

## Supplementary file

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## 1. 1D NMR spectra of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

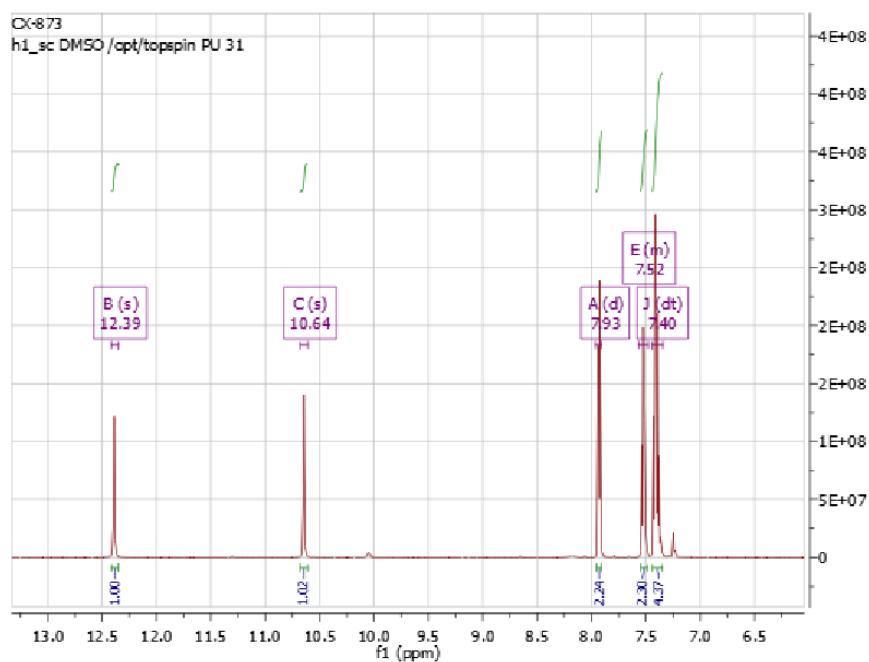


Figure S1: <sup>1</sup>H NMR spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

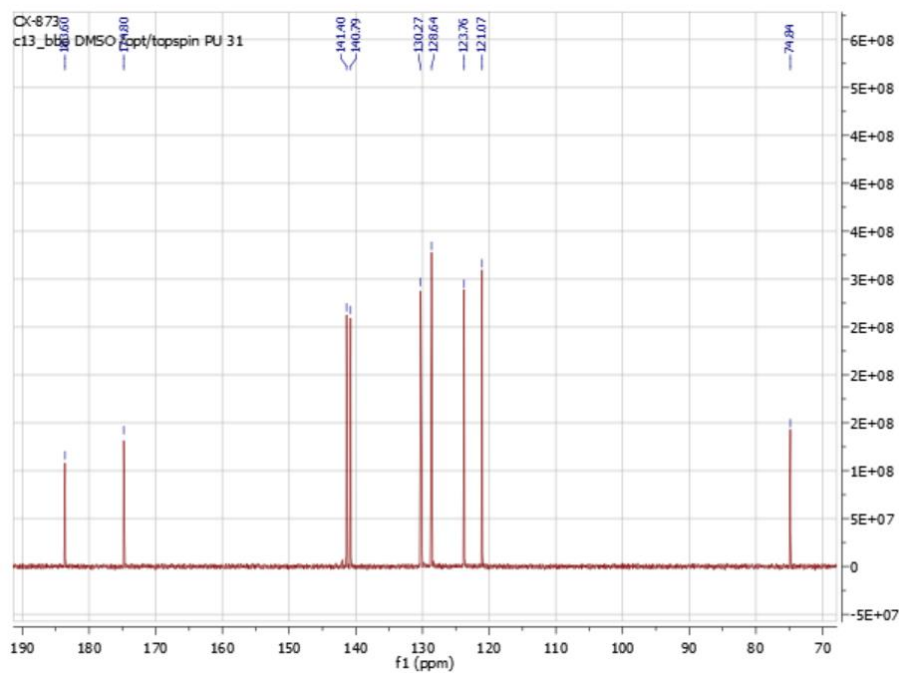


Figure S2: <sup>13</sup>C NMR spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

