

## The Fullerene Dendrimer with A Phthalocyanine Core

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Phthalocyanines(Pcs) have long attracted enormous interest owing to their intriguing electrical, optical, photochemical and catalytic properties[1]. Among the various electro- and photoactive chromophores utilized for phthalocyanine chemistry[2], fullerene has been proposed to be a versatile building block and a growing interest in fullerene-functionalized phthalocyanines is developing[1]. Recently, an asymmetrical nickel phthalocyanine containing a single fullerene substituent with rigid linkers at the periphery[3] and another asymmetrical zinc phthalocyanine-fullerene hybrid with a flexible linker containing an azacrown subunit[4] were synthesized to study intramolecular process such as electron transfer and energy transfer between Pc donor and fullerene acceptor. However, no phthalocyanine with more than one fullerene substituent has been reported until now.

Hence, we report herein the first synthesis of the phthalocyanine-cored dendrimer **1** bearing up to eight fullerenes. The dendrimer **1** was characterized by spectroscopic methods such as NMR, FT-IR, UV/Vis and MALDI-TOF MS. Cyclic voltammetric data as well as photophysical properties of **1** are discussed and compared with the data of the lower generation dendrimers with two or four fullerenes.

### Reference

1. N. B. McKeown, Phthalocyanine Materials: Synthesis, Structure and Function, Cambridge University Press, Cambridge, 1998
2. C.C. Leznoff, A.B.F. Lever, Eds., Phthalocyanines-Properties and Applications, VCH, New York, 1989 Vol.1, 1993 Vol.2, 1993 Vol.3, 1996 Vol.4
3. a) T.G.T. Linssen, K. Durr, M. Hanack, A. Hirsch, J. Chem. Soc. Chem. Commun. 1995, 103, b) K.Durr, S. Fiedler, T.G. Linssen, A. Hirsch, M. Hanack, Chem. Ber. 1997, 119, 1400
4. A. Sastre, A. Gouloumis, P. Vazquez, T. Torres, V. Doan, B. Z. Schwartz, F. Wudl, L. Echegoyen, J. Rivera, Org. Lett. 1999, 1, 1807-1810

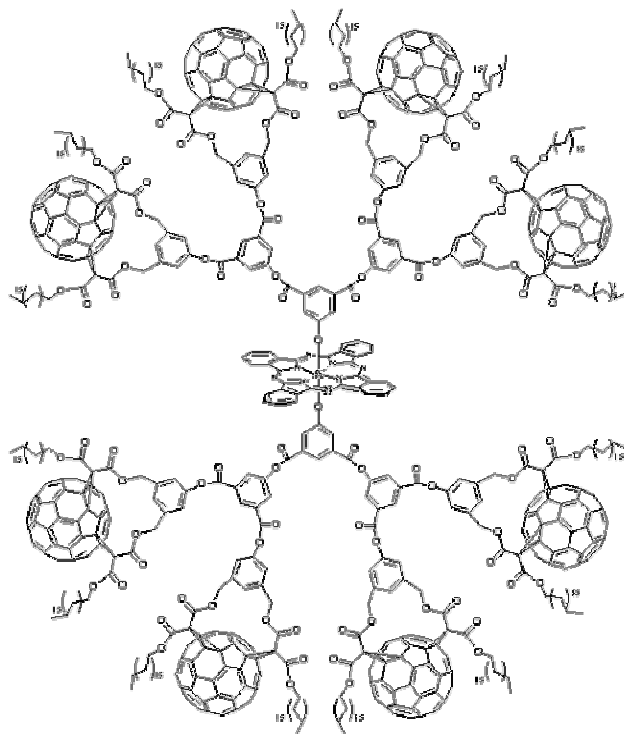


Figure 1. Compound **1**