

Supplementary Materials: Alkaloids from *Veratrum taliense* Exert Cardiovascular Toxic Effects via Cardiac Sodium Channel Subtype 1.5

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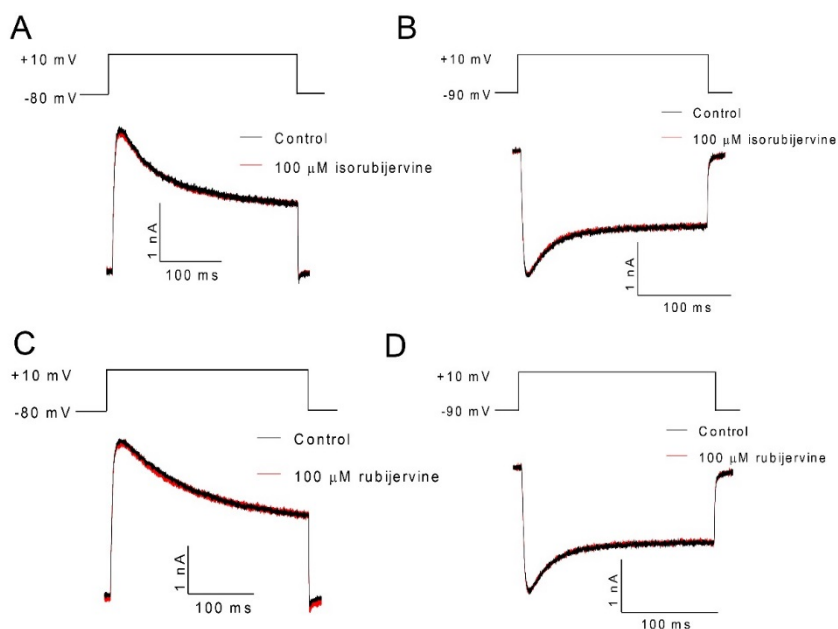


Figure S1. Effects of isorubijervine and rubijervine on dorsal root ganglion (DRG) neurons. Cells were evoked by a 500-ms depolarizing potential of +10 mV from a holding potential of -80 mV to record K_v currents. Cells were activated by a 150-ms step depolarization to +10 mV from a holding potential of -90 mV for Cav currents. The effects of isorubijervine (100 μ M) on DRG K_v channel currents (A) and Cav channel currents (B). Effects of 100 μ M rubijervine on DRG K_v channel currents (C) and Cav channel currents (D).

