

alpha300 Ri



WITec alpha300 Ri

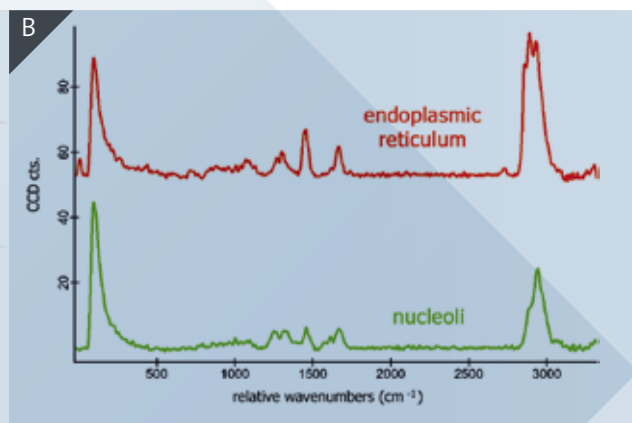
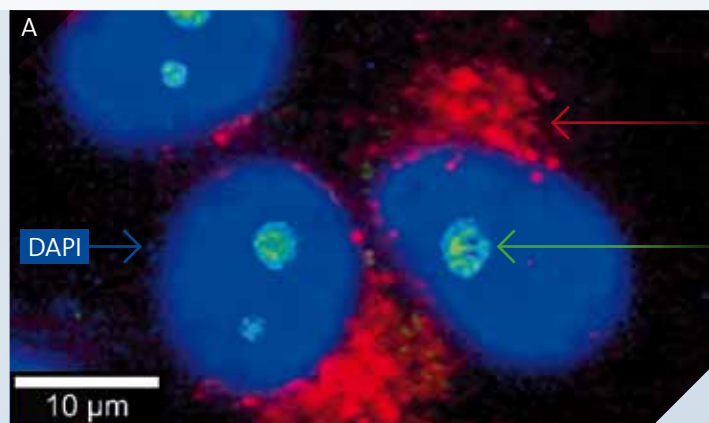
Inverted Raman imaging, liquid specimen access, bulky sample handling

The alpha300 Ri turns 3D chemical imaging upside down. Its inverted beam path preserves all of the functionality of WITec's standard alpha300 confocal Raman microscope series while introducing a new angle in access and handling. The ability to view and investigate samples from below is a great advantage when working with aqueous solutions and oversized samples. Studies in life sciences, biomedicine, pharmaceuticals and geosciences in particular will benefit from the consistency and flexibility provided by the geometry of the alpha300 Ri.

Confocal Raman imaging is a powerful and non-destructive method for analyzing the molecular composition of a sample. It uses the Raman effect that is based on the inelastic scattering of excitation light by molecules. The interaction of a molecule with photons causes vibrations of its chemical bonds, leading to a specific energy shift in the scattered light that is visible in its spectrum. Any given chemical compound produces a particular Raman spectrum when excited and can be easily identified by this individual "fingerprint." The distribution of the compounds in a sample can be visualized as an image generated from its Raman spectra.


Many variations and upgrade possibilities developed for the WITec alpha300 series are compatible with the Ri version. Other techniques associated with inverted microscopes, such as fluorescence microscopy, can also be easily integrated, which enables correlative imaging.

- **Non-destructive, contact-free, label-free chemical characterization**
- **True confocality, ideally suited to 3D image generation**
- **Lateral resolution limited only by physical law**
- **Consistent, repeatable positioning of liquid samples**
- **Bulky sample accommodation**
- **alpha300 series modularity for expandability and upgradeability**
- **Compatible with other microscopy techniques including: fluorescence, differential interference contrast (DIC) and phase-contrast**



(A) Correlative Raman – fluorescence microscopy image of eukaryotic cells. Nuclei were stained with DAPI (blue). Endoplasmic reticulum (red) and nucleoli (green) were identified by their Raman signals. **(B)** Raman spectra corresponding to nucleoli (green) and endoplasmic reticulum (red).

Bulky samples that would be challenging to investigate underneath a conventional microscope objective turret can be accommodated by placing them on the stage of the alpha300 Ri.



An inverted beam path allows liquid samples to be placed on the fixed plane of the stage for quick and repeatable measurements.

The motorized sample stage also facilitates the mounting of environmental enclosures and other accessories.





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WITec uses environmentally friendly printed materials. While this policy is only a small contribution to a healthy environment, we at WITec believe that focusing on details can effect positive change in the world.



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