Reduce pathogen load while maintaining platelet quality

Providing your patients with the safest and highest quality blood products is critical. The Mirasol® Pathogen Reduction Technology (PRT) system is designed to optimize the balance between safety and the efficacy of your blood products for transfusion.

As demonstrated in studies, platelets treated with the Mirasol PRT system maintain their function and effectiveness – whether they are stored in plasma or in Platelet Additive Solution (PAS).

**Platelet quality maintained after Mirasol PRT treatment**

Mirasol-treated platelets stored in plasma or in PAS remain viable and functional over a five-day storage period.

- Platelet function and pH are maintained
- Mitochondria retain their normal structure and function
- Mirasol-treated platelets store equally well in plasma or in PAS, as demonstrated in several in vitro cell quality studies

**Proven safe and effective in the clinical setting**

The Mirasol Clinical Evaluation (MIRACLE) trial established the safety and effectiveness of Mirasol-treated platelets in a standard clinical setting. This randomized, controlled study compared clinical outcomes in thrombocytopenic patients receiving Mirasol-treated apheresis and buffy coat platelets with those in patients receiving untreated reference platelets.

**Safety established**

- No adverse events were attributed to the use of the Mirasol system
- No significant differences were observed in bleeding events graded using a modified WHO scale
- No neoantigens were formed in any of the patients receiving Mirasol-treated platelets

**Efficacy maintained**

- Patients receiving Mirasol-treated platelets showed no increase in platelet or red blood cell transfusions needed over the treatment period
- Corrected Count Increments (CCI) remained stable throughout multiple transfusions of Mirasol-treated platelets

**Platelet and red blood cell usage in patients receiving Mirasol-treated versus untreated platelets**

<table>
<thead>
<tr>
<th></th>
<th>Mirasol (n=48)</th>
<th>Reference (n=47)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean number of platelet transfusions per patient</td>
<td>5.3</td>
<td>4.6</td>
<td>0.12 (NS)</td>
</tr>
<tr>
<td>Number of platelet transfusions per day of support</td>
<td>0.5</td>
<td>0.5</td>
<td>0.592 (NS)</td>
</tr>
<tr>
<td>Mean cumulative platelet dose transfused per patient (x 10¹¹)</td>
<td>24</td>
<td>22</td>
<td>0.511 (NS)</td>
</tr>
<tr>
<td>Mean number of RBC transfusions per patient</td>
<td>2.9</td>
<td>3.0</td>
<td>0.844 (NS)</td>
</tr>
</tbody>
</table>

NS=Not statistically significant

*Storage in PAS is available only for apheresis platelets collected in reduced plasma volumes. PAS is added following Mirasol PRT treatment. PAS must contain phosphate buffer to ensure platelet quality is maintained for up to 5 days.*
Platelet usage in patients receiving Mirasol-treated and untreated platelets

Potential transfusion benefits beyond platelet product safety and efficacy

Mirasol PRT may reduce immunological complications of transfusion by inactivating white blood cells in platelet products.

- Mirasol PRT treatment inhibits white blood cell activation and proliferation as well as cytokine production.
- Mirasol PRT treatment prevents alloimmunization to platelet transfusions and cardiac transplants as demonstrated in animal studies.
- Mirasol PRT has been shown to effectively prevent transfusion-associated Graft-versus-Host Disease (GVHD) in a murine transfusion model.

Mirasol PRT instead of gamma-irradiation as a means to prevent GVHD

- Four of the six sites participating in the MIRACLE trial discontinued gamma-irradiation of Mirasol-treated platelet products, with no adverse events reported in relation to this practice.

Learn more

The Mirasol PRT system can help you provide safer blood products today. Contact your CaridianBCT sales representative or visit www.caridianbct.com for additional information.

References