	-0.8677199	-0.2337719	-2.8663595
C	-0.7809653	0.0582967	-4.2739862
C	0.2171819	0.9749275	-4.4256004
H	-1.4264081	-0.3741738	-5.0333201
H	0.5744283	1.4453249	-5.3373715
N	0.0792813	0.4868705	-2.1631497
C	-1.8312830	-1.0451180	-2.2914616
H	-2.5235377	-1.5676423	-2.9508640
C	-1.4051276	-0.4096000	2.4848041
H	-2.0209821	-0.6214538	3.3581439
C	-1.9102050	-0.7306887	1.2358069
C	-3.1420882	-1.4412347	1.0155958
C	-3.2065671	-1.7188524	-0.3187129
C	-2.0436320	-1.1272067	-0.9254323
H	-3.8460991	-1.7076628	1.7989044
H	-3.9841110	-2.2460804	-0.8642899
N	-1.2472163	-0.5288750	0.0358450
H	2.6265832	0.5927955	4.4823000
Co	0.5119913	0.2816263	-0.2495060
N	1.4600569	-1.2347963	-0.5723789
C	1.4915754	-2.4005717	0.0388386
C	2.0589261	-5.0134006	0.8464985
C	2.5437612	-3.2061406	-0.6394905
C	0.7664801	-2.9781150	1.1197913
C	1.0506164	-4.2668094	1.5105797
C	2.8098994	-4.5111827	-0.2163025
H	-0.0033442	-2.4025040	1.6249388
H	0.5157299	-4.7417875	2.3302028
H	3.5769650	-5.1168667	-0.6937694
O	3.1292702	-2.5551174	-1.6088707
H	2.4403934	-1.5514817	-1.4228539
N	2.3233250	-6.3819665	1.3063974
O	3.2064181	-7.0302968	0.7256929

O 1.6483090 -6.8187621 2.2540530

3.3. X,Y,Z Coordinates of Compound 2C in Figure 2 in Main Text (BP86, def2-TZVP, disp3)

52

Energy = -2938.3948562410

C -1.0180320 -0.2089291 2.8325966
C -0.6492225 -0.1190427 4.2219149
C 0.6359665 0.3376159 4.2610607
C 1.0682098 0.4848884 2.8950045
H -1.3122067 -0.3496910 5.0511710
N 0.0447237 0.1532515 2.0253124
C 2.3565449 0.8254137 2.5132350
H 3.0762389 1.0638864 3.2958283
C 2.8113415 0.7712015 1.2056690
C 2.9142001 0.3512325 -0.9503790
C 4.2641857 0.5760582 -0.5042191
C 4.1967160 0.8706630 0.8264410
H 5.1394309 0.5376864 -1.1465801
H 5.0067737 1.1080413 1.5103270
N 2.0289276 0.4729559 0.1042141
C 2.5516891 0.1383907 -2.2714646
H 3.3456265 0.0372627 -3.0105330
C 1.2424177 0.1658504 -2.7222706
C -0.9492001 0.3488280 -2.7715841
C -0.4994480 0.3304418 -4.1403504
C 0.8561156 0.1853480 -4.1091585
H -1.1554864 0.3928742 -5.0039599
H 1.5503232 0.1158455 -4.9417160
N 0.1283125 0.2775917 -1.9098776
C -2.2799617 0.3254850 -2.3852961
H -3.0384693 0.3927493 -3.1646825
C -2.2950383 -0.5010153 2.3811170
H -3.0477637 -0.7745471 3.1200986
C -2.7017497 -0.3497084 1.0649663
C -4.0719613 -0.4234395 0.6237789
C -4.0766116 -0.1103489 -0.7033383
C -2.7041964 0.1139051 -1.0832361
H -4.9139130 -0.6623937 1.2675482
H -4.9212034 -0.0502415 -1.3840779
N -1.8722306 -0.0139016 0.0129203
H 1.2550016 0.5490587 5.1285668
Co 0.1012362 0.0600361 0.0560039
N 0.3071564 -1.8290015 -0.2383752
C 1.4090976 -2.5555964 -0.1725827
C 3.7636866 -4.0712015 -0.1765730
C 1.6845726 -3.4914502 -1.3175816
C 2.3279814 -2.4695478 0.9198710
C 3.4804224 -3.2016956 0.9250129
C 2.9299086 -4.2372240 -1.2463925
H 2.0830818 -1.8032449 1.7453041
H 4.1930276 -3.1472249 1.7443099

