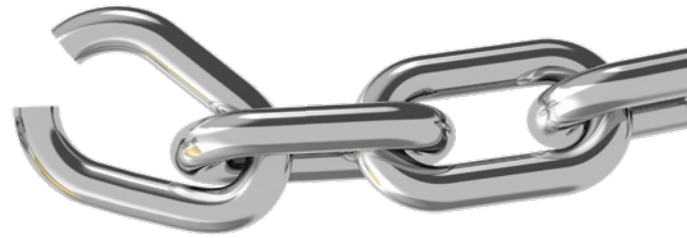


# HOUND



**UNCHAINED**  
LABS

## Finger your suspects

Particles screw up the quality of your drug and can even shut down production. Hound is the only tool out there that combines microscopy, Raman and Laser-Induced Breakdown Spectroscopy (LIBS) to forensically identify particles by their chemical and elemental fingerprints. You'll know the culprit without a doubt in minutes – so you can track it back to the source and fix it asap.

**Chemical ID**  
**Elemental ID**  
**Count**  
**Shape**  
**Size**  
**Color**

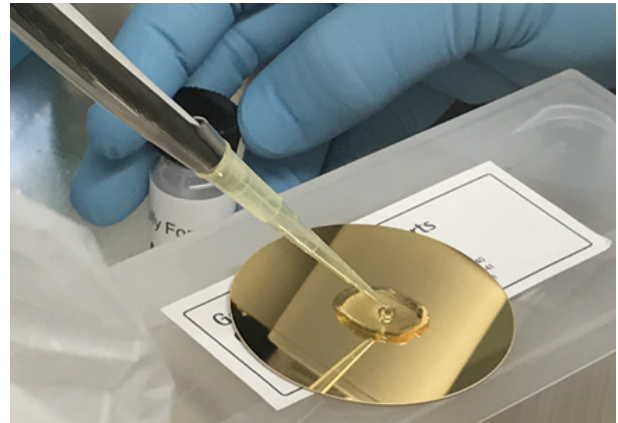


## Gather the evidence

If you see particles or suspect they might be there, Hound sniffs them out. Just pour your whole sample through a filter round or pipette your particle onto a wet round, drop it in the Hound and you're ready to go. Don't sweat it – the gold-coated surfaces catch everything and cut out all the background noise.



