Preserve the Value Of Your Wine
Managing Brettanomyces Proactively Through On-site Analysis at the Winery
Brettanomyces is inherent in winemaking, yet its presence may not be recognized until the effects of 4-EP/EG exceed desired sensory detection thresholds. Classic microbiological testing, including culturing, requires long wait times with inconclusive results. Current molecular technologies, such as RT-PCR, are too capital and labor-intensive to implement at the winery. All current methods have difficulty analyzing "young" wines during fermentation. Given these limitations, winemakers lack accurate, rapid detection to manage Brettanomyces proactively at the winery.

vinoBRETT is powered by Veriflow - a game-changing technology platform combining proven diagnostic principles with innovative, proprietary PCR technology. vinoBRETT was developed and validated for Brettanomyces management in partnership with Jackson Family Wines – it was developed for and in collaboration with winemakers.

The vinoBRETT system includes a customized thermocycler, pre-aliquoted reagent tubes, proprietary buffers, and hand-held cassette. The system quantifies viable Brettanomyces populations in less than 4 hours on the cassette, with only minutes of hands-on time to perform the test. The system requires minimal capital investment and affordable per-test cost, enabling proactive on-site Brettanomyces management.

### vinoBRETT Performance Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Sensitivity (LOD)</td>
<td>10 cells/ml</td>
</tr>
<tr>
<td>Time to results</td>
<td>&lt; 4 hours</td>
</tr>
<tr>
<td>Matrix compatibility</td>
<td>Juice, wine, lees, barrel rinse, colony PCR, enrichment broth</td>
</tr>
<tr>
<td>Assay configuration</td>
<td>Qualitative and quantitative</td>
</tr>
<tr>
<td>Target selection</td>
<td>Ribosomal Deoxyribonucleic Acid (rDNA) gene</td>
</tr>
<tr>
<td>Specificity</td>
<td>Brettanomyces bruxellensis Active state and VBNC state (Viable But Non-Culturable)</td>
</tr>
</tbody>
</table>

### vinoBRETT Validation

<table>
<thead>
<tr>
<th>Validation Studies</th>
<th>Internal and external laboratory validation in collaboration with Jackson Family Wines and Enartis Vinquiry</th>
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<tbody>
<tr>
<td>Inclusivity</td>
<td>100%. Correctly identified 49 known isolates of Brettanomyces bruxellensis</td>
</tr>
<tr>
<td>Exclusivity</td>
<td>100%. Correctly excluded multiple species of commonly occurring microorganisms found in wine</td>
</tr>
</tbody>
</table>

Strains sourced from University of California-Davis, Wine Microbe Collection, Department of Viticulture & Enology

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“Early in-house Brett monitoring in wines during and just after fermentations, which was impossible to do before, allows us to effectively mitigate issues and avoid potential problems later in the process.”  
- Tod Mostero, Winemaker  
Dominus Estates

“The test is easy to perform and interpret. Because we can now detect Brett sooner, our winemaker can take corrective actions before sensory impacts arise. We can isolate problem barrels or lots, and manage the impact of Brett. This tool enables us to do a better job of preserving quality.”  
- Doris Francis, PhD, Laboratory Supervisor  
J. Lohr Winery
Proactive Management Can Prevent Costly Remediation, and Preserve Quality and Value

Due to the power of Veriflow technology, vinoBRETT now makes it possible to conduct routine, proactive testing throughout the winemaking process to obtain accurate information about the presence and level of Brettanomyces at any time. Proactive quality management can mitigate the risk of producing wine that fails to meet your standards and results in lost value.

The technology is validated for use at all stages, with robust detection at low levels of infection. Brettanomyces management can begin as early as the fermentation stage; early detection of the presence of Brettanomyces allows you to proactively manage the situation long before the organism has the chance to impact wine quality or contaminate your tanks, barrels, hoses, and facility.

Detecting Brettanomyces early and at low levels enables **Management**:

- Less intrusive methods, including temperature modulation, higher SO₂, lower pH
- Minimal labor requirements
- Ability to isolate tainted lots early to minimize cross-contamination
- Minimal to no impact on wine quality and value

Economic Impact: Negligible ($)

Detecting Brettanomyces late and at high levels requires **Remediation**:

- More intrusive methods, such as filtering, blending, additive treatments
- Labor-intensive processes such as sterilization, barrel access, barrel cleaning
- Increased costs and hassles in the event of cross-contamination
- Potential for bulking out or discarding wine

Economic Impact: Significant ($$$)

“Because we can now detect the presence of low levels of Brett before it synthesizes 4 ethyl phenol above the sensory threshold, we can manage the impact of Brett. The kit is easy to use, demands less technician time, and the start up cost is less than traditional PCR.”

- Lynn Watanabe, Laboratory Director/Winemaker
  Oakville Winery and Napa Wine Company

“This tool gives us a clear indisputable result and we can be proactive with that result. If we have issues with a particular barrel we can quarantine it to avoid cross contamination. It is absolutely cost-effective as well, and provides peace of mind about the quality of our wines.”

- Hamish Clark, Senior Winemaker
  Saint Clair Family Estate, New Zealand
Benefits of Implementing vinoBRETT

- Affordable, on-site analysis in less than 4 hours
- Accurate and sensitive across all stages from harvest to bottling
- Early detection minimizes costly downstream remediation
- Detects both active and VBNC Brettanomyces cells
- Sample prep is simple, with minimal training required
- Proactive Brettanomyces management preserves the value of wine

Additional Detection Tools for Your Winery

Veriflow Reader – Provides quantitative results and data management capabilities enabling winemakers to establish baseline data and trend analysis across vintages.

For more information or to place an order, please contact Invisible Sentinel at 215.966.6118 or www.invisiblesentinel.com

Invisible Sentinel, a global molecular solutions company, is dedicated to providing first-in-class microbial detection tools. The company’s core technology, Veriflow, is a patented, game-changing platform that integrates molecular diagnostics, antibody design, and immunoassays. Veriflow has been applied across multiple industries including food safety and beverage quality.