

A Novel Symmetric Chiral Squaraine – A New Starting Point

Wing-Si Li, Arne Lützen

University of Bonn, Kekulé-Institute of Organic Chemistry and Biochemistry, Gerhard-Domagk-Str.1, D-53121 Bonn, Germany

wingsili@uni-bonn.de

Both chiral squaraines and the achiral representative of this molecule class are fascinating and intriguing compounds for optoelectronic devices.^[1-4] Especially the chiral squaraines are of utmost interest due to translation of the inherent chirality from the molecular level onto the supramolecular level, as observed in an impressive circular dichroism.^[1,3] This was observed in the well-investigated proline-derived anilino squaraines (Pro-SQ) (Figure 1).

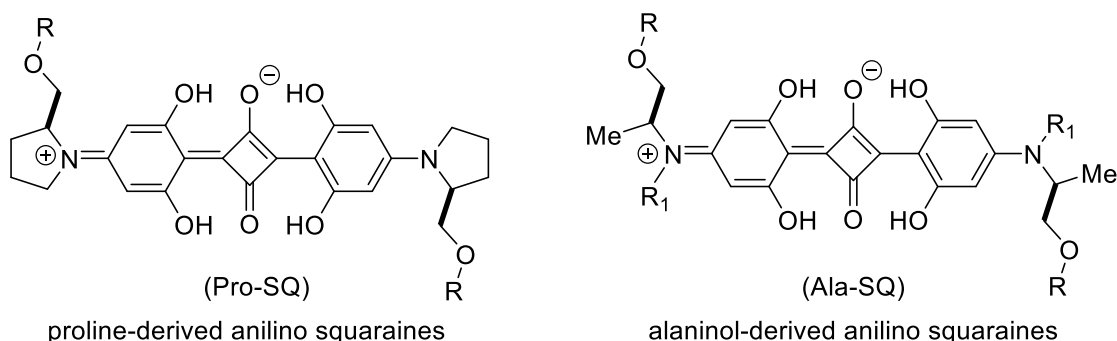


Figure 1: left: general structure of Pro-SQs with varying alkyl-residues; right: general structure of Ala-SQs with varying alkyl-residues (R, R¹= alkyl chains).

In order to expand the existing substance library of chiral squaraines and following the ex chiral pool approach, as previously shown in the case of Pro-SQs, an amino acid was chosen as the starting material, in this case L-alanine or its reduced form L-alaninol respectively. This gives rise to the new class of squaraines: the alaninol-derived anilino squaraines (Ala-SQ). The first representative of this class is *N*-Butyl, *O*-Butyl-Ala-SQ.

References:

1. M. Schulz, J. Zablocki, O.S. Abdullaeva, S. Brück, F. Balzer, A. Lützen, O. Arteaga, M. Schiek, *Nat. Commun.*, **2018**, 9, 2413.
2. J. Zablocki, M. Schulz, G. Schnakenburg, L. Beverina, P. Warzanowski, A. Revelli, M. Grüninger, F. Balzer, K. Meerholz, A. Lützen, M. Schiek, *J. Phys. Chem. C* **2020**, 124, 22721-22732
3. M. Schulz, M. Mack, O. Kolloge, A. Lützen, M. Schiek, *Phys. Chem. Chem. Phys.*, **2017**, 19, 6996.
4. M. Schulz, F. Balzer, D. Scheunemann, O. Arteaga, A. Lützen, S. C. J. Meskers, M. Schiek, *Adv. Funct. Mater.*, **2019**, 29, 1900684.