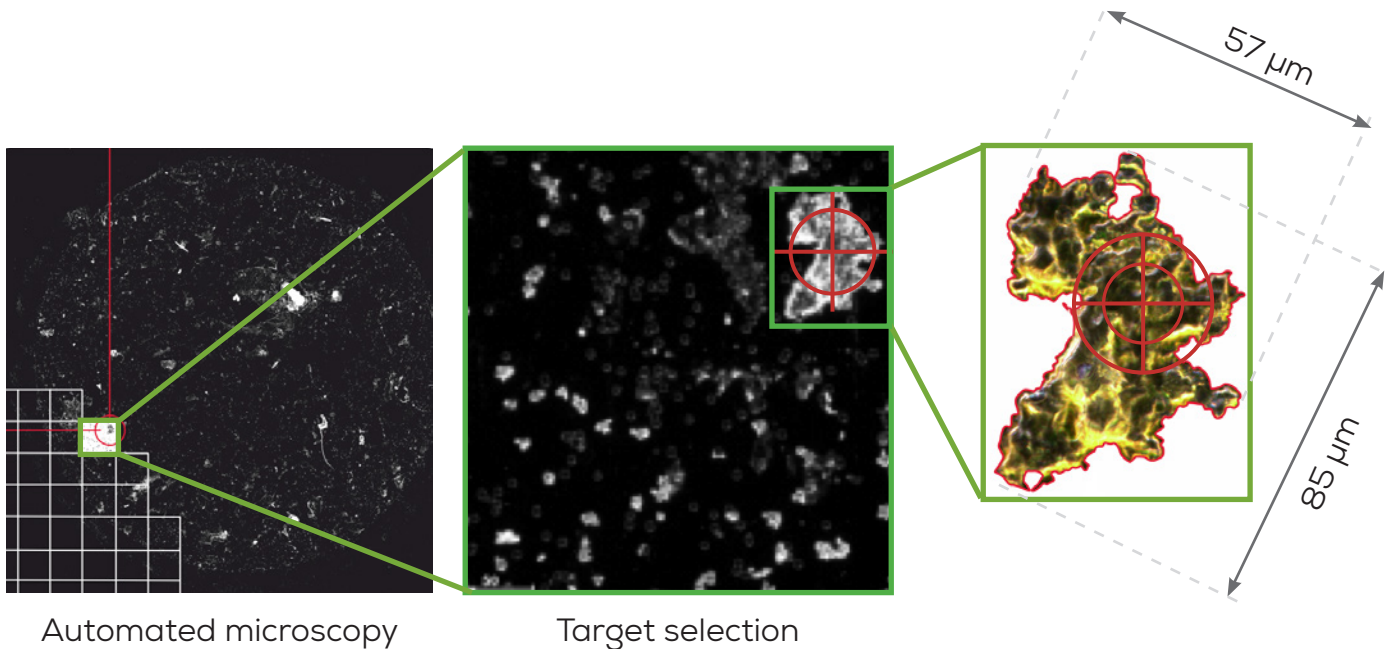
Filter round



Wet round

## Track down your leads

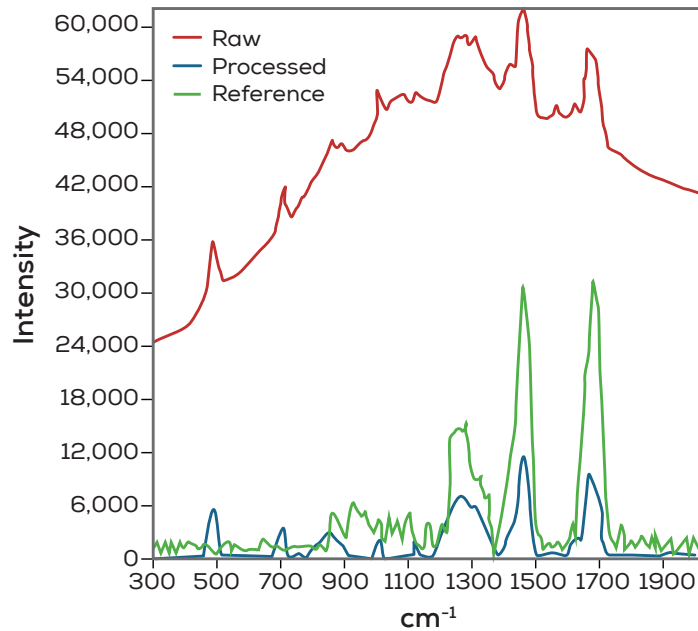
Once you've snagged all your particles, Hound automatically spots them and narrows down the list of suspects. It uses bright-field, dark-field and fluorescence so nothing sneaks by – not even those tricky translucent proteins. It scans the round then reports the size and shape of every particle, so you can make the call on which leads to follow.



## Start the interrogation

Hound IDs the chemical makeup of protein and organic materials using Raman spectroscopy. Each particle gets fingerprinted and compared to a customizable reference database to make sure you get an exact match. You'll know right off the bat if a particle is from protein aggregation, rubber from a bad stopper or something random that snuck in.

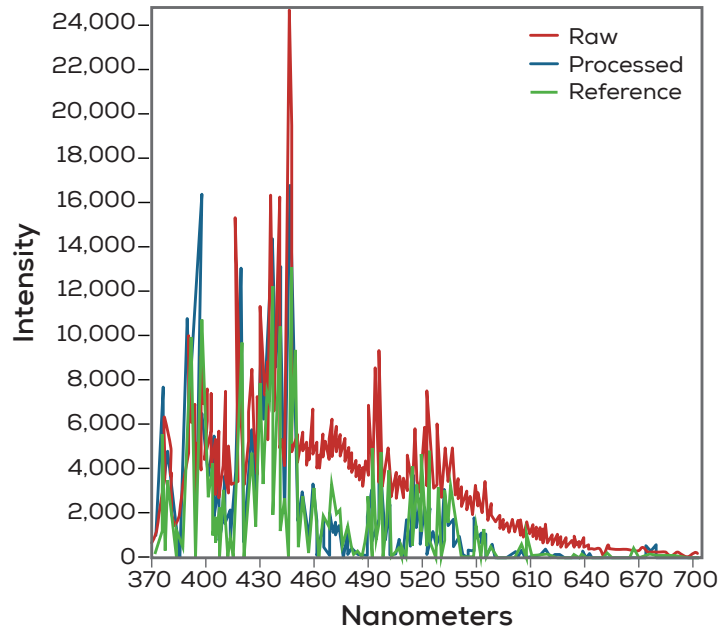
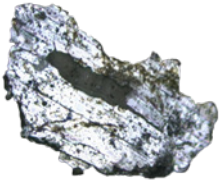
Protein + silicone particle



