Butadiynyl-bridged Diphenothiazines –
Redox-active Fluorophores and Self-assembly on HOPG

Christa S. Barkschat\textsuperscript{a}, Reinhard Guckenberger\textsuperscript{b}, and Thomas J. J. Müller\textsuperscript{a,c}

\textsuperscript{a} Department Chemie, Ludwig-Maximilians-Universität München, Butenandtstraße 5 – 13 (Haus F), 81377 München, Germany
\textsuperscript{b} Max-Planck-Institut für Biochemie, Abteilung Molekulare Strukturiobiologie, Am Klopferspitz 18, 82152 Martinsried, Germany
\textsuperscript{c} New Address: Institut für Organische Chemie und Makromolekulare Chemie, Heinrich-Heine-Universität Düsseldorf, Universitätsstraße 1, 40225 Düsseldorf, Germany

Reprint requests to Prof. T. Müller. E-mail: ThomasJJ.Mueller@uni-duesseldorf.de

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Ethynyl phenothiazines are oxidatively coupled to symmetrical dumbbell-shaped butadiynyl-bridged diphenothiazines in good yields. These molecules show intense absorption bands, intense blue-green luminescence with large Stokes shifts, and reversible oxidation potentials in the anodic region. Thermally, these butadiynes do not undergo topochemical polymerization, but oligomerizations to oligomeric polycyclic heterocycles with complex structures in the melt. STM images of two representatives on HOPG (highly oriented pyrolytic graphite) show the formation of monolayers adsorbed by attractive $\pi$-$\pi$ interactions.

\textit{Key words:} Alkynes, Cyclic Voltammetry, Fluorescence, Phenothiazines, STM, Self-assembly