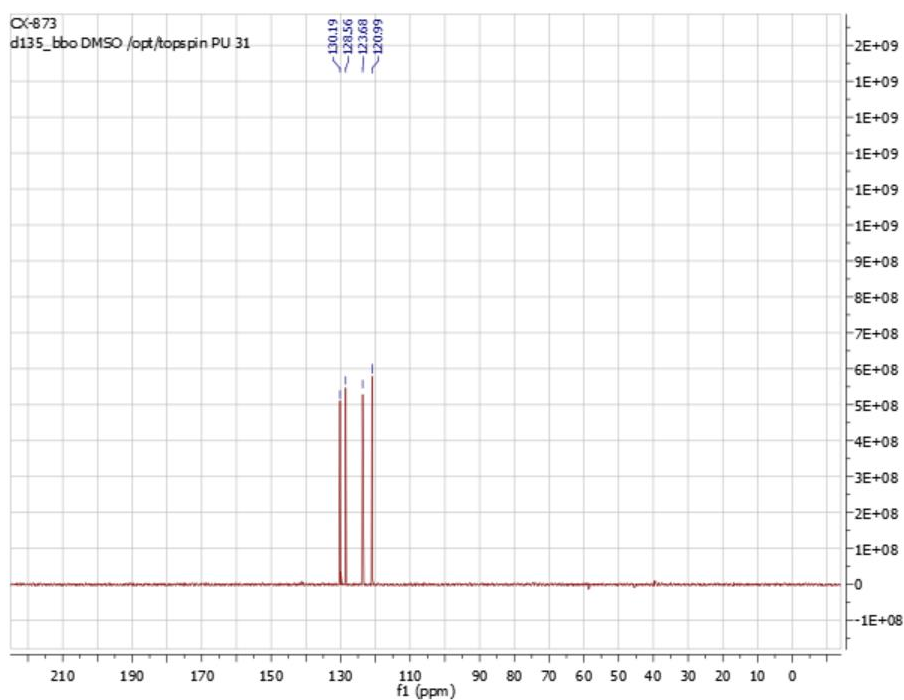


Figure S3: DEPT 135 spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

## 2. 2D NMR spectra of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

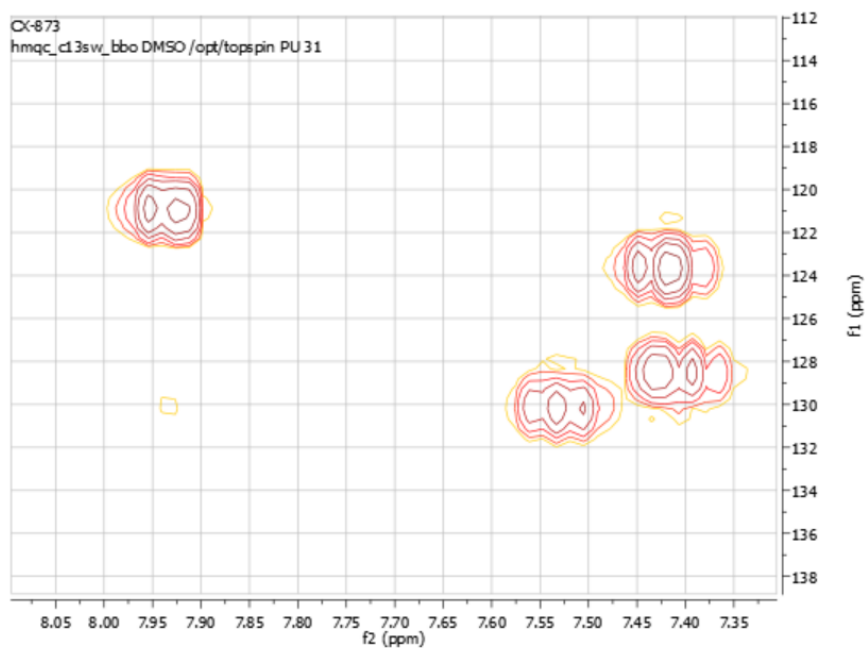


Figure S4: HMQC spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

