The present invention further provides methods of producing lyophilized bendamustine suitable for pharmaceutical use. The pharmaceutical formulations can be used for any disease that is sensitive to treatment with bendamustine, such as neoplastic diseases.
Fig. 1
Bendamustine Purity after 24 hours at 5°C in Various Alcohol/Water Co-Solvents

Fig 2
HP1 formation after 24 hours stored at 5°C in Various Alcohol/Water Co-Solvents

<table>
<thead>
<tr>
<th>Solvent</th>
<th>0% (v/v)</th>
<th>5% (v/v)</th>
<th>10% (v/v)</th>
<th>20% (v/v)</th>
<th>30% (v/v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Ethanol</td>
<td></td>
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</tr>
<tr>
<td>Propanol</td>
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<td></td>
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<tr>
<td>Iso-propanol</td>
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<tr>
<td>Butanol</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tert-butanol</td>
<td></td>
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</tr>
</tbody>
</table>

Fig 3
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