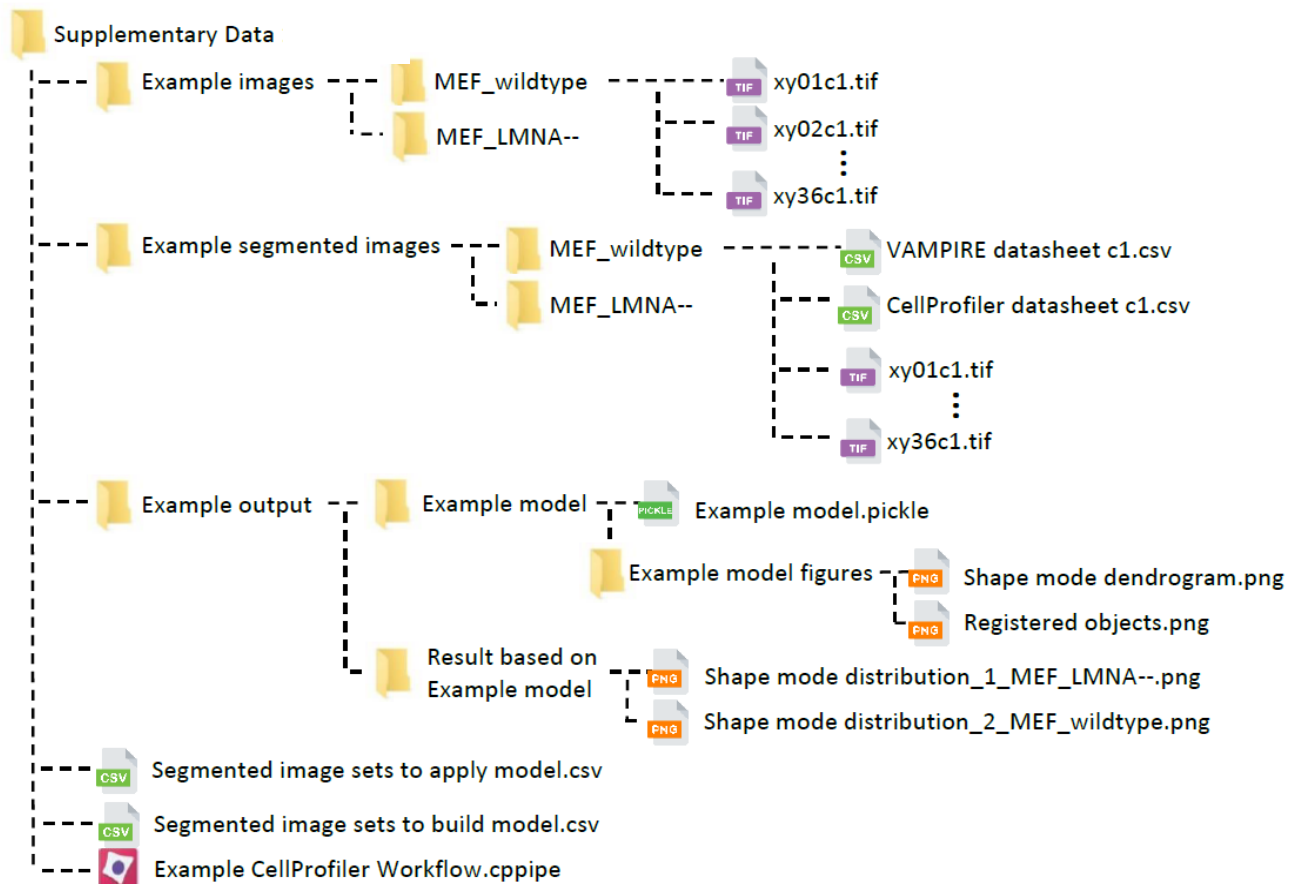


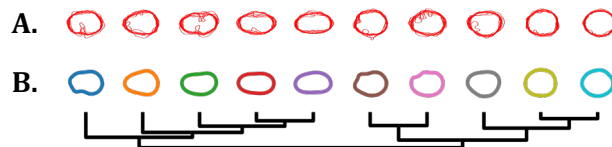
## Supplementary Note

### S1. Directory of Supplementary Data



Filenames of example tiff images contain a tag “c1”, which represents actin channel. The tag in the filename could mean something other than the fluorescence channel. The tag is used to identify desired images in case another group of images co-exist in the segmented images folder. CSV files under “Example segmented images” folder contains data of individual cells and nuclei such as centroid, area, shape mode ID number, etc. They are named “VAMPIRE datasheet [tag].csv”. Pickle file in “Example model” folder contains model parameters and variables.

### S2. Example output files of “build model” section of the VAMPIRE GUI



**A.** overlaid actual boundaries of cells and nuclei from different shape modes. The number of cells per shape mode equals to the number of coordinates that was used to generate these boundaries from the microscope images. **B.** dendrogram of shape modes shows each shape modes and how closely they are related to one another.