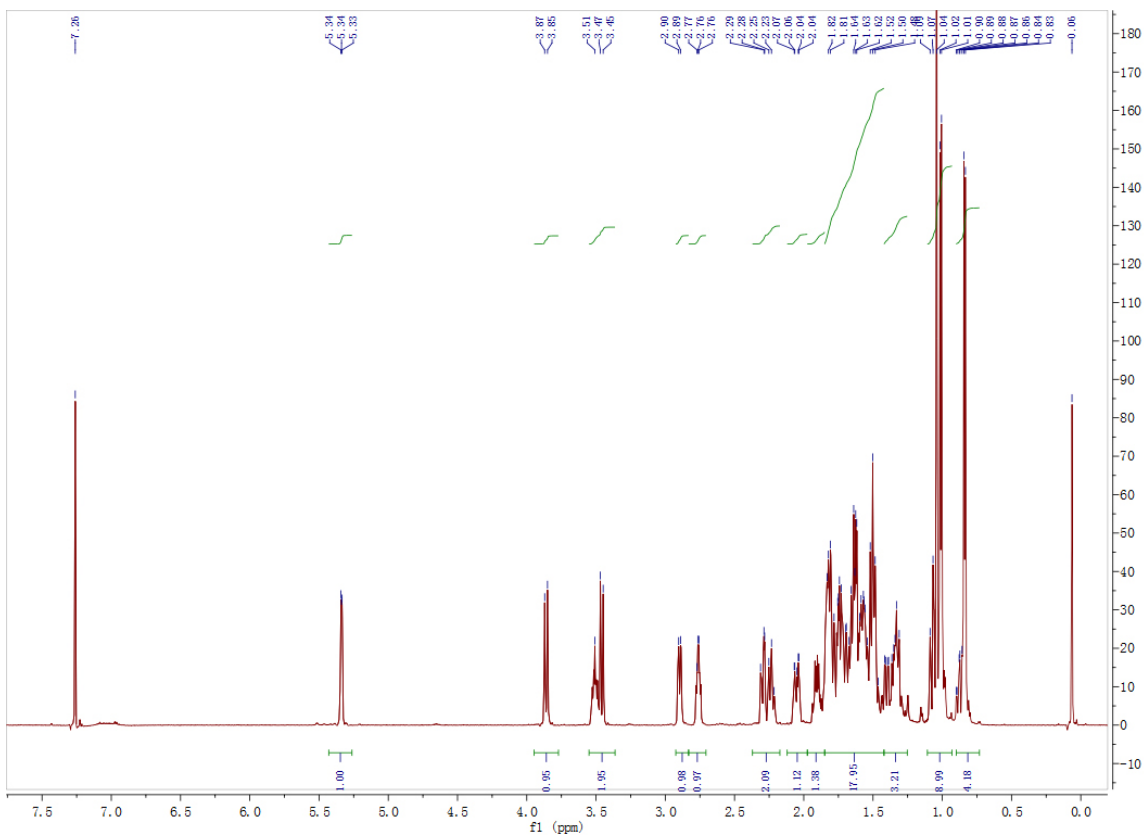


Figure S2. ^1H -NMR spectrum of isorubijervine in CDCl_3 .

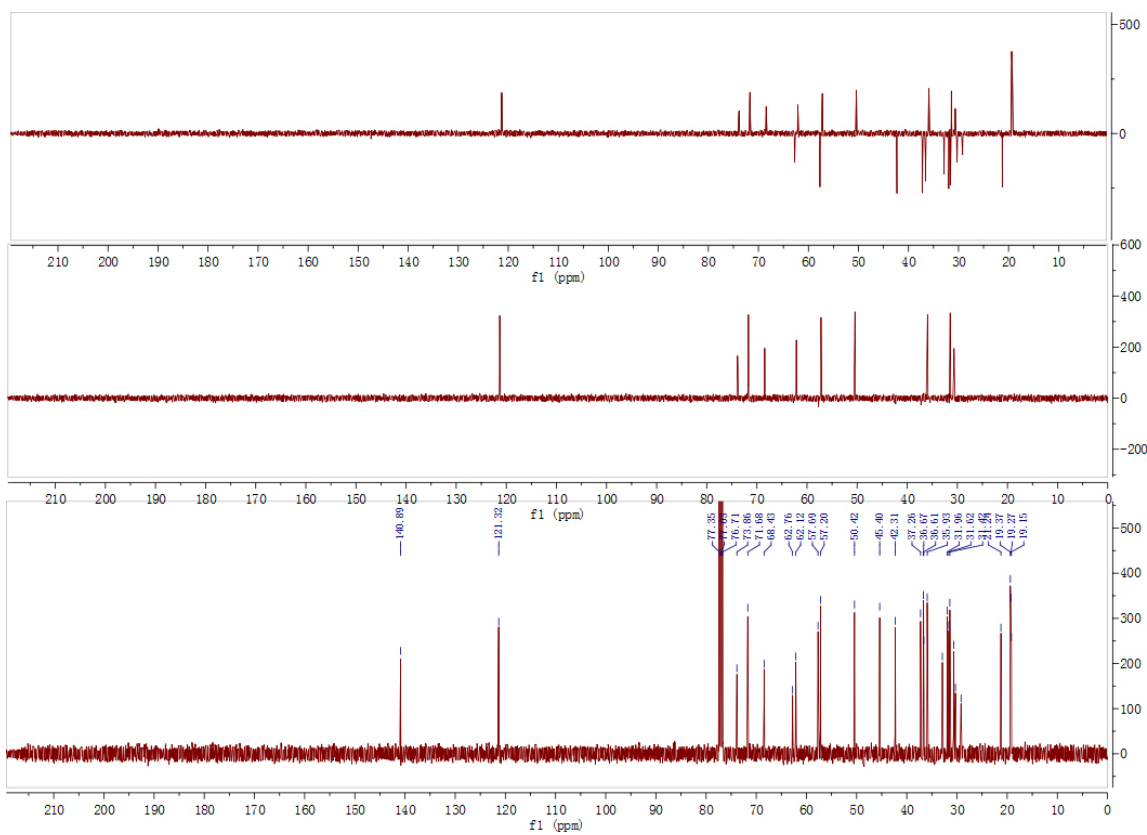


Figure S3. ^{13}C -NMR spectrum of isorubijervine in CDCl_3 .