## Rough them up

When your process hits a snafu like metal shedding from a fermenter or glass chipping off a vial into your drug, Hound has your back with Laser-Induced Breakdown Spectroscopy (LIBS). A laser blasts part of each inorganic or metal particle into smithereens. Their elements are released and checked against a reference library so you can ID the perp and crack the case.

Stainless steel fragment



## Pick your Hound

Configuration	Proteins	Organics	Inorganics	Metals
Raman 785 nm + LIBS	Good	Best	Best	Best
Raman 532 nm + LIBS	Best	Best	Good	Best
Raman 532 nm + 785 nm	Best	Best	Good	N/A
Raman 785 nm	Good	Best	Good	N/A
Raman 532 nm	Best	Best	Good	N/A

## Specifications

Description	Specification
Microscopy	<p><b>Imaging:</b> 2 MP color camera, 10x, 20x (DF and BF), 50x objectives</p> <p><b>Illumination:</b> Integrated bright-field and dark-field illumination</p> <p><b>Particle size range:</b> 2 <math>\mu\text{m}</math> - 15 <math>\mu\text{m}</math></p> <p><b>Accuracy:</b> <math>\pm 5\%</math> sizing (magnification dependent), <math>\pm 15\%</math> counting</p>
Raman	<p><b>Laser:</b> Adjustable power, 50x, 0.55 NA, 5.0 mm WD</p> <p><b>785 nm:</b> <math>\leq 50</math> mW, 200–2000 <math>\text{cm}^{-1}</math>, resolution 5 <math>\text{cm}^{-1}</math></p> <p><b>532 nm:</b> <math>\leq 20</math> mW, 200–3200 <math>\text{cm}^{-1}</math>, resolution 5 <math>\text{cm}^{-1}</math></p> <p><b>Minimum particle size:</b> 2 <math>\mu\text{m}</math></p> <p><b>Database:</b> ~140 typical contaminants, expandable</p>
LIBS	<p><b>Laser:</b> Safety Class 1, Pulse-LASER w/130 <math>\mu\text{J}</math>, 3 ns duration, 20 x UV lens</p> <p><b>Spectral range:</b> 350–700 nm, resolution 1 nm</p> <p><b>Minimum particle size:</b> 20 <math>\mu\text{m}</math></p> <p><b>Database:</b> 50 typical contaminants, expandable</p>
Filter rounds	<p><b>Material:</b> Gold coated polycarbonate (PC) – 2 <math>\mu\text{m}</math> min. particle size</p> <p>Gold coated polytetrafluorethylene (PTFE) – 2 <math>\mu\text{m}</math> min. particle size</p> <p><b>pH range:</b> 1–14</p>
Wet rounds	<p><b>Material:</b> Gold or nickel coated</p> <p><b>Optical transmission:</b> 255–850 nm</p>
Software	21 CFR Part 11 & USP <788>, Method 2, ISO 8871-3:2004 compliance included
Environmental	<p><b>Temperature range:</b> 15–30 <math>^{\circ}\text{C}</math></p> <p><b>Humidity:</b> 0–95% relative humidity (non-condensing)</p>
Physical	<p><b>Weight:</b> 30 kg</p> <p><b>Dimensions:</b> 60 cm W x 70 cm D x 80 cm H</p> <p><b>Recommended bench space:</b> 180 cm W x 80 cm D x 110 cm H</p>
Electrical	110–230 V, 500 W



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Rev B