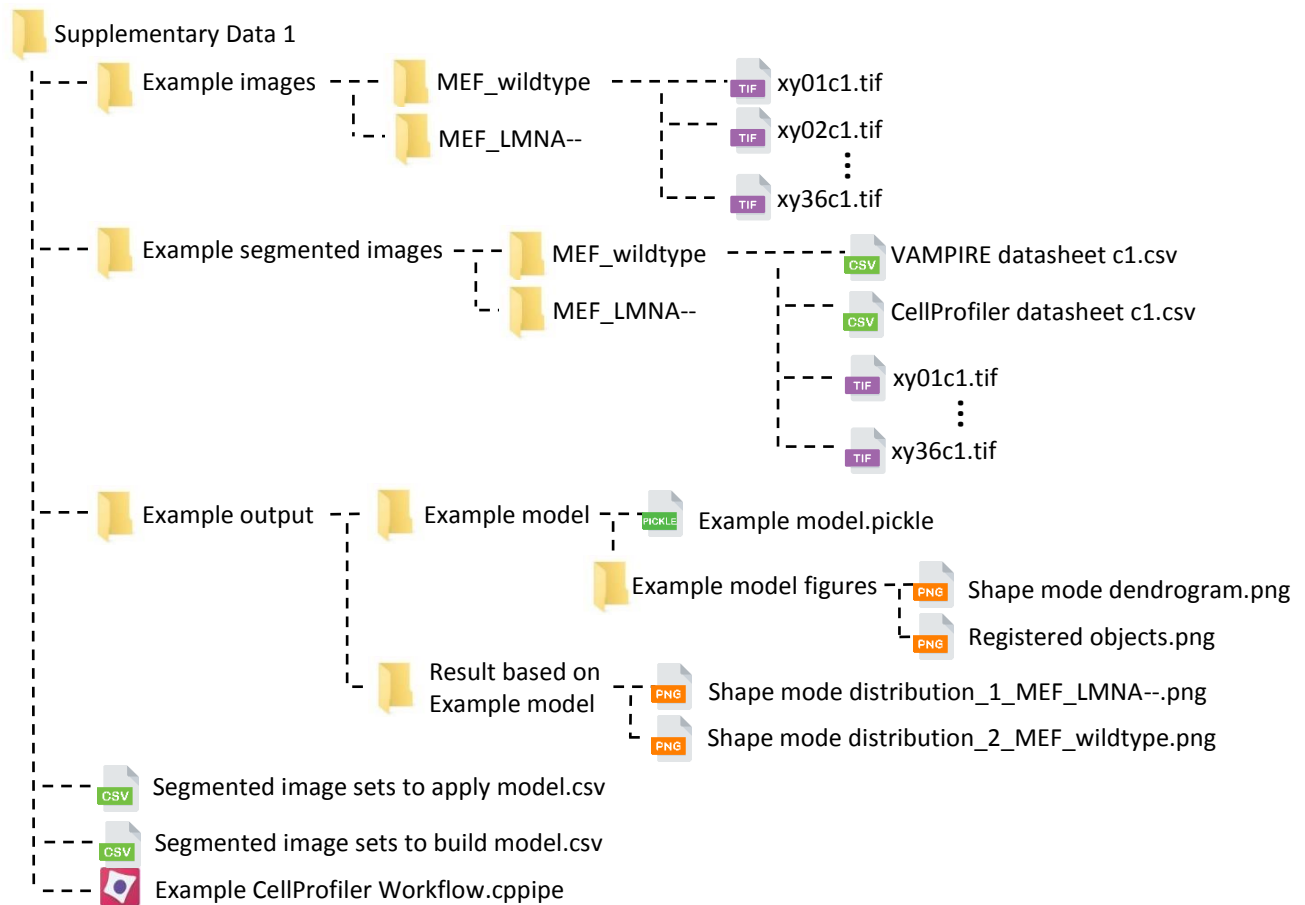


## Supplementary Information

### S1. Directory of Supplementary Data 1

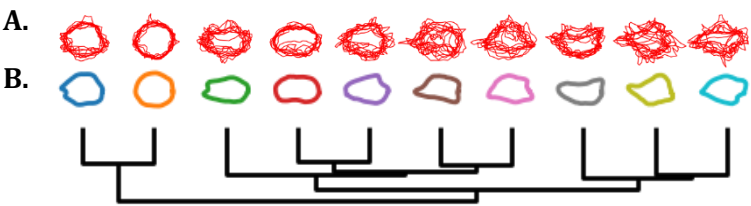


Filenames of example tiff images contain a tag “c1”, which represents actin channel. The tag in the filename could mean something other than the fluorescence channel. The tag is used to identify desired images in case another group of images co-exist in the segmented images folder. CSV files under “Example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

**S2. Example structure of the CSV file containing the list of segmented image folders**

set ID	condition	set location	tag	note
1	MEF_LMNA--	C:\Users\kuki\Downloads\Supplementary files\Examples image and results\Example segmented images\MEF_LMNA--	c1	lamin A knockout
2	MEF_wildtype	C:\Users\kuki\Downloads\Supplementary files\Examples image and results\Example segmented images\MEF_wildtype	c1	wildtype control

**S3. Example output files of “build model” section of the VAMPIRE GUI**



- A. Twenty overlaid actual boundaries of cells randomly selected from each shape modes.
- B. Dendrogram of shape modes shows the morphology of shape modes detected by K-means clustering and their similarity with each other.