

Helically Chiral π -Expanded Azocines Through Regioselective Beckmann Rearrangement and Their Charged States

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We report a synthetic approach to π -expanded [6]helicenes incorporating tropone and azocine units in combination with a 5-membered ring, which exhibit intriguing structural, electronic, and chiroptical properties. A regioselective Beckmann rearrangement allows the isolation of helical scaffolds containing 8-membered lactame, azocine, and amine units, as confirmed by X-ray crystallography. The compounds exhibit notable optoelectronic properties depending on the relative position of the nitrogen. Chiral resolution of all helical compounds allows comprehensive investigation of the chiroptical properties by CD and CPL measurements. The azocine compounds feature rich redox chemistry allowing for characterization of the respective monocations and monoanions, as well as dications and dianions with NIR absorption beyond 3000 nm (Figure 1).^[1]

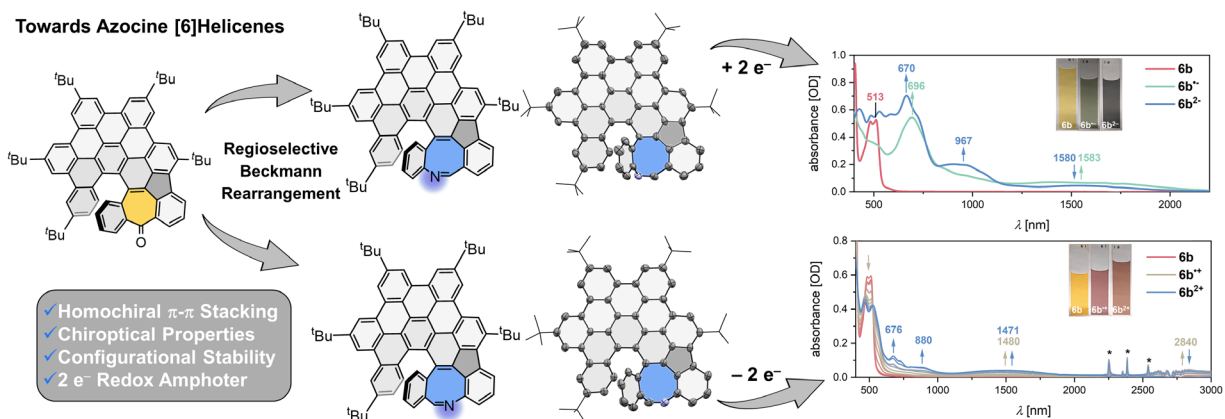


Figure 1: Regioselective Beckmann rearrangement leads to helical azocines with distinct optoelectronic properties and interesting redox chemistry.

References:

[1] J. Borstelmann, L. Schneider, F. Rominger, F. Deschler, M. Kivala, *manuscript submitted*.