## **Supporting Information**

## Monomeric bowl-like pyrogallol[4] arene Ti<sub>12</sub> complex

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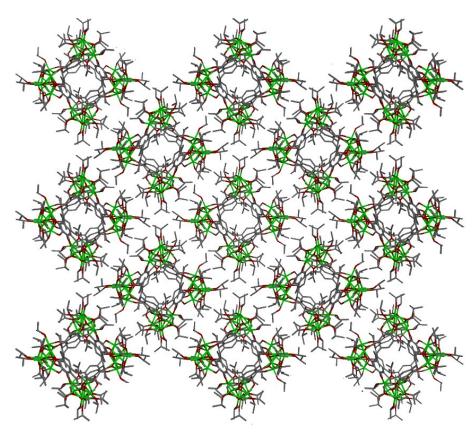
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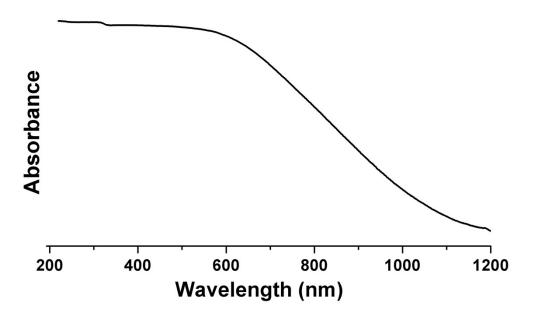
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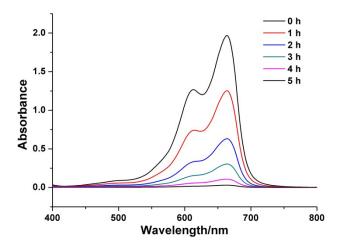
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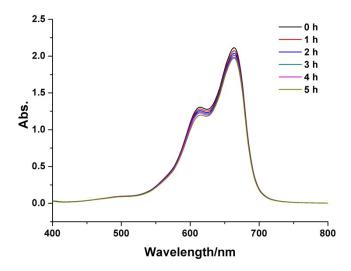
**Figure S1.** Extended structure of  $Ti_{12}PgC_3$  showing self-assembly into a skewed bilayer structure stacked by the  $Ti_{12}PgC_3$  clusters view along the a axis.



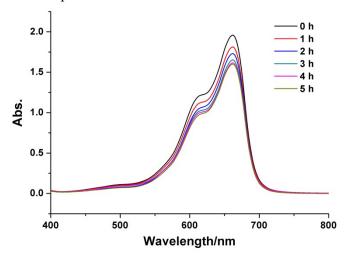
**Figure S2.** The solid-state absorption spectrum of  $Ti_{12}PgC_3$ .



**Figure S3.** The temporal UV-Vis absorption spectrum changes of MB aqueous solutions for  $Ti_{12}PgC_3$ .



**Figure S4.** The temporal UV-Vis absorption spectrum changes of MB aqueous solutions for the blank experiment.



**Figure S5.** The temporal UV-Vis absorption spectrum changes of MB aqueous solutions for P25.