CellProfiler Pipeline: http://www.cellprofiler.org
Version:3
DateRevision:20160503183100
GitHash:ac0529e
ModuleCount:17
HasImagePlaneDetails:False

Images:[module_num:1|svn_version:\'Unknown\'|variable_revision_number:2|show_window:False|notes:\x5B\'To begin creating your project, use the Images module to compile a list of files and/or folders that you want to analyze. You can also specify a set of rules to include only the desired files in your selected folders.\'\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
    :
    Filter images?:Images only
    Select the rule criteria:and (extension does isimage) (directory doesnot containregexp "\x5B\\\\\\\\\\\\\\\\\/\x5D\\\\\\\\.")

Metadata:[module_num:2|svn_version:\'Unknown\'|variable_revision_number:4|show_window:False|notes:\x5B\'The Metadata module optionally allows you to extract information describing your images (i.e, metadata) which will be stored along with your measurements. This information can be contained in the file name and/or location, or in an external file.\'\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
    Extract metadata?:No
    Metadata data type:Text
    Metadata types:{}
    Extraction method count:1
    Metadata extraction method:Extract from file/folder names
    Metadata source:File name
    Regular expression:^(?P<Plate>.*)_(?P<Well>\x5BA-P\x5D\x5B0-9\x5D{2})_s(?P<Site>\x5B0-9\x5D)_w(?P<ChannelNumber>\x5B0-9\x5D)
    Regular expression:(?P<Date>\x5B0-9\x5D{4}_\x5B0-9\x5D{2}_\x5B0-9\x5D{2})$
    Extract metadata from:All images
    Select the filtering criteria:and (file does contain "")
    Metadata file location:
    Match file and image metadata:\x5B\x5D
    Use case insensitive matching?:No

NamesAndTypes:[module_num:3|svn_version:\'Unknown\'|variable_revision_number:6|show_window:False|notes:\x5B\'The NamesAndTypes module allows you to assign a meaningful name to each image by which other modules will refer to it.\'\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
    Assign a name to:All images
    Select the image type:Grayscale image
    Name to assign these images:RPE
    Match metadata:\x5B\x5D
    Image set matching method:Order
    Set intensity range from:Image metadata
    Assignments count:1
    Single images count:0
    Maximum intensity:255.0
    Select the rule criteria:and (file does contain "")
    Name to assign these images:DNA
    Name to assign these objects:Cell
    Select the image type:Grayscale image
    Set intensity range from:Image metadata
    Retain outlines of loaded objects?:No
    Name the outline image:LoadedOutlines

Maximum intensity:255.0

Groups:[module_num:4|svn_version:\'Unknown\'|variable_revision_number:2|show_window:False|notes:\x5B\'The Groups module optionally allows you to split your list of images into image subsets (groups) which will be processed independently of each other. Examples of groupings include screening batches, microtiter plates, time-lapse movies, etc.\'\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Do you want to group your images?:No
grouping metadata count:1
Metadata category:None

EnhanceOrSuppressFeatures:[module_num:5|svn_version:\'Unknown\'|variable_revision_number:5|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select the input image:RPE
Name the output image:Enhanced
Select the operation:Enhance
Feature size:10
Feature type:Neurites
Range of hole sizes:1,10
Smoothing scale:5
Shear angle:0.0
Decay:0.95
Enhancement method:Tubeness
Speed and accuracy:Slow / circular

IdentifyPrimaryObjects:[module_num:6|svn_version:\'Unknown\'|variable_revision_number:10|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select the input image:RPE
Name the primary objects to be identified:cells
Typical diameter of objects, in pixel units (Min,Max):3,150
Discard objects outside the diameter range?:Yes
Try to merge too small objects with nearby larger objects?:No
Discard objects touching the border of the image?:Yes
Method to distinguish clumped objects:Intensity
Method to draw dividing lines between clumped objects:Intensity
Size of smoothing filter:0
Suppress local maxima that are closer than this minimum allowed distance:8
Speed up by using lower-resolution image to find local maxima?:Yes
Name the outline image:CellOutlines
Fill holes in identified objects?:After both thresholding and declumping
Automatically calculate size of smoothing filter for declumping?:No
Automatically calculate minimum allowed distance between local maxima?:No
Retain outlines of the identified objects?:Yes
Automatically calculate the threshold using the Otsu method?:Yes
Enter Laplacian of Gaussian threshold:0.5
Automatically calculate the size of objects for the Laplacian of Gaussian filter?:Yes
Enter LoG filter diameter:5.0
Handling of objects if excessive number of objects identified:Continue
Maximum number of objects:500
Threshold setting version:2
Threshold strategy:Global
Thresholding method:RidlerCalvard
Select the smoothing method for thresholding:No smoothing
Threshold smoothing scale:1
Threshold correction factor:0