Sample Name wvt-8 **Instrument Name** Agilent G6230 TOF MS **User Name** KIB **IRM Calibration Status** Success
Data Filename 150505ESIA1.d **ACQ Method** ESI.m **Acquired Time** 5/5/2015 9:28:43 AM

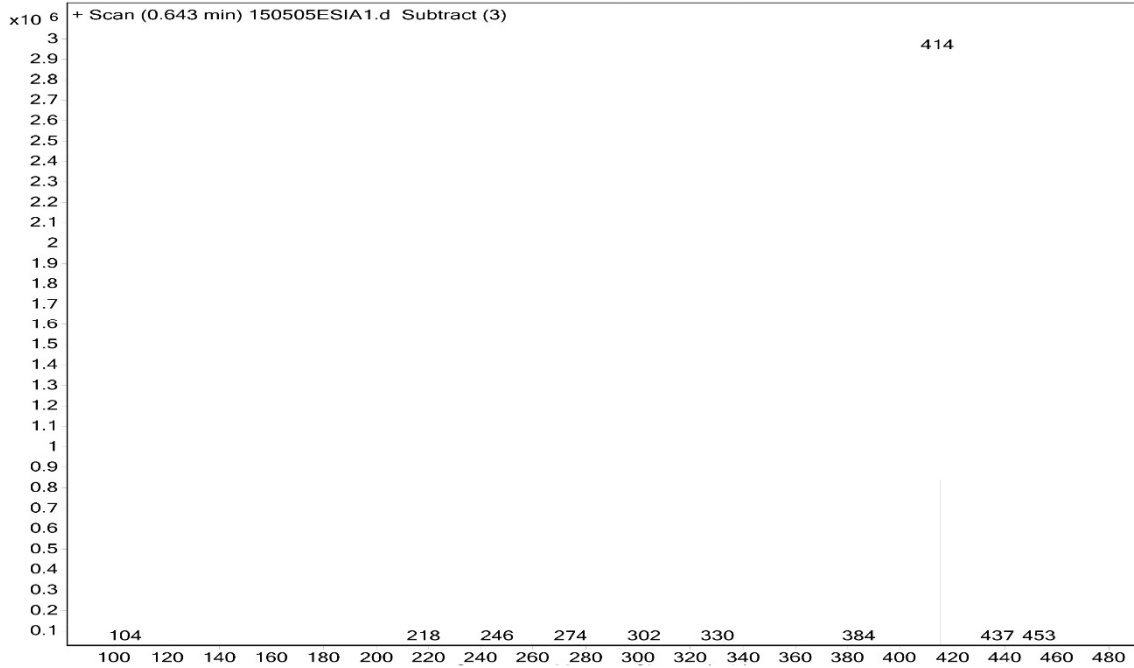


Figure S4. ESI-MS spectrum of isorubijervine.

