Supporting Information for

Achieving tricolor luminescence switching from a stimuli-responsive luminophore based on bisarylic methanone derivative

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Table S1 UV-vis absorption and fluorescence properties of **DBF-BZ-TPA** in different solvents.

Solvent	Δf	λ_{abs}/nm (ε/M^{-1} cm^{-1})	λ_{em}/nm	$\Delta\nu_{st}$[a]/cm^{-1}	Φ_f[b]
hexane	~0	293 (33700), 388 (21000)	438, 464	2942	0.58
cyclohexane	~0	293 (41300), 390 (24600)	441, 467	2965	0.56
toluene	0.014	296 (31800), 393 (23900)	478	4525	0.54
ethyl acetate	0.201	293 (33800), 393 (26700)	518	6140	0.51
THF	0.210	296 (36800), 396 (27500)	525	6205	0.48
DCM	0.218	296 (33400), 398 (28800)	561	7300	0.42
DMF	0.275	295 (31000), 399 (29100)	580	7821	0.27

[a]$\Delta\upsilon_{st} = \upsilon_{abs} - \upsilon_{em}$. [b]The fluorescence quantum yield (Φ_f) was measured using 9,10-diphenylanthracene (Φ_f = 0.85 in benzene) as a standard excited at 390 nm.

Table S2. Cartesian coordinates of DFT-optimized structure of **DBF-BZ-TPA** by B3LYP/6-31G(d,p)/CH_2Cl_2.

Charge = 0 Multiplicity = 1

C	-9.47457	0.09955	3.47099
C	-8.25754	0.5887	2.99689
C	-7.39627	-0.29393	2.33469
C	-7.78664	-1.63561	2.17131
C	-8.99146	-2.14483	2.63391
C	-9.83565	-1.24696	3.29207
C	-5.80424	-1.49008	1.22674
C	-6.08693	-0.19522	1.71083
C	-5.15479	0.82014	1.50989
H	-5.33702	1.83492	1.84752
C	-3.94765	0.52268	0.85756
C	-3.70435	-0.78588	0.38298
C	-4.63309	-1.81161	0.55452
H	-10.15602	0.76918	3.98731
H	-7.98516	1.63041	3.1389
H	-9.25819	-3.18631	2.48903
H	-10.79001	-1.5994	3.67217
H	-2.78649	-0.99777	-0.15399
H	-4.45408	-2.81277	0.17773
O	-6.82389	-2.36622	1.49958
C	-2.99537	1.65327	0.61894
O	-3.42562	2.80465	0.53436
C	-1.52763	1.4012	0.48643
C	-0.86287	0.34978	1.13829
C	-0.7612	2.31361	-0.25894
C	0.51814	0.20986	1.03449
H	-1.4217	-0.35456	1.74578
C	0.61365	2.16338	-0.37454
H	-1.26438	3.14599	-0.74036
H	1.00202	-0.62359	1.5346
H	1.18178	2.89382	-0.94276
C	2.37543	0.98396	0.17907
C	3.13198	1.80824	-0.53244
H	2.78572	0.1241	0.72541
H	2.72169	2.6681	-1.07878
C	1.28771	1.10578	0.26978
C	7.24141	-0.19546	-0.41477
C	6.12891	-0.5846	0.35516
C	7.11541	0.9449	-1.22904
C	4.95047	0.13927	0.31091
H	6.19312	-1.46499	0.98264

C	5.93801	1.67237	-1.25296
H	7.95134	1.26581	-1.83788
C	4.82552	1.29631	-0.48013
H	4.10934	-0.18935	0.91073
H	5.88098	2.54394	-1.89353
C	9.30148	-0.98425	-1.51049
C	8.79066	-1.28069	-2.7799
C	10.67496	-0.76156	-1.36098
C	9.6401	-1.33881	-3.88042
H	7.72875	-1.46515	-2.89866
C	11.52046	-0.83734	-2.46363
H	11.07374	-0.52977	-0.37984
C	11.00859	-1.12114	-3.72842
H	9.2308	-1.56931	-4.85879
H	12.58335	-0.66113	-2.33352
H	11.66941	-1.17331	-4.58713
N	8.43778	-0.92881	-0.3749
C	8.8254	-1.62713	0.80882
C	8.78927	-0.99032	2.05532
C	9.26507	-2.95352	0.72992
C	9.17252	-1.67766	3.20285
H	8.4622	0.04151	2.11908
C	9.66125	-3.62906	1.88023
H	9.29611	-3.44854	-0.23423
C	9.6125	-2.99802	3.12189
H	9.14087	-1.17202	4.16258
H	9.99994	-4.65741	1.8051
H	9.91748	-3.52865	4.0176

Table S3 Crystallographic experimental details for **DBF-BZ-TPA** (CCDC 2119347).

