



## Supplementary Materials

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## **General experimental procedures**

Optical rotations were measured using a JASCO P-2000 polarimeter (JASCO, Easton, MD, USA). Ultraviolet spectra were acquired on an Agilent 8453 UV-visible spectrophotometer (Agilent Technologies, Santa Clara, CA, USA). Infrared spectra were recorded with a Bruker IFS-66/S FT-IR spectrometer (Bruker, Karlsruhe, Germany). NMR spectra were recorded with a Bruker AVANCE III HD 800 NMR spectrometer with a 5 mm TCI CryoProbe operating at 800 MHz (<sup>1</sup>H) and 200 MHz (<sup>13</sup>C), with chemical shifts given in ppm ( $\delta$ ) for <sup>1</sup>H and <sup>13</sup>C NMR analyses. All HRESIMS data were obtained with a Waters Xevo G2 QTOF mass spectrometer and Synapt G2 HDMS quadrupole time-of-flight (TOF) mass spectrometer (Waters). Preparative high-performance liquid chromatography (HPLC) was performed using a Waters 1525 Binary HPLC pump with a Waters 996 photodiode array detector (Waters Corporation, Milford, MA, USA) and an Agilent Eclipse C<sub>18</sub> column (250 × 21.2 mm, 5 µm; flow rate: 5 mL/mir; Agilent Technologies). Semipreparative HPLC was performed using a Shimadzu Prominence HPLC UV-vis detectors (Shimadzu, Tokyo, Japan) and a Phenomenex Luna C18 column (250 × 10 mm, 5 µm; flow rate: 2 mL/mir; Phenomenex, Torrance, CA, USA). LC/MS analysis was performed on an Agilent 1200 Series HPLC system equipped with a diode array detector and 6130 Series ESI mass spectrometer using an analytical Kinetex C18 100 Å column (100 × 2.1 mm, 5 µm; flow rate: 0.3 mL/mir; Phenomenex). Silica gel 60 (230–400 mesh), Merck, Darmstadt, Germany) and RP-C<sub>18</sub> silica gel (Merck, 230–400 mesh) were used for column chromatography. The packing material for molecular sieve column chromatography was Sephadex LH-20 (Pharmacia, Uppsala, Sweden). Thin-layer chromatography (TLC) was performed with precoated silica gel F254 plates and RP-C<sub>18</sub> F254s plates (Merck), and spots were detected under UV light or by heating after spraying with anisaldehyde-sulfuric acid.

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0-4	316.60		316.8	0	317.00	╷┛╷┛╿┥╹	317.20	ـــــــــــــــــــــــــــــــــــــ	17.40	3	17.60		317.80	318.0	<u> </u>	<mark>  ,   ,   ,   ,   ,   ,   ,   ,   ,   ,</mark>	318.40	



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Figure S2. The <sup>1</sup>H NMR spectrum of compounds 1 and 2 (CD<sub>3</sub>OD, 800 MHz).



Figure S3. The <sup>1</sup>H-<sup>1</sup>H COSY spectrum of compounds 1 and 2.



Figure S4. The HSQC spectrum of compounds 1 and 2.



Figure S5. The HMBC spectrum of compounds 1 and 2.