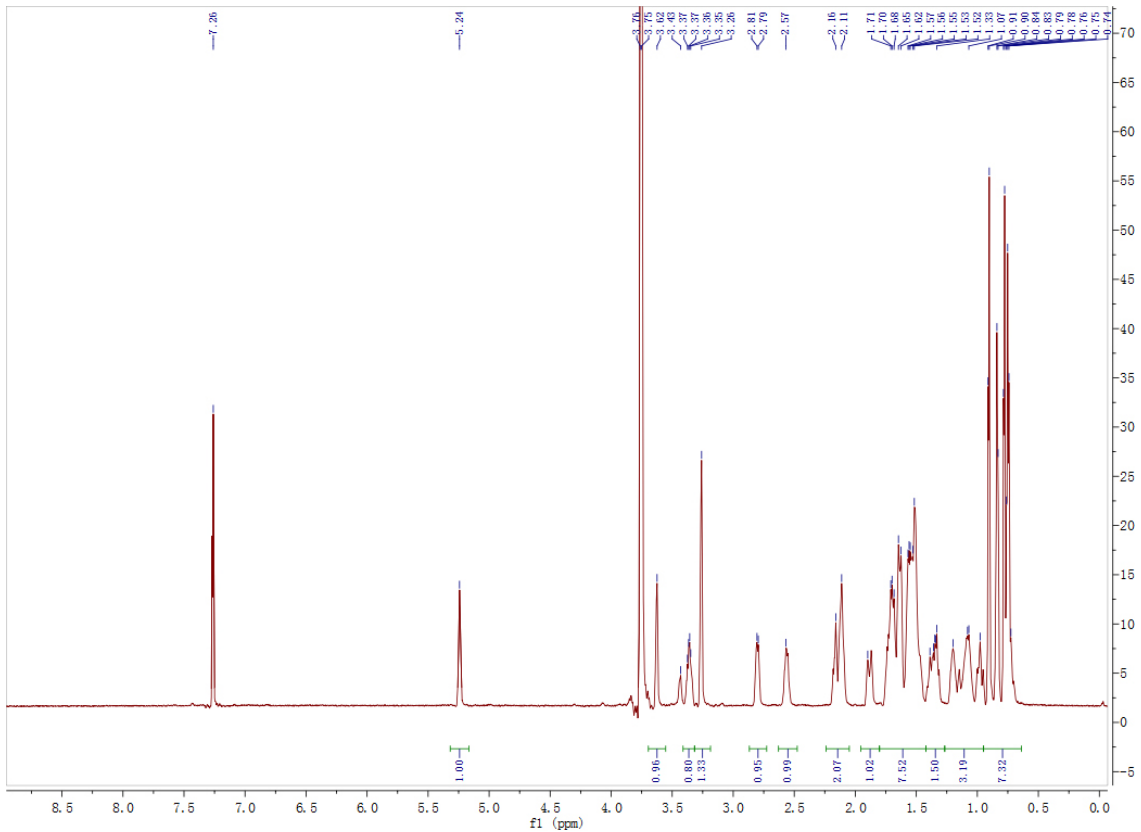


Figure S5. ¹H NMR spectrum of rubijervine in CDCl₃.

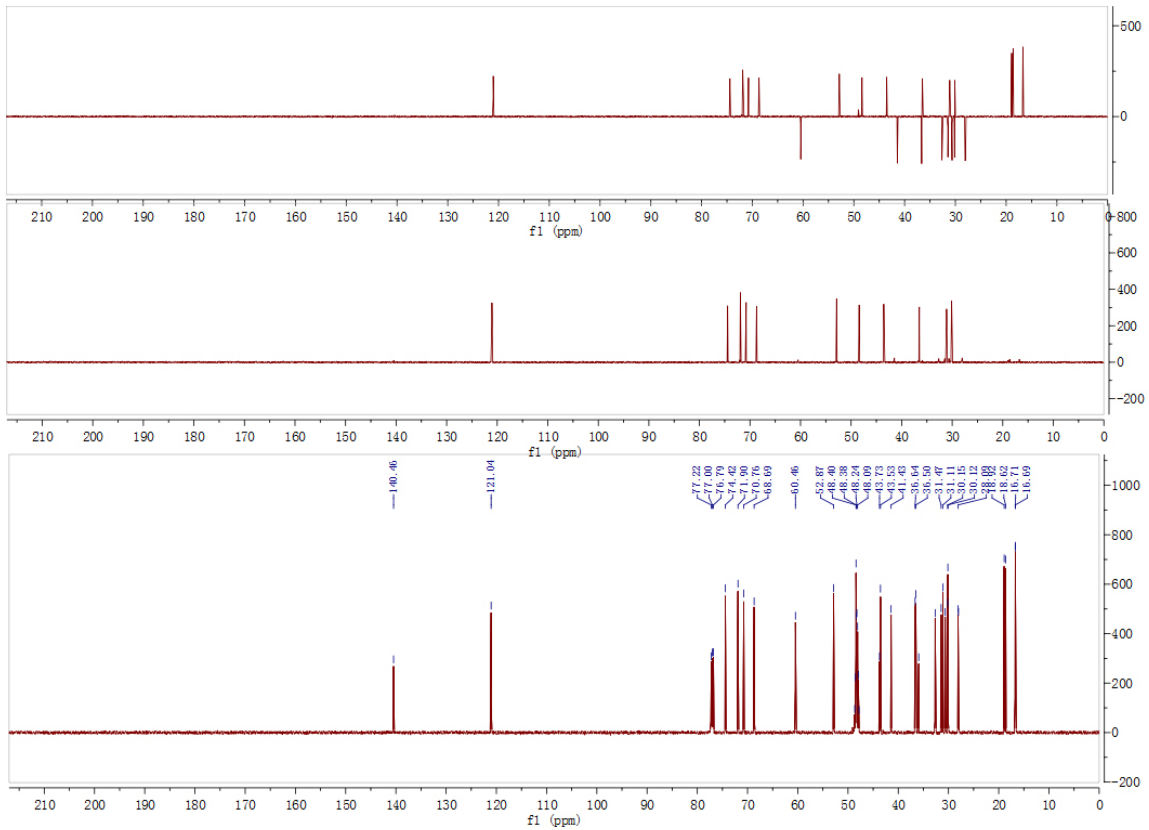
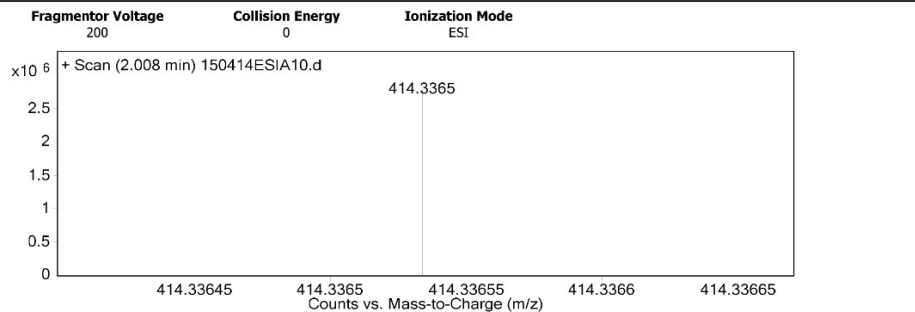