H	3.1859470	-4.9063467	-2.0654386
O	0.8886326	-3.5855275	-2.2695200
N	5.0480029	-4.8245399	-0.1506664
O	5.2730143	-5.6192022	-1.0668237
O	5.8171148	-4.6014789	0.7924751
H	-0.2100509	-2.1031656	-1.0914606

3.4. X,Y,Z Coordinates of Compound 3A in Figure 4 in Main Text (BP86, def2-TZVP, disp3)

53

Energy = -2918.4981954630

C	-0.1542683	0.0308018	2.6479195
C	0.4717602	0.1422034	3.9392296
C	1.7725703	0.4912208	3.7200999
C	1.9286694	0.6524414	2.2980215
H	-0.0296275	-0.0475954	4.8841421
N	0.7459307	0.3527066	1.6451340
C	3.0546469	1.1868130	1.6927269
H	3.9304786	1.3741409	2.3132987
C	3.0790851	1.6218678	0.3772752
C	2.4621235	2.0896748	-1.6779938
C	3.7479820	2.7119249	-1.4761631
C	4.1436062	2.3969283	-0.2091656
H	4.2737708	3.2963256	-2.2263160
H	5.0580492	2.6777669	0.3063266
N	2.0491954	1.4538923	-0.5259690
C	1.8004475	2.0470699	-2.8955301
H	2.2375143	2.5918642	-3.7321771
C	0.6795042	1.2702369	-3.1438219
C	-0.9207448	-0.2157051	-2.9113155
C	-0.8518756	0.1036606	-4.3152295
C	0.1222514	1.0480652	-4.4559244
H	-1.4928069	-0.3293422	-5.0783390
H	0.4590273	1.5467308	-5.3606804
N	0.0106283	0.5156003	-2.2028832
C	-1.8548254	-1.0668594	-2.3429599
H	-2.5401149	-1.5953907	-3.0051449
C	-1.4385959	-0.4445499	2.4371261
H	-2.0543989	-0.6645288	3.3085705
C	-1.9312017	-0.7833636	1.1869331
C	-3.1492312	-1.5173537	0.9634720
C	-3.2069824	-1.7919566	-0.3719345
C	-2.0551427	-1.1748592	-0.9761532
H	-3.8497516	-1.7983879	1.7448435
H	-3.9753564	-2.3301094	-0.9201165
N	-1.2679857	-0.5716124	-0.0109132
H	2.5587986	0.6671956	4.4490795
Co	0.4689096	0.2787055	-0.2876759
N	1.4821356	-1.1919847	-0.6847613
C	1.5347026	-2.3598829	-0.0834682
C	1.9936769	-4.9506639	0.9684598
C	2.5123723	-3.2860811	-0.7008099

C	0.8150696	-2.8554123	1.0590505
C	1.0342058	-4.1087118	1.5735772
C	2.7215165	-4.5518794	-0.1516551
H	0.0832583	-2.2019148	1.5179310
H	0.4881889	-4.4723406	2.4416441
H	3.4461501	-5.2400776	-0.5864517
N	2.2322200	-6.2763981	1.5275140
O	3.0879261	-6.9962235	0.9827435
O	1.5677478	-6.6187757	2.5214032
N	3.1636012	-2.8512293	-1.8106767
H	3.0129225	-1.8754551	-2.0609494
H	3.9569820	-3.3584901	-2.1791670

