Supporting Information

Solid-state Emissive Triarylborane-based BODIPY Dyes:
Photophysical Properties and Fluorescent Sensing for Fluoride and Cyanide Ions

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Titration Measurement

Titration of 1 with TBAF

All the fluorescence experiments were recorded in a THF solution of 1 (c = 4.28× 10^{-6} M). The solution of 1 (2 ml in a quartz cuvette) was titrated with incremental amounts of fluoride by addition of a concentrated TBAF solution (c = 4.56 × 10^{-4} M). In order to account for dilute effects, the TBAF solution also contained 1 at its initial concentration.

**Figure S-1** The fluorescence spectra change of 1 (4.28 μM in THF) upon addition of TBAF.

**Figure S-2** The UV/vis absorption spectra change of 1 (4.28 μM in THF) upon addition of TBAF.
Titration of 2 with TBAF

All the fluorescence experiments were recorded in a THF solution of 2 (c = 2.61 × 10^{-6} M). The solution of 2 (2 ml in a quartz cuvette) was titrated with incremental amounts of fluoride by addition of a concentrated TBAF solution (c = 4.63 × 10^{-4} M). In order to account for dilute effects, the TBAF solution also contained 2 at its initial concentration.

Figure S-3 The fluorescence spectra change of 2 (2.61 μM in THF) upon addition of TBAF.

Figure S-4. The UV/vis absorption spectra change of 2 (2.61 μM in THF) upon addition of TBAF.
**11B NMR Measurement of 1**

The $^{11}$B NMR spectra of a solution of 1 (0.5 mL, 0.03 M, CDCl$_3$) were obtained before and after the addition of an excess of fluorid.

![11B NMR spectra of 1 (0.03M in CDCl$_3$) upon addition of TBAF.](image)

**Figure S-5.** $^{11}$B NMR spectra of 1 (0.03M in CDCl$_3$) upon addition of TBAF.

**11B NMR Measurement of 2**

The $^{11}$B NMR spectra of a solution of 2 (0.5 mL, 0.03 M, CDCl$_3$) were obtained before and after the addition of an excess of fluoride.

![11B NMR spectra of 2 (0.03M in CDCl$_3$) upon addition of TBAF.](image)

**Figure S-6.** $^{11}$B NMR spectra of 2 (0.03M in CDCl$_3$) upon addition of TBAF.
Titration of 1 with TBACN

All the fluorescence experiments were recorded in a THF solution of 1 (c = 4.28× 10^{-6} \text{ M}). The solution of 1 (2 ml in a quartz cuvette) was titrated with incremental amounts of cyanide by addition of a concentrated TBACN solution (c = 4.28 × 10^{-4} \text{ M}). In order to account for dilute effects, the TBACN solution also contained 1 at its initial concentration.

*Figure S-7.* Fluorescence spectra change of (a) 1 (4.28 µM in THF, \( \lambda_{\text{ex}} = 370 \text{ nm} \)) upon addition of TBACN.

*Figure S-8.* The UV/vis absorption spectra of 1 in THF (4.28 µM) after addition of excess TBAF and TBACN.
Titration of 2 with TBACN

All the fluorescence experiments were recorded in a THF solution of 1 (c = 2.61 × 10^{-6} M). The solution of 2 (2 ml in a quartz cuvette) was titrated with incremental amounts of cyanide by addition of a concentrated TBACN solution (c = 5.21 × 10^{-4} M). In order to account for dilute effects, the TBACN solution also contained 2 at its initial concentration.

**Figure S-9.** Fluorescence spectra change of (a) 2 (2.61 µM in THF, λ_{ex} = 370 nm) upon addition of TBACN.

<table>
<thead>
<tr>
<th>n-Bu_4NF / µM</th>
<th>Fluorescence Intensity / a.u.</th>
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<tbody>
<tr>
<td>0</td>
<td></td>
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<tr>
<td>184.8</td>
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**Figure S-10.** The UV/vis absorption spectra of 2 in THF (2.61 µM) after addition of excess TBAF and TBACN.
NMR Spectra

$^1$H NMR of 4 (300 MHz, CDCl$_3$)

$^{13}$C NMR of 4 (400 MHz, CDCl$_3$)

S7
$^1$H NMR of 1 (300 MHz, CDCl$_3$)

$^{13}$C NMR of 1 (400 MHz, CDCl$_3$)
$^1$H NMR of 2 (300 MHz, CDCl$_3$)

$^{13}$C NMR of 2 (400 MHz, CDCl$_3$)