Empirical formula	$C_{39}H_{27}NO_2$
Formula weight	541.61
Temperature/K	150.00(10)
Crystal system	triclinic
Space group	P-1
a/Å	6.0022(3)
b/Å	7.5070(4)
c/Å	30.8256(13)
α/°	84.861(4)
β/°	89.533(3)
γ/°	89.472(4)
Volume/Å^3	1383.28(12)
Z	2
ρ_{calc}g/cm^3	1.300
μ/mm^{-1}	0.622
F(000)	568.0
Crystal size/mm^3	0.13 × 0.1 × 0.08
Radiation	Cu Kα (λ = 1.54184)
2Θ range for data collection/°	5.758 to 147.852
Index ranges	$-7 \leq h \leq 4$, $-9 \leq k \leq 9$, $-34 \leq l \leq 38$
Reflections collected	9298
Independent reflections	5375 [R_{int} = 0.0265, R_{sigma} = 0.0390]
Data/restraints/parameters	5375/0/379
Goodness-of-fit on F^2	1.050
Final R indexes [I>=2σ (I)]	R_1 = 0.0489, wR_2 = 0.1327
Final R indexes [all data]	R_1= 0.0570, wR_2 = 0.1389
Largest diff. peak/hole / e Å^{-3}	0.19/-0.24

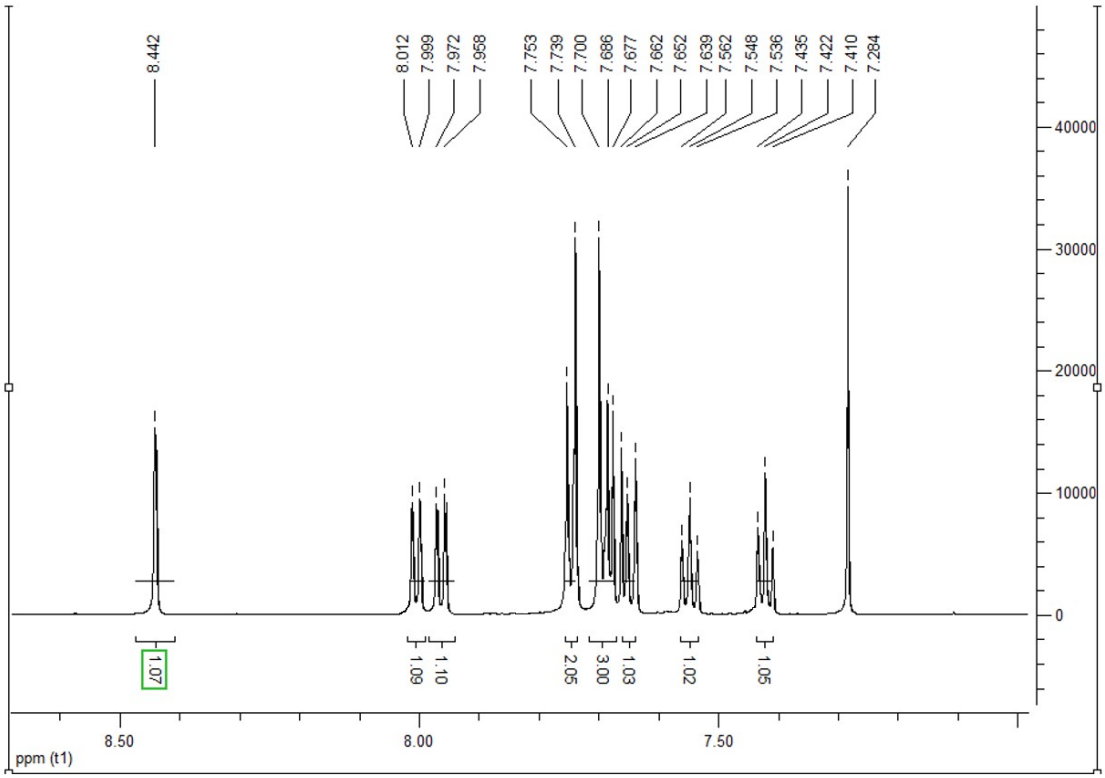

Fig. S1 ^{1}H NMR (600 MHz) spectrum of **3**.