Lower and upper bounds on threshold:0.4,1
Approximate fraction of image covered by objects?:0.01
Manual threshold:0.0
Select the measurement to threshold with:None
Select binary image:ImageAfterMath
Masking objects:None
Two-class or three-class thresholding?:Two classes
Minimize the weighted variance or the entropy?:Weighted variance
Assign pixels in the middle intensity class to the foreground or the background?:Foreground
Method to calculate adaptive window size:Image size
Size of adaptive window:10
Use default parameters?:Default
Lower outlier fraction:0.05
Upper outlier fraction:0.05
Averaging method:Mean
Variance method:Standard deviation
# of deviations:2.0

OverlayOutlines:[module_num:7|svn_version:\'Unknown\'|variable_revision_number:3|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Display outlines on a blank image?:No
Select image on which to display outlines:RPE
Name the output image:RPEOutlines
Outline display mode:Color
Select method to determine brightness of outlines:Max possible
Width of outlines:2
Select outlines to display:CellOutlines
Select outline color:magenta
Load outlines from an image or objects?:Image
Select objects to display:cells

MeasureImageAreaOccupied:[module_num:8|svn_version:\'Unknown\'|variable_revision_number:3|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Hidden:1
Measure the area occupied in a binary image, or in objects?:Objects
Select objects to measure:cells
Retain a binary image of the object regions?:Yes
Name the output binary image:Stain
Select a binary image to measure:RPE

MeasureObjectNeighbors:[module_num:9|svn_version:\'Unknown\'|variable_revision_number:2|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select objects to measure:cells
Select neighboring objects to measure:cells
Method to determine neighbors:Adjacent
Neighbor distance:5
Retain the image of objects colored by numbers of neighbors?:Yes
Name the output image:ObjectNeighborCount
Select colormap:Default
Retain the image of objects colored by percent of touching pixels?:Yes
Name the output image:PercentTouching
Select a colormap:Default

MeasureObjectSizeShape:[module_num:10|svn_version:\'Unknown\'|variable_revision_number:1|show_window:True|n

otes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
    Select objects to measure:cells
    Calculate the Zernike features?:Yes

SaveImages:[module_num:11|svn_version:\'Unknown\'|variable_revision_number:11|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
    Select the type of image to save:Image
    Select the image to save:RPE
    Select the objects to save:None
    Select the module display window to save:None
    Select method for constructing file names:From image filename
    Select image name for file prefix:RPE
    Enter single file name:OrigBlue
    Number of digits:4
    Append a suffix to the image file name?:Yes
    Text to append to the image name:_cellOutlines
    Saved file format:tif
    Output file location:Default Output Folder\x7C
    Image bit depth:8-bit integer
    Overwrite existing files without warning?:No
    When to save:Every cycle
    Rescale the images? :No
    Save as grayscale or color image?:Grayscale
    Select colormap:gray
    Record the file and path information to the saved image?:No
    Create subfolders in the output folder?:Yes
    Base image folder:Default Input Folder sub-folder\x7CDesktop\\\\\\\\LightInjury RPE-FM\\\\\\\\ManuallyTraced\\\\\\\\ManuallyTraced_smoothed
    Saved movie format:avi

SaveImages:[module_num:12|svn_version:\'Unknown\'|variable_revision_number:11|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
    Select the type of image to save:Image
    Select the image to save:RPEOutlines
    Select the objects to save:cells
    Select the module display window to save:None
    Select method for constructing file names:From image filename
    Select image name for file prefix:RPE
    Enter single file name:OrigBlue
    Number of digits:4
    Append a suffix to the image file name?:Yes
    Text to append to the image name:_Overlay
    Saved file format:tif
    Output file location:Default Output Folder\x7C
    Image bit depth:8-bit integer
    Overwrite existing files without warning?:No
    When to save:Every cycle
    Rescale the images? :No
    Save as grayscale or color image?:Grayscale
    Select colormap:gray
    Record the file and path information to the saved image?:No
    Create subfolders in the output folder?:Yes
    Base image folder:Default Input Folder sub-folder\x7CDesktop\\\\\\\\LightInjury RPE-FM\\\\\\\\ManuallyTraced\\\\\\\\ManuallyTraced_smoothed