3.5. X,Y,Z Coordinates of Compound 3B in Figure 4 in Main Text (BP86, def2-TZVP, disp3)

53

Energy = -2918.4786616970

C	-0.1593583	-0.0014974	2.6180856
C	0.4873922	0.0682778	3.9023353
C	1.7916415	0.3935517	3.6714716
C	1.9307839	0.5765904	2.2504100
H	-0.0049132	-0.1308775	4.8500713
N	0.7307161	0.3240292	1.6088086
C	3.0689345	1.0714778	1.6366906
H	3.9560100	1.2265520	2.2499905
C	3.1055733	1.4917941	0.3177453
C	2.5075539	1.9622970	-1.7438062
C	3.8177583	2.5301945	-1.5485727
C	4.1998834	2.2141585	-0.2780758
H	4.3682773	3.0802949	-2.3066597
H	5.1263685	2.4598888	0.2336021
N	2.0658714	1.3567992	-0.5833311
C	1.8422566	1.9407833	-2.9587186
H	2.3018136	2.4566366	-3.8014391
C	0.6855109	1.2165223	-3.1942366
C	-0.9929466	-0.1764113	-2.9369651
C	-0.9184767	0.1301289	-4.3427352
C	0.1056929	1.0167041	-4.4987346
H	-1.5895056	-0.2714472	-5.0968796
H	0.4629046	1.4886783	-5.4098252
N	-0.0139039	0.5043029	-2.2396772
C	-1.9722647	-0.9667921	-2.3589830
H	-2.6906997	-1.4565467	-3.0155918
C	-1.4602983	-0.4332404	2.4212155
H	-2.0667088	-0.6532611	3.2992151
C	-1.9885030	-0.7221086	1.1740559
C	-3.2401153	-1.4002488	0.9599407
C	-3.3334991	-1.6446538	-0.3789281
C	-2.1655530	-1.0678591	-0.9914416
H	-3.9368501	-1.6681545	1.7493092
H	-4.1322916	-2.1406153	-0.9231611
N	-1.3387995	-0.5110396	-0.0313733

H	2.5932286	0.5347245	4.3911183
Co	0.4333487	0.2765846	-0.3265012
N	1.3868922	-1.2552198	-0.6625962
C	1.4819520	-2.3905188	-0.0137602
C	2.1417536	-4.9379927	0.9806430
C	2.6570496	-3.1581497	-0.5507523
C	0.6989178	-2.9854252	1.0204615
C	1.0209152	-4.2312669	1.5008268
C	2.9583998	-4.4281108	-0.0198573
H	-0.1543452	-2.4440978	1.4180005
H	0.4346101	-4.7060125	2.2845342
H	3.8150571	-5.0037131	-0.3673338
N	2.4510066	-6.2567178	1.5345177
O	3.4233018	-6.8736659	1.0686535
O	1.7248500	-6.6928615	2.4452308
N	3.2545103	-2.4514799	-1.5018937
H	2.4540113	-1.4322874	-1.4198729
H	4.0872848	-2.8086983	-1.9622304

3.6. X,Y,Z Coordinates of Compound 3C in Figure 4 in main text (BP86, def2-TZVP, disp3)

53

Energy = -2918.5030858880

C	-0.2934206	-0.4024895	2.4797454
C	0.3928664	-0.5819766	3.7329208
C	1.7226607	-0.4062611	3.4829453
C	1.8431930	-0.0687636	2.0885846
H	-0.0930349	-0.8381824	4.6702613
N	0.6025312	-0.0668704	1.4800062
C	3.0332300	0.2812397	1.4699073
H	3.9512944	0.2146878	2.0527135
C	3.1099525	0.8168707	0.1950142
C	2.5498442	1.6083472	-1.7778578
C	3.9480438	1.9023154	-1.5913465
C	4.3017506	1.3854668	-0.3798503
H	4.5704050	2.4179349	-2.3173563
H	5.2728849	1.3998928	0.1069808
N	2.0392378	0.9661755	-0.6668506
C	1.8516486	1.8467664	-2.9507784
H	2.3675018	2.3727238	-3.7537771
C	0.5747702	1.3717727	-3.2022606
C	-1.3236202	0.2825848	-3.0146281
C	-1.2510862	0.7626767	-4.3720107
C	-0.0841010	1.4590518	-4.4818110
H	-2.0162840	0.5967163	-5.1252580
H	0.3192103	1.9766896	-5.3478109
N	-0.2037263	0.6666172	-2.3038176
C	-2.4091457	-0.3957276	-2.4839088
H	-3.2301009	-0.6486138	-3.1542572
C	-1.6379163	-0.6727310	2.2847368
H	-2.2373587	-0.9400178	3.1546304
C	-2.2422146	-0.7209807	1.0382219