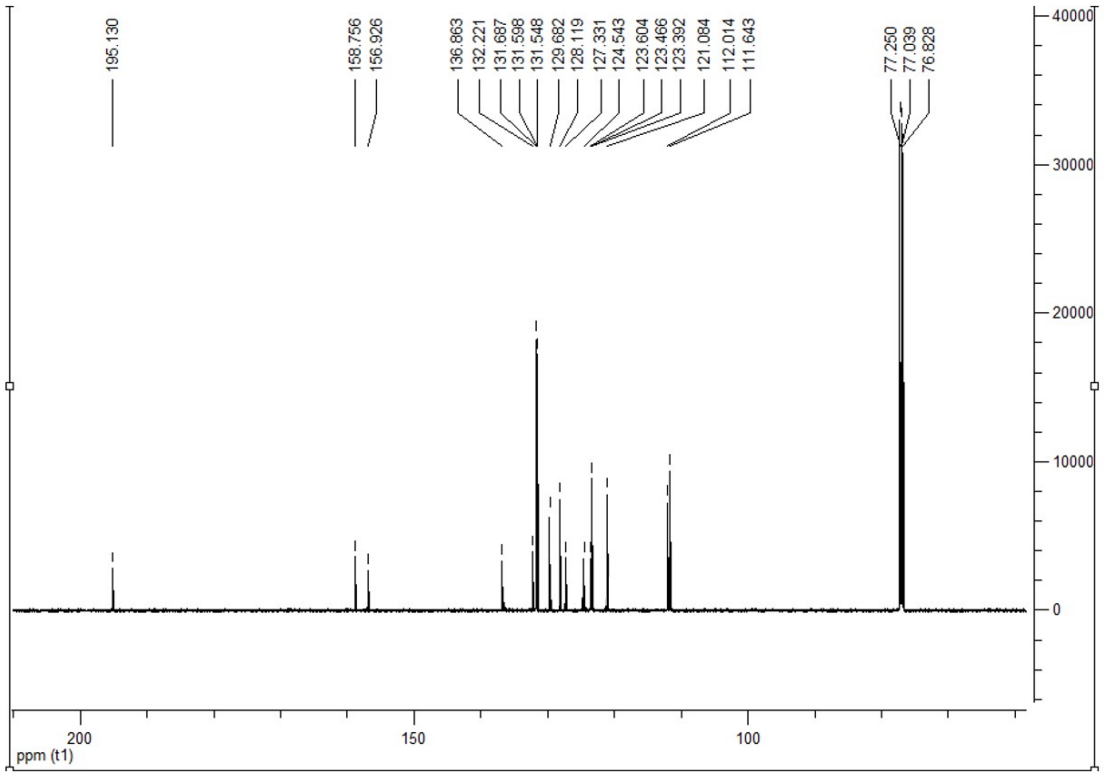

Fig. S2 ^{13}C NMR (150 MHz) spectrum of **3**.