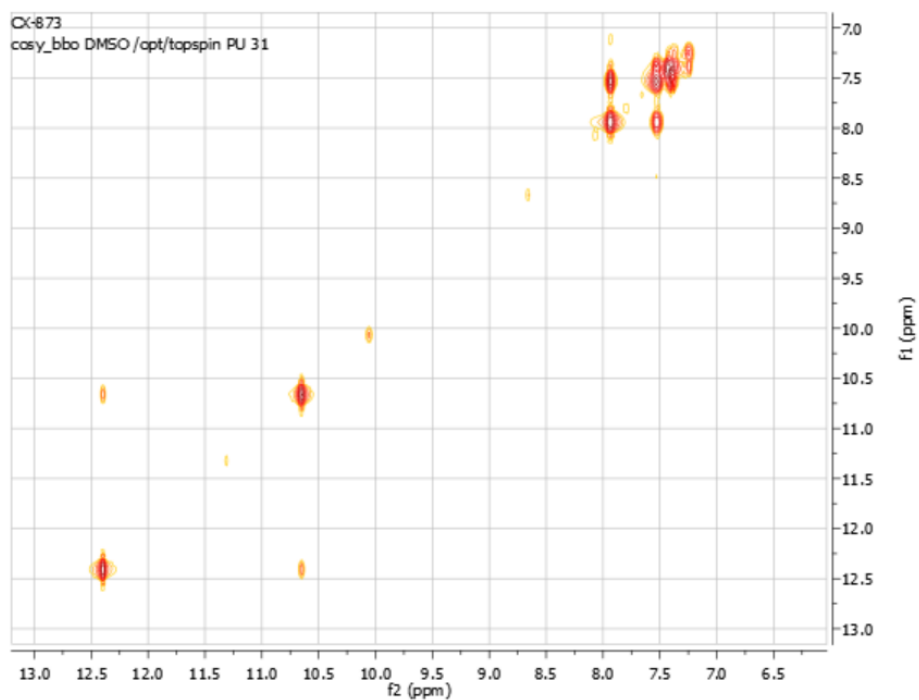


Figure S5:  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

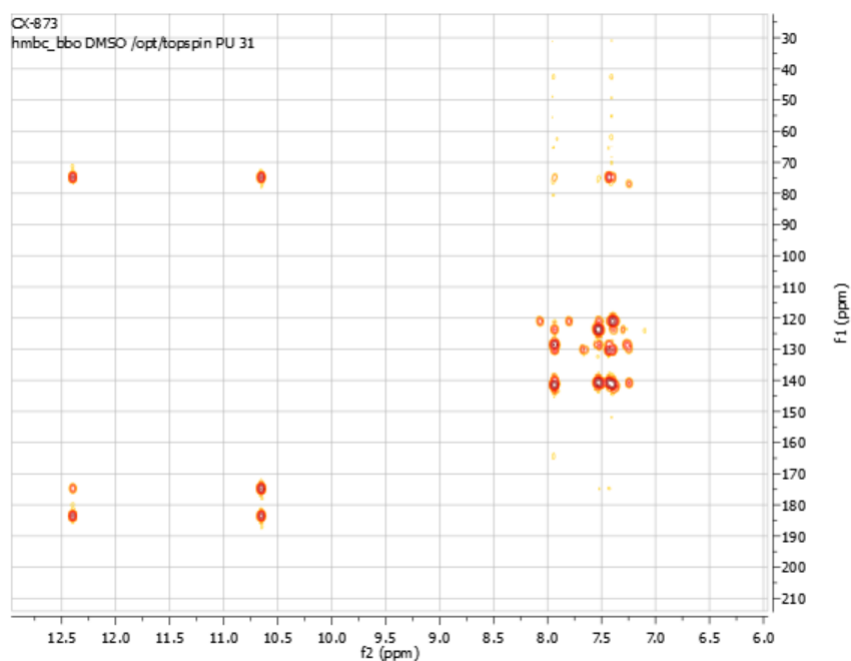


Figure S6: HMBC spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

