Vincristine sulfate NMR analysis
Solvent = D2O.

MedKoo Cat#: 100920
Name: Vincristine sulfate
CAS#: 2068-78-2
Lot# TZC41208
Chemical Formula: C46H58N4O14S
Molecular Weight: 923.04
Vincristine sulfate NMR analysis: comparison between batches.

Vincristine sulfate, NMR in D2O, Lot#TZC41208

Vincristine sulfate, NMR in D2O, Lot#TZC41015
Vincristine sulfate NMR analysis: comparison between batches.

Vincristine sulfate, NMR in D2O, Lot#TZC41208

Vincristine sulfate, NMR in D2O, Lot#TZC40717
Sample Name: 141208 HPLC-1

Acq. Operator : 1
Acq. Instrument : Instrument 1                   Location : Vial 0
Injection Date  : 12/8/2014 2:57:33 PM
Acq. Method     : D:\CHEM32\
Last changed    : 12/8/2014 3:02:13 PM by 1
(modified after loading)
Analysis Method : D:\CHEM32\
Last changed    : 12/8/2014 2:21:11 PM by 1
(modified after loading)
Sample Info     : A = ACN, B = 0.1% H3PO4/H2O 10-95% A/B 3.5 min, 95% A/
                  B 4.5 min, 95-10% A/B 1 min, 10% A/B 1 min; Athena C18
                  (3 μm, 2.1 mm × 100 mm); Flow: 0.4 ml/min

Area Percent Report

Signal 1: VWD1 A, Wavelength=220 nm (141208 HPLC-1.D)

<table>
<thead>
<tr>
<th>#</th>
<th>RetTime</th>
<th>Width</th>
<th>Area</th>
<th>Height</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[min]</td>
<td>[min]</td>
<td>[mAU]</td>
<td>[s]</td>
<td>[mAU]</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>-------</td>
<td>-----------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>3.293</td>
<td>0.0619</td>
<td>18.30254</td>
<td>4.44067</td>
<td>0.2858</td>
</tr>
<tr>
<td>2</td>
<td>3.401</td>
<td>0.0459</td>
<td>6377.75537</td>
<td>2192.93994</td>
<td>99.5925</td>
</tr>
<tr>
<td>3</td>
<td>3.834</td>
<td>0.0331</td>
<td>7.79422</td>
<td>3.68190</td>
<td>0.1217</td>
</tr>
</tbody>
</table>

Totals : 6403.85213 2201.06251

Vincristine sulfate HPLC analysis
LC-MS Analytical Report

1. Instrument: Agilent LC/MS system (1100 HPLC and MSD Trap XCT Plus mass spectrometer with UV-Vis detector).

2. HPLC condition:
   (1) Mobile phase A: H2O with 0.1% formic acid; Mobile phase B: ACN with 0.1% formic acid.
   (2) Flow rate: 0.25 ml/min.
   (3) Column: Phenomenex Gemini 3u C6-phenyl 110 A (100 × 2 mm).
   (4) Gradient: 0-1 min, 50% A; 5-8.5 min, 0% A.

3. MS condition: Nebulizer, dry gas and dry temperature are 30 psi, 8L/min, and 350ºC, respectively.

Sample preparation: Vincristine sulfate dissolved in water

<table>
<thead>
<tr>
<th>MedKoo#</th>
<th>Product name</th>
<th>Lot#</th>
<th>Test date</th>
</tr>
</thead>
<tbody>
<tr>
<td>100920</td>
<td>Vincristine sulfate</td>
<td>TZC41208</td>
<td>12/9/2014</td>
</tr>
</tbody>
</table>

UV Chromatogram at 210 nm

5.6 min
LC-MS Analytical Report

<table>
<thead>
<tr>
<th>MedKoo#</th>
<th>Product name</th>
<th>Lot#</th>
<th>Test date</th>
</tr>
</thead>
<tbody>
<tr>
<td>100920</td>
<td>Vincristine sulfate</td>
<td>TZC41208</td>
<td>12/9/2014</td>
</tr>
</tbody>
</table>

**Chemical structure**

Note: m/z 825.4 is from vincristine (free base).