CRYOPRESERVATION OF WHOLE BLOOD SAMPLES COLLECTED IN THE FIELD FOR A LARGE, PROSPECTIVE COHORT STUDY.
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ABSTRACT
Lymphocyte Isolation and Transformation (ATCC) epidemiologic studies because they can be used to measure a variety of cellular functions and biomarkers and to provide an infinite source of DNA. Successful cryopreservation requires addition of a cryoprotective agent such as DMSO. The main transport variables were:
- Transport temperature
- Time to freezing
- Time from freezing to liquid nitrogen

Viability varied considerably, all samples yielded at least 2 x 10^6 lymphocytes and had high viability (≥86%). All samples were successfully transformed by EBV and yielded immortalized cell lines within 15 days of treatment with the virus. These findings indicate that whole blood samples collected in the field can be successfully cryopreserved without using specialized equipment.

METHODS
10 Combinations of handling variables
- Transport temperature
- Time to freezing
- Time from freezing to liquid nitrogen
Use 3 independent samples for each combination (n=30)

RESULTS
Lymphocyte isolation and Transformation (ATCC)
- Thaw blood and isolate lymphocytes
- Transform with Epstein Barr Virus
- Success Rate
- Time to Transformation

Minimal Lab and Site Variation for Viability

<table>
<thead>
<tr>
<th>Collection Site</th>
<th>Time to LN Storage</th>
<th>Temperature</th>
<th>Success Rate</th>
<th>Time to Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas 1</td>
<td>Short</td>
<td>40-42 °F</td>
<td>California 1</td>
<td>10.0 ± 1.5</td>
</tr>
<tr>
<td>Texas 2</td>
<td>Moderate</td>
<td>68-80 °F</td>
<td>California 2</td>
<td>11.0 ± 1.5</td>
</tr>
<tr>
<td>Georgia 1</td>
<td>Long</td>
<td>48+ °F</td>
<td>Texas 1</td>
<td>12.0 ± 1.7</td>
</tr>
<tr>
<td>Georgia 2</td>
<td>Short</td>
<td>80 °F</td>
<td>Texas 2</td>
<td>12.0 ± 1.7</td>
</tr>
</tbody>
</table>

CONCLUSIONS
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