Saved movie format:avi

SaveImages:[module_num:13|svn_version:\'Unknown\'|variable_revision_number:11|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select the type of image to save:Image
Select the image to save:CellOutlines
Select the objects to save:None
Select the module display window to save:None
Select method for constructing file names:From image filename
Select image name for file prefix:RPE
Enter single file name:OrigBlue
Number of digits:4
Append a suffix to the image file name?:Yes
Text to append to the image name:_Cells
Saved file format:tif
Output file location:Default Output Folder\x7C
Image bit depth:8-bit integer
Overwrite existing files without warning?:No
When to save:Every cycle
Rescale the images? :No
Save as grayscale or color image?:Grayscale
Select colormap:gray
Record the file and path information to the saved image?:No
Create subfolders in the output folder?:Yes
Base image folder:Default Input Folder sub-folder\x7CDesktop\\\\\\\\LightInjury RPE-FM\\\\\\\\ManuallyTraced\\\\\\\\ManuallyTraced_smoothed
Saved movie format:avi

SaveImages:[module_num:14|svn_version:\'Unknown\'|variable_revision_number:11|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select the type of image to save:Image
Select the image to save:Stain
Select the objects to save:None
Select the module display window to save:None
Select method for constructing file names:From image filename
Select image name for file prefix:RPE
Enter single file name:OrigBlue
Number of digits:4
Append a suffix to the image file name?:Yes
Text to append to the image name:_AreaOccupied
Saved file format:tif
Output file location:Default Output Folder\x7C
Image bit depth:8-bit integer
Overwrite existing files without warning?:No
When to save:Every cycle
Rescale the images? :No
Save as grayscale or color image?:Grayscale
Select colormap:gray
Record the file and path information to the saved image?:No
Create subfolders in the output folder?:Yes
Base image folder:Default Input Folder sub-folder\x7CDesktop\\\\\\\\LightInjury RPE-FM\\\\\\\\ManuallyTraced\\\\\\\\ManuallyTraced_smoothed
Saved movie format:avi

SaveImages:[module_num:15|svn_version:\'Unknown\'|variable_revision_number:11|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select the type of image to save:Image
Select the image to save:ObjectNeighborCount
Select the objects to save:None
Select the module display window to save:None
Select method for constructing file names:From image filename
Select image name for file prefix:RPE
Enter single file name:OrigBlue
Number of digits:4
Append a suffix to the image file name?:Yes
Text to append to the image name:_ColorNeighbors
Saved file format:tif
Output file location:Default Output Folder\x7C
Image bit depth:8-bit integer
Overwrite existing files without warning?:No
When to save:Every cycle
Rescale the images? :No
Save as grayscale or color image?:Grayscale
Select colormap:gray
Record the file and path information to the saved image?:No
Create subfolders in the output folder?:Yes
Base image folder:Default Input Folder sub-folder\x7CDesktop\\\\\\\\LightInjury RPE-FM\\\\\\\\ManuallyTraced\\\\\\\\ManuallyTraced_smoothed
Saved movie format:avi

ExportToSpreadsheet:[module_num:16|svn_version:\'Unknown\'|variable_revision_number:11|show_window:True|notes:\x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Select the column delimiter:Comma (",")
Add image metadata columns to your object data file?:Yes
Limit output to a size that is allowed in Excel?:No
Select the measurements to export:Yes
Calculate the per-image mean values for object measurements?:Yes
Calculate the per-image median values for object measurements?:Yes
Calculate the per-image standard deviation values for object measurements?:Yes
Output file location:Default Output Folder\x7C
Create a GenePattern GCT file?:No
Select source of sample row name:Metadata
Select the image to use as the identifier:None
Select the metadata to use as the identifier:None
Export all measurement types?:Yes