### 3. Vibrational spectra of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

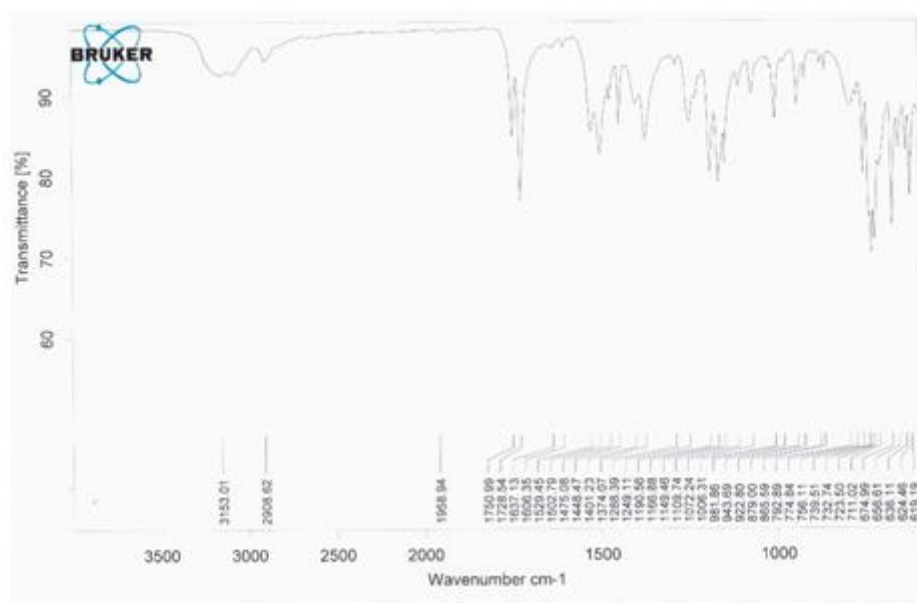


Figure S7: ATR spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione

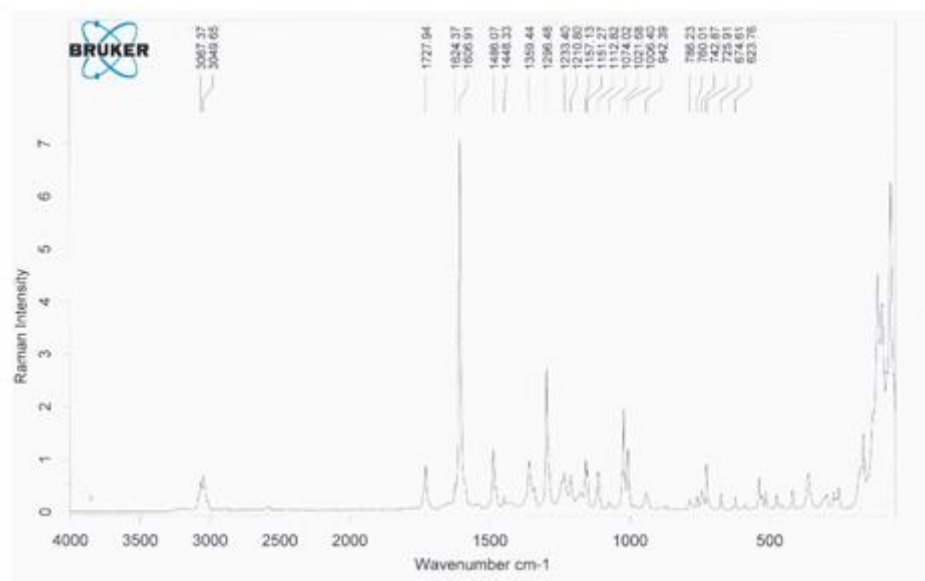


Figure S8: Raman spectrum of 5'-oxospiro-(fluorene-9,4'-imidazolidine)-2'-thione