Figure S6. ¹³C NMR spectrum of rubijervine in CDCl₃.

User Spectra



Peak List

| m/z | z | Abund | Formula | Ion |
|-----------|---|------------|--|-----|
| 121.0509 | 1 | 11,5048.14 | | |
| 412.3221 | 1 | 5,9188.88 | | |
| 414.3365 | 1 | 278,6094 | C ₂₇ H ₄₄ N O ₂ | M+ |
| 415.3409 | 1 | 81,8768.5 | C ₂₇ H ₄₄ N O ₂ | M+ |
| 416.3438 | 1 | 12,5858.18 | C ₂₇ H ₄₄ N O ₂ | M+ |
| 863.6427 | 1 | 6,4625.06 | | |
| 922.0098 | 1 | 16,5486.72 | | |
| 941.6582 | 1 | 6,8858.32 | | |
| 1050.6346 | 1 | 9,9226.41 | | |
| 1051.6375 | 1 | 6,1494.29 | | |

Formula Calculator Element Limits

| Element | Min | Max |
|---------|-----|-----|
| C | 0 | 200 |
| H | 0 | 400 |
| O | 0 | 6 |
| N | 1 | 1 |

Formula Calculator Results

| Formula | CalculatedMass | CalculatedMz | Mz | Diff. (mDa) | Diff. (ppm) | DBE |
|--|----------------|--------------|----------|-------------|-------------|--------|
| C ₂₇ H ₄₄ N O ₂ | 414.3372 | 414.3367 | 414.3365 | -0.1 | -0.3 | 6.5000 |

--- End Of Report ---

Figure S7. high resolution electrospray ionization mass spectroscopy (HRESIMS) spectrum of rubijervine. DBE: double bond equivalents.

Table S1. IC₅₀ of two compound on sodium channel (μM).

| Compound | rNav1.3 | rNav1.4 | hNav1.5 | hNav1.7 |
|-----------------|----------------|----------------|----------------|----------------|
| Isorubijervine | 12.17 ± 0.77 | 9.82 ± 0.84 | 6.962 ± 0.422 | - |
| Rubijervine | - | 18.65 ± 1.01 | 10.81 ± 0.89 | - |

Notes: values are given as the mean ± SE, *n* = 4; no inhibitory activity detected at a concentration up to 20 μM.