C	-3.5892090	-1.1766464	0.8055983
C	-3.7802110	-1.1702415	-0.5450671
C	-2.5637108	-0.6734130	-1.1355458
H	-4.2832643	-1.4704719	1.5883096
H	-4.6687813	-1.4466266	-1.1059022
N	-1.6217945	-0.4109853	-0.1581825
H	2.5574291	-0.4713679	4.1751326
Co	0.2480800	0.1457254	-0.4523058
N	1.0712951	-1.5290537	-1.0151113
C	1.5800588	-2.4698098	-0.2415239
C	2.7451659	-4.3688221	1.4693475
C	2.9658475	-2.9566697	-0.5082344
C	0.8432389	-3.0180884	0.8586397
C	1.3993549	-3.9356801	1.7006142
C	3.5033820	-3.9270034	0.4237751
H	-0.1774315	-2.6684863	1.0052069
H	0.8525253	-4.3510966	2.5433355
H	4.5231047	-4.2914839	0.2990339
N	3.3428882	-5.3368663	2.4215519
O	4.4863691	-5.7464506	2.1958754
O	2.6563921	-5.6729147	3.3940192
N	3.5983048	-2.4541744	-1.5342682
H	1.7507437	-1.3209306	-1.7656125
H	4.5459222	-2.8436557	-1.6095985

3.7. X,Y,Z Coordinates of Compound 4B in Figure 6 in main text (BP86, def2-TZVP, disp3)

67

Energy = -3227.0221914460

C	0.0700493	-0.3051630	2.3628844
C	1.0502664	-0.4052898	3.4139151
C	2.2462227	-0.6589901	2.8131434
C	1.9985259	-0.6884479	1.3942441
H	0.8282018	-0.3091999	4.4730579
N	0.6620631	-0.4613594	1.1225707
C	2.9807805	-0.9055270	0.4449747
H	3.9946760	-1.0969017	0.7945658
C	2.7635897	-0.8537793	-0.9203220
C	1.8037393	-0.6362077	-2.8879019
C	3.2032818	-0.8669247	-3.1299471
C	3.7989692	-1.0038848	-1.9086669
H	3.6565987	-0.9024883	-4.1168292
H	4.8481737	-1.1695771	-1.6787237
N	1.5373149	-0.6369678	-1.5262437
C	0.8693894	-0.4140079	-3.8841549
H	1.2114334	-0.4184240	-4.9185027
C	-0.4768028	-0.2070760	-3.6475663
C	-2.4408964	-0.1313778	-2.6735783
C	-2.6667293	0.0761356	-4.0818473
C	-1.4448347	0.0445313	-4.6839600
H	-3.6428209	0.2391011	-4.5306081
H	-1.1984405	0.1557196	-5.7357961

N	-1.0910622	-0.2792768	-2.4109660
C	-3.4494599	-0.1474839	-1.7270755
H	-4.4786456	-0.0751195	-2.0779287
C	-1.2860796	-0.1566152	2.5927331
H	-1.6205721	-0.0719363	3.6264562
C	-2.2472730	-0.1414616	1.5970450
C	-3.6648054	-0.0535151	1.8439529
C	-4.2769503	-0.0869819	0.6263401
C	-3.2304115	-0.1782562	-0.3609008
H	-4.1143158	0.0278743	2.8299675
H	-5.3374818	-0.0321980	0.3961537
N	-1.9905396	-0.2135007	0.2424250
H	3.2200187	-0.8084164	3.2710206
Co	-0.2394801	-0.6014220	-0.6476638
N	-0.5817213	-2.4565176	-0.5987265
C	0.2203713	-3.2283814	0.2238724
C	1.8346186	-4.6144083	2.0321629
C	1.4545145	-3.8152948	-0.2164643
C	-0.1841594	-3.4266804	1.5670438
C	0.6107766	-4.0962116	2.4795702
C	2.2554356	-4.4972308	0.7137229
H	-1.1293966	-2.9790335	1.8729650
H	0.3203428	-4.2172355	3.5200874
H	3.2178120	-4.9165641	0.4224292
N	2.7212417	-5.2899954	2.9972882
O	3.8080618	-5.7202005	2.5866406
O	2.3347107	-5.3828663	4.1695221
N	1.8257513	-3.7128072	-1.5320226
H	1.3427354	-2.9912852	-2.0626751
H	2.8159857	-3.7799236	-1.7415046
C	-0.9386092	-3.7212466	-3.0757589
H	-2.0926977	-4.0805797	-1.2207595
C	-1.3863235	-3.6555406	-1.9135040
C	-0.3434070	-3.6463519	-4.3446257
C	0.8457827	-3.4412291	-6.9009004
C	-1.0119159	-2.9915852	-5.4110545
C	0.9240444	-4.2297536	-4.6083546