:cells\x7CNeighbors_SecondClosestDistance_Adjacent,cells\x7CNeighbors_FirstClosestDistance_Adjacent,cells\x7CNeighbors_FirstClosestObjectNumber_Adjacent,cells\x7CNeighbors_SecondClosestObjectNumber_Adjacent,cells\x7CNeighbors_PercentTouching_Adjacent,cells\x7CNeighbors_NumberOfNeighbors_Adjacent,cells\x7CNeighbors_AngleBetweenNeighbors_Adjacent,cells\x7CNumber_Object_Number,cells\x7CLocation_Center_Y,cells\x7CLocation_Center_X,cells\x7CAreaShape_Perimeter,cells\x7CAreaShape_FormFactor,cells\x7CAreaShape_MinorAxisLength,cells\x7CAreaShape_Orientation,cells\x7CAreaShape_Area,cells\x7CAreaShape_MinFeretDiameter,cells\x7CAreaShape_Solidity,cells\x7CAreaShape_MaxFeretDiameter,cells\x7CAreaShape_EulerNumber,cells\x7CAreaShape_MedianRadius,cells\x7CAreaShape_Compactness,cells\x7CAreaShape_Extent,cells\x7CAreaShape_Eccentricity,cells\x7CAreaShape_MaximumRadius,cells\x7CAreaShape_MeanRadius,cells\x7CAreaShape_MajorAxisLength,cells\x7CAreaShape_Center_Y,cells\x7CAreaShape_Center_X,Image\x7CCount_cells,Image\x7CAreaOccupied_Perimeter_cells,Image\x7CAreaOccupied_AreaOccupied_cells,Image\x7CAreaOccupied_TotalArea_cells,Image\x7CFileName_RPE,Experiment\x7CPipeline_Pipeline

Representation of Nan/Inf:NaN
Add a prefix to file names?:Yes
Filename prefix:ManualTraced_
Overwrite existing files without warning?:Yes
Data to export:Image
Combine these object measurements with those of the previous object?:No
File name:DATA.csv
Use the object name for the file name?:Yes
Data to export:cells
Combine these object measurements with those of the previous object?:No
File name:DATA.csv
Use the object name for the file name?:Yes

ExportToDatabase:[module_num:17|svn_version:\'Unknown\'|variable_revision_number:27|show_window:True|notes:\
x5B\x5D|batch_state:array(\x5B\x5D, dtype=uint8)|enabled:True|wants_pause:False]
Database type:MySQL / CSV
Database name:DefaultDB
Add a prefix to table names?:Yes
Table prefix:MyExpt_
SQL file prefix:SQL_
Output file location:Default Input Folder sub-folder\x7CDesktop\\\\\\\\LightInjury RPE-FM\\\\\\\\Fig.RPE
cells\\\\\\\\copies for figure 5
Create a CellProfiler Analyst properties file?:Yes
Database host:
Username:
Password:
Name the SQLite database file:DefaultDB.db
Calculate the per-image mean values of object measurements?:Yes
Calculate the per-image median values of object measurements?:Yes
Calculate the per-image standard deviation values of object measurements?:Yes
Calculate the per-well mean values of object measurements?:No
Calculate the per-well median values of object measurements?:No
Calculate the per-well standard deviation values of object measurements?:No
Export measurements for all objects to the database?:All
Select the objects:
Maximum # of characters in a column name:64
Create one table per object, a single object table or a single object view?:Single object table
Enter an image url prepend if you plan to access your files via http:
Write image thumbnails directly to the database?:No
Select the images for which you want to save thumbnails:
Auto-scale thumbnail pixel intensities?:Yes
Select the plate type:None
Select the plate metadata:None
Select the well metadata:None
Include information for all images, using default values?:Yes
Properties image group count:1
Properties group field count:1
Properties filter field count:0
Workspace measurement count:1
Experiment name:MyExpt
Which objects should be used for locations?:cells
Enter a phenotype class table name if using the classifier tool:
Export object relationships?:Yes
Overwrite without warning?:Never

Access CPA images via URL?:No
Select the classification type:Object
Select an image to include:None
Use the image name for the display?:Yes
Image name:Channel1
Channel color:red
Do you want to add group fields?:No
Enter the name of the group:
Enter the per-image columns which define the group, separated by commas:ImageNumber, Image_Metadata_Plate, Image_Metadata_Well
