WimAutophagy

Analysis results in detail

For every set of images that you upload to WimAutophagy, you will receive the following data files, bundled inside a zip file:

- A Results Control Image for each uploaded image, consisting of your original images with an overlay of the detected nuclei and autophagosomes in it.
- CSV format Results Data Sheet with the autophagy-related measured data for each image.
- An extra CSV format Results Data Summary of the whole order.

Let's check them in detail.

1. Results Control Image

Every input image will produce a control image to assess the accuracy of the analysis output. It consists of the input image with the following data outlined on it:

- Nuclei marked in blue, labeled with the cell ID number in yellow.
- Perimeter of the cell outlined in gray.
- Individual autophagosomes, outlined in red.
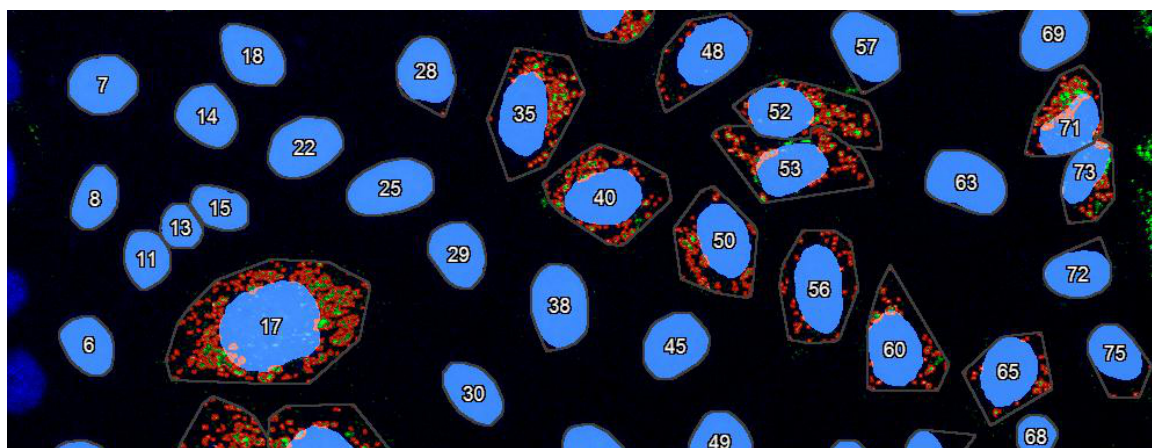
This image will have the name of your input image followed by "_Exp01" and will be saved in "jpg" format.

This is our standard colour coding but it is not fixed. If you need a different colour combination or marking schematic for publishing your work, do not hesitate to ask us for it here. We will be happy to change it to make your work stand out.
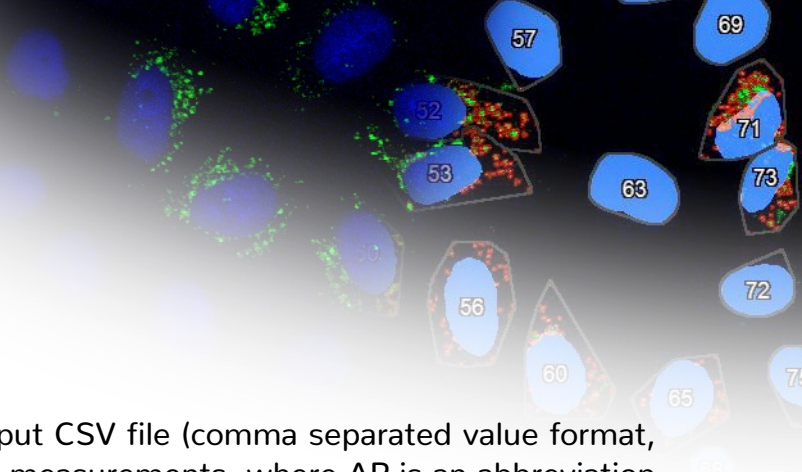
2. Results Data Sheet

Every input image will also generate an output CSV file (comma separated value format, similar to an Excel sheet) with the following measurements, where AP is an abbreviation of autophagosomes:

General Metrics:

- **No. Cells:** Total numbers of cells in the image
- **Estimated Area AP [px]:** Estimated Area of the autophagosomes in pixels.
- **Mean AP per cell:** Mean number of estimated autophagosomes per cell.
- **Mean AP Intensity:** Only cells that have some autophagosomes are used to calculate this value.
- **Mean Nucleus Area [px]:** all cells in the image are used to calculate this value.
- **Std AP per cell:** Standard deviation of the Autophagosomes per cell counts.
- **Std Puncta per cell:** Standard deviation of puncta per cell.
- **Std Nucleus Area:** Standard deviation of nucleus area in pixels.
- **Total Area AP:** Sum of the area of all autophagosomes in the image.

Individual Cell Metrics:

The Individual Cell Metrics take the Estimated Autophagosome Area as reference to label as Isolated Autophagosomes objects that show an area smaller than twice the value. Objects whose area is bigger than that are labelled as Clusters.

- **Cells ID:** Number to identify each cell in the control image.
- **Cytoplasm Area [px]:** Area of the cytoplasm for this cell, in pixels
- **Nucleus Area [px].**
- **Number Isolated APs.**
- **Number Clusters.**
- **Number Estimated APs in Cluster:** This value is calculated dividing the area of each cluster by the estimated area of the autophagosomes. These value is rounded to the nearest integer.
- **Puncta per cell:** Total number of autophagosomes in this cell without estimating the autophagosomes in cluster.
- **Total Number Estimated APs:** Total number of autophagosomes in this cell estimating the number of Autophagosomes in each cluster.
- **Total AP Area [px]:** Sum of the area of all autophagosomes in the cell, in pixels.
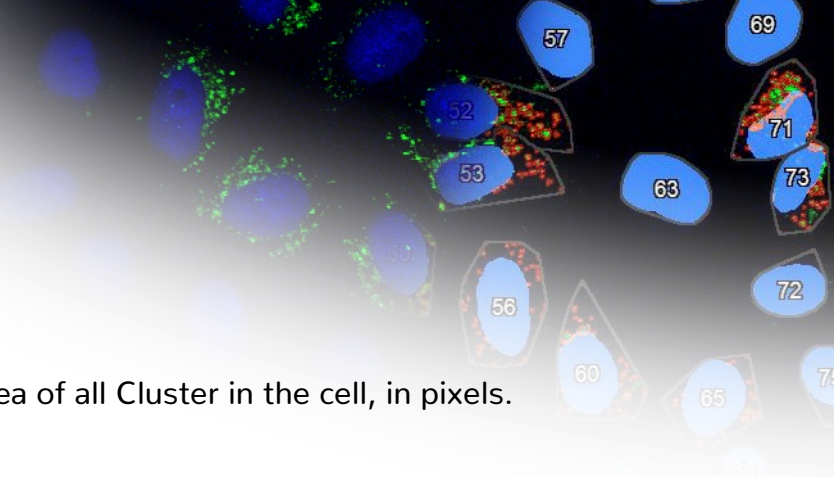
- **Mean Intensity of Total AP Area.**
- **Total Area Cluster [px]:** Sum of the area of all Cluster in the cell, in pixels.

3. Results Data Summary

Every uploaded order also produces a CSV file that summarizes the measurements contained in all the individual results data sheets of your order. This file will have the name of the order number followed by "_Summary".