3.8. X,Y,Z Coordinates of Compound 4C in Figure 6 in main text (BP86, def2-TZVP, disp3)

67

Energy = -3227.0631494640

C	0.6557974	-1.4131167	1.8356173
C	1.7543772	-1.7245754	2.7132858
C	2.8410438	-1.0580103	2.2321900
C	2.4093291	-0.3575083	1.0487403
H	1.6801109	-2.3632924	3.5887997
N	1.0663197	-0.5852116	0.8049367
C	3.2486443	0.4123381	0.2617320
H	4.2860730	0.5219369	0.5777456
C	2.8616974	1.0252159	-0.9171917
C	1.6746247	1.7007622	-2.6362584

C 3.0190242 2.1716187 -2.8484692
C 3.7525871 1.7653791 -1.7726900
H 3.3366871 2.7619201 -3.7035950
H 4.8029687 1.9444616 -1.5594623
N 1.5857110 0.9807449 -1.4577715
C 0.6076171 2.0128936 -3.4614088
H 0.8119694 2.5903362 -4.3627269
C -0.7100104 1.6937973 -3.1834145
C -2.5155063 0.8587141 -2.2534752
C -2.9456975 1.5779928 -3.4246990
C -1.8241377 2.0902228 -4.0063658
H -3.9793447 1.6642292 -3.7481522
H -1.7392892 2.6912124 -4.9075488
N -1.1435153 0.9518537 -2.0971904
C -3.3613776 0.1183377 -1.4468195
H -4.4213942 0.1028154 -1.6989654
C -0.6385650 -1.8556301 2.0334395
H -0.8274969 -2.5193698 2.8763475
C -1.7138735 -1.4954699 1.2398878
C -3.0661164 -1.9310783 1.4744431
C -3.8333944 -1.3801174 0.4907873
C -2.9480110 -0.6095159 -0.3444119
H -3.3710526 -2.5700485 2.2985177
H -4.9051801 -1.4669139 0.3348455
N -1.6478768 -0.6862430 0.1206046
H 3.8522465 -1.0312959 2.6289227
Co -0.0220617 0.0197618 -0.7549610
N 0.1421707 -1.6470245 -1.8883148
C 0.4988680 -2.7949530 -1.1523626
C 1.3365972 -4.9476094 0.3712760
C 1.8914868 -3.0271402 -0.9734315
C -0.4373486 -3.6778886 -0.5976745
C -0.0340963 -4.7638518 0.1673516
C 2.2995185 -4.1086680 -0.1830174
H -0.7472652 -5.4488151 0.6181425
H 3.3540121 -4.3117079 -0.0045192
N 1.7881854 -6.0724699 1.2153260
O 3.0055909 -6.2163343 1.3882202
O 0.9245013 -6.8082808 1.7091618
N 2.7879422 -2.2244654 -1.6479135
H 2.3860143 -1.3430306 -1.9685244
H 3.7072245 -2.1253960 -1.2302088
C -0.9485032 -3.0263379 -3.5457392
C -0.6173029 -4.3816720 -3.6358775
C 0.0852411 -7.1174543 -3.7024244
C 0.7449430 -4.7873365 -3.7760488
C -1.6129430 -5.3961501 -3.5574238
C -1.2594121 -6.7387854 -3.5856394
C 1.0801417 -6.1333704 -3.7983190
H 1.5179342 -4.0196648 -3.8251779