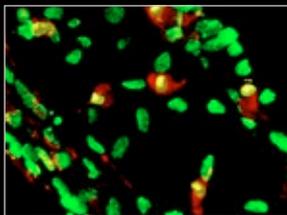
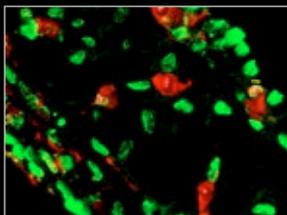


Visualize and quantify colocalization and the degree of co-occurrence between various fluorescent labels in your image

ImarisColoc - a powerful module of **Imaris** gives you advanced colocalization tools to enhance your visualization and analysis. With the analytical power of **ImarisColoc**, users can easily isolate, visualize and quantify regional overlap in 3D and 4D images. Results can be presented in two ways—as a new 3D or 4D channel in **Imaris** or as a statistical report. In addition, only **ImarisColoc** automates the process of selecting colocalized image areas of your image.



ImarisColoc is fully integrated with **Imaris** enabling users to leverage its impressive range of 3D and 4D visualization capabilities as well as its image editing and processing functions. This integration results in a short turn-around cycle for image analysis and enables users to change analytical parameters based on findings shown in the 3D displays of **Imaris**.



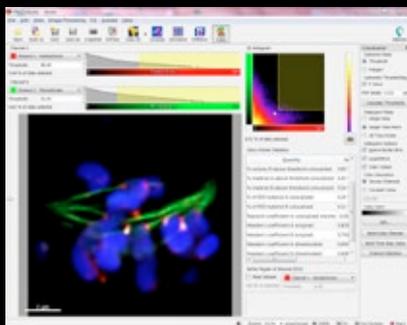
Left Top: Colocalization of the two original channels (shown in yellow) has been identified at sites where labeled proteins come in close contact.

Left Bottom: The image shows MIP projection of the two original channels.

Main Image: Two fluorescence channels visualised in **Imaris** and analysed in **Coloc**. Myelin is seen here as green label partly overlapping with neuronal processes (red). In places where colocalization occurs, the overlapping volumes have been detected and surface-rendered in yellow. Image courtesy of Denise Fitzgerald and Craig Ledgerwood from the Johnston group at Queens University Belfast.

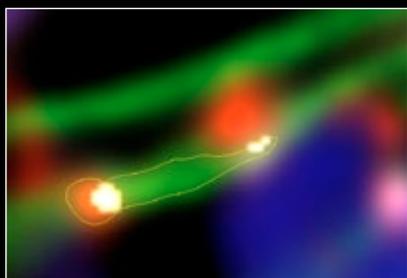
ImarisColoc

When You're Serious About Colocalization

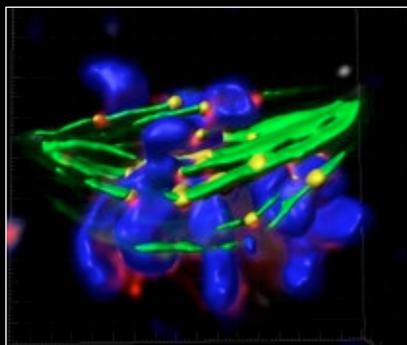


The User Interface of ImarisColoc

Red and green channels of the original image are selected as input channels. A single image slice is shown with the red, green, and the coloc channels (white) magnified. A new 3D colocalization channel is created by "Build Coloc Channel". This channel becomes available in all other Imaris views.



Threshold selection from the image. By clicking on the image, a closed contour line surrounds an area equal to the intensity of the point selected. The histogram and the calculations instantly adjust to the selection.



Colocalization shown using Surpass scene. Original channels: blue—surface rendering, green—volume rendering. A new colocalization channel displays in yellow (surface rendering).

Your Benefits

Intuitive selection of a combination of any two channels for colocalization analysis.

Automate the selection of the thresholds and get the user bias out of the equation for e.g. diffuse stains.

Perform time-dependant colocalization with the threshold method of **ImarisColoc** done automatically for each time point.

Quantify Pearson or Manders' colocalization coefficients.

Easily generate a new channel that contains only voxels that represent the colocalization result and combine seamlessly this other visualization and analysis tool of Imaris.

Selection and Segmentation of Colocalized Voxels

ImarisColoc provides several methods for separating an image from background voxels - automatic, threshold and polygon modes to process the overlap between any two color channels in an image at a time.

Augmenting these standard modes, Bitplane offers an active contouring function that delivers interactive thresholding directly from an image (Figure 1). **ImarisColoc** generates a 2D histogram, which takes voxels out of their spatial context and plots them according to intensity.

The software calculates the histogram from one of three image options:

- Single slice: Quickly recognize planes with prominent colocalization while browsing through Z-axis.
- Single time point: Spot single time points with high colocalization while browsing through time dimension.
- All time points: Review an entire time series to determine whether any colocalization exists.

Intensity levels in the histogram correspond to the quantity of voxels that fall within certain intensity levels of the image. **ImarisColoc** offers intensity scaling that efficiently pinpoints the areas of greatest interest.

In addition to these, a color channel can be selected as a masking area for the entire analysis. This feature allows for the definition of a region of interest (ROI) for the entire analysis.

Automated Colocalization Analysis

Manual procedures have long been the norm for segmenting and selecting voxels to generate histograms. But **ImarisColoc** now makes it possible to perform an automatic threshold run on both channels based on an advanced algorithm developed by Costes and Lockett at the National Institute of Health (NCI/SAIC). This method defines a colocalized region using two thresholds and requires that channels outside the region exhibit no correlation.

Real-Time Performance

ImarisColoc offers the fastest implementation on the market both for the immediate interactive visualization of selected colocalized regions and the immediate display of derived statistical parameters. This instantaneous feedback accelerates the testing process and facilitates direct comparison between the voxel selection and mathematical data.

Statistical Reporting

Determine key statistics such as the percentage overlap of the channels and colocalization coefficients to characterize the degree of overlap between two channels in a microscopy image. **Imaris MeasurementPro** is NOT required for this functionality. Numerical output options include Pearson's and Manders' Correlation Coefficients and Colocalization Percentages among others and can be exported as a .CSV file to be used with any statistical analysis package.

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Software requirements

ImarisColoc requires **Imaris**.

Operating system requirement

ImarisColoc runs on PCs with Microsoft® Windows® XP, Vista, 7 (32 and 64-bit) and MacOS (10.6 or later).

Windows systems - we recommend using 64-bit OS with 16GB RAM, 3.3 GHz (or faster) quad-core CPU with 64-bit support.

Mac systems - we recommend using Intel 2.8 GHz (or faster) quad-core CPU and 16GB RAM

Graphics boards - ATI/nVidia graphics card with 512 MB RAM. For full list of supported hardware please visit bitplane.com/go/support/system-requirements