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Alkyl- and Alkylthiophene Substituted Triazines as Building Blocks for Columnar Liquid Crystals

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Alkyl- and Alkylthiophene Substituted Triazines as Building Blocks for Columnar Liquid Crystals

Columnar discotic liquid crystals are self-organizing compounds with anisotropic properties. Triazines substituted with three 5-membered ring heterocycles are interesting core structures for the preparation of dyes and organic semiconductors because of their star-shaped and co-planar structures.^{1,2,3} These aromatic cores are capable of pi-stacking, which aims towards close packing for efficient charge transferring in organic materials. These organic semiconductors will ideally have high solubility, have a HOMO-LUMO gap of approximately 2 eV and be inexpensive to synthesize.⁴ Presented here is the synthesis of 1,3,5-triazine substituted with 2-alkylthiophenes and 2-alkylthiophenes. The functionalized thiophenes are generated in a one-pot approach, stannylated, and finally cross-coupled to cyanuric chloride *via* a Stille-coupling reaction.

1) Misra, R. et al. *Tetrahedron*. **2013**, *54*, 5399-5402. 2) Weissberger, A. et al., *The Chemistry of Heterocyclic Compound*. **1985**, *Part 1*, 151-165. 3) Liu, J. et al., *Material Matters*. **2014**. 4) Scharber, M. C. et al. *Adv. Mater.* **2006**, *18*, 789-794.