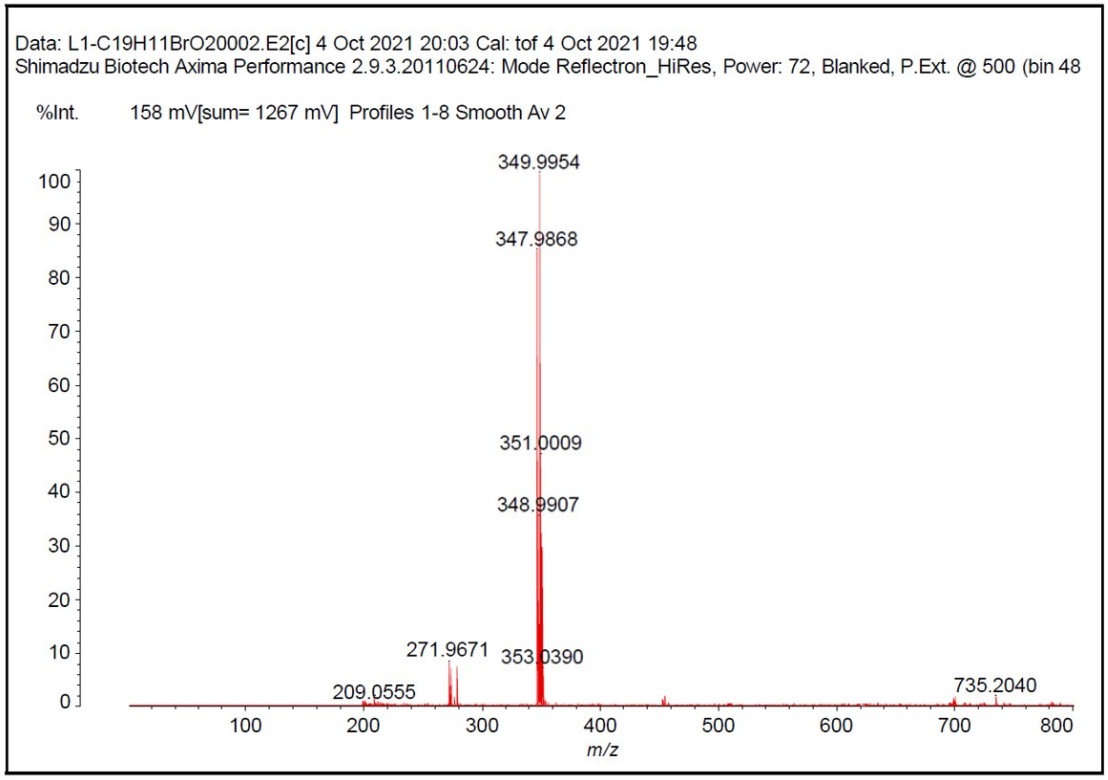

Fig. S3 MALDI/TOF MS spectrum of **3**

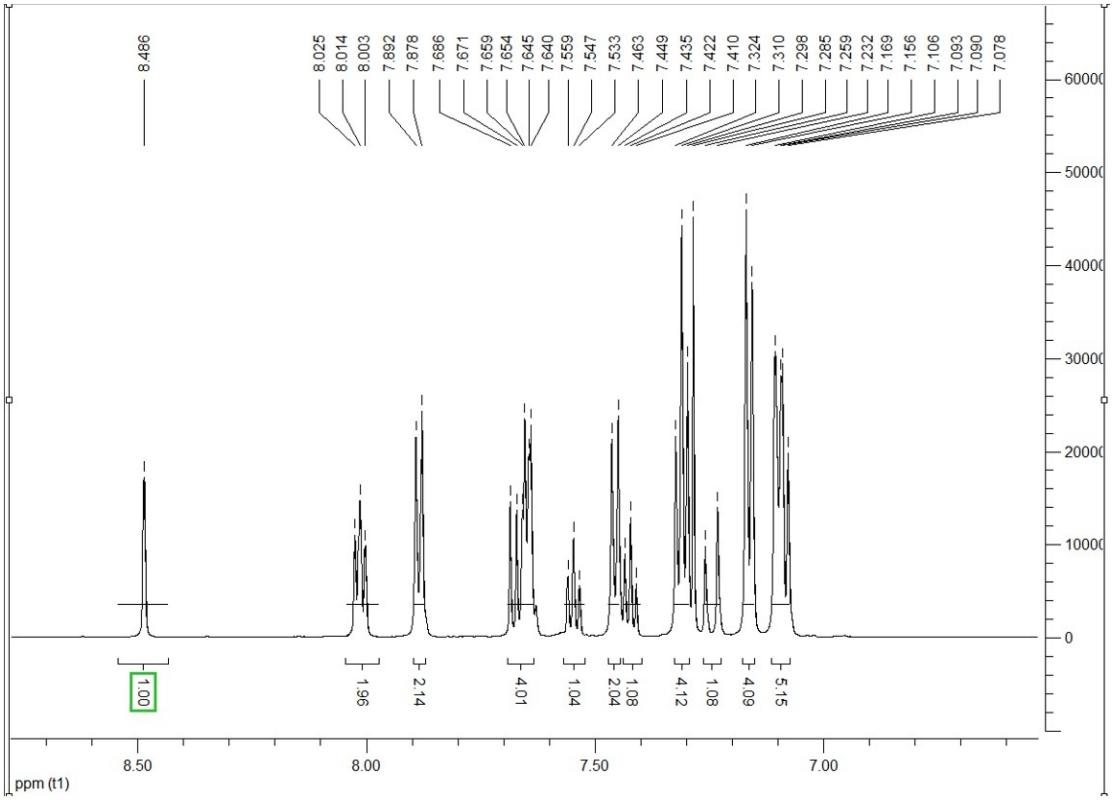

Fig. S4 ^{1}H NMR (600 MHz) spectrum of **DBF-BZ-TPA**.

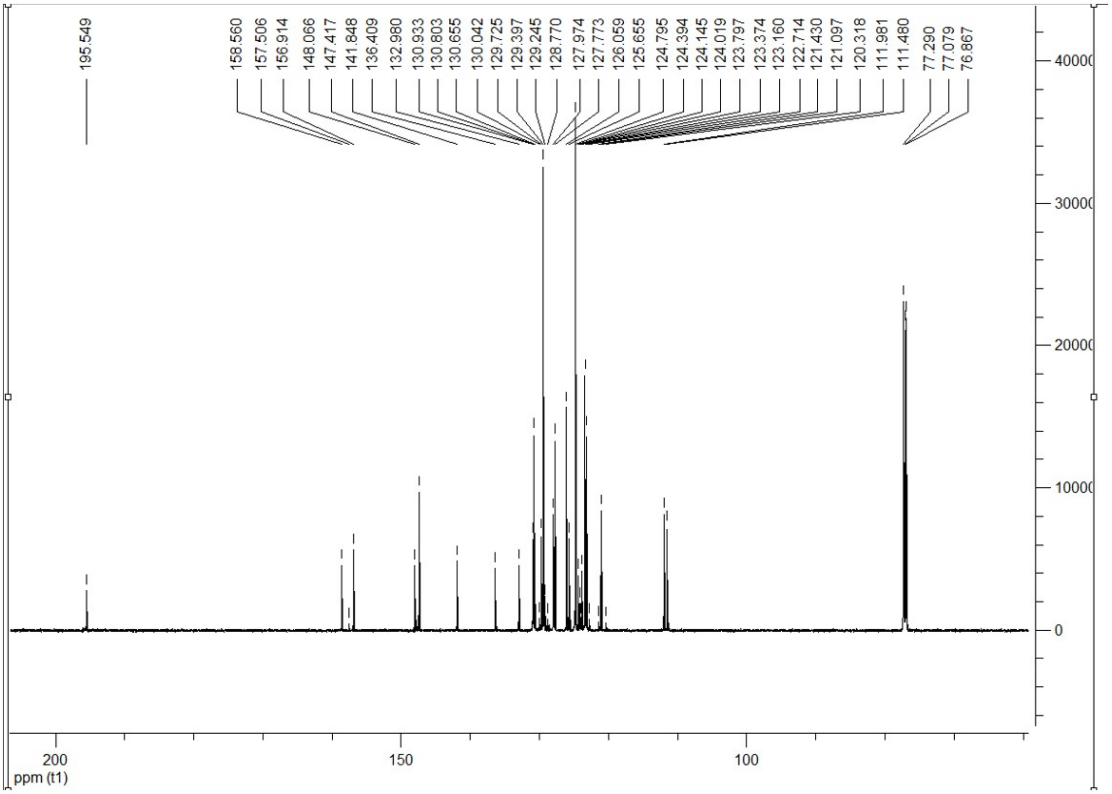

Fig. S5 ^{13}C NMR (150 MHz) spectrum of **DBF-BZ-TPA**.

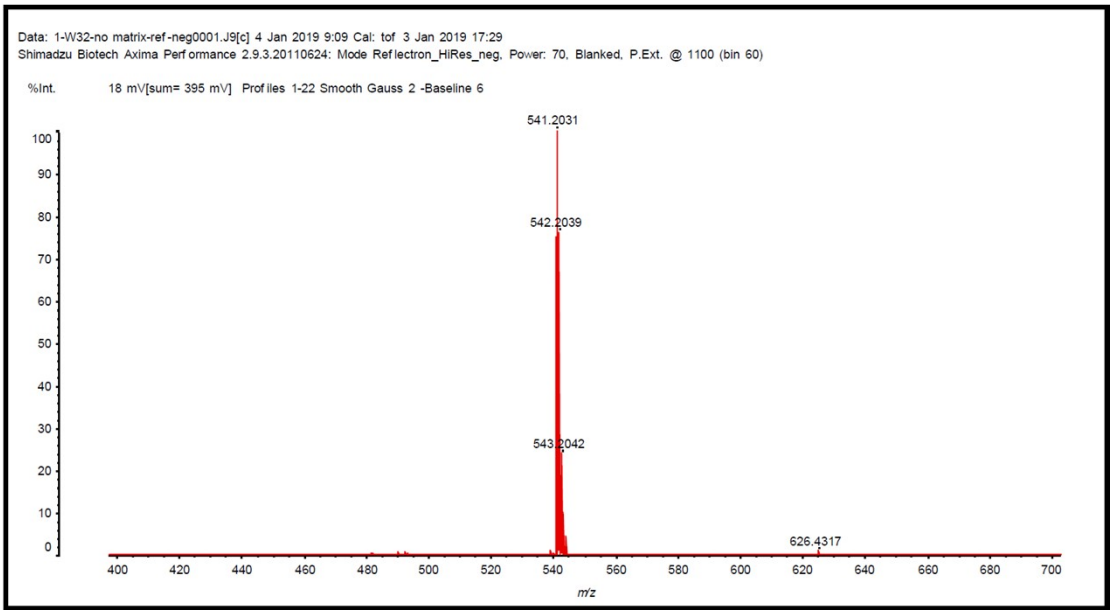

Fig. S6 MALDI/TOF MS spectrum of **DBF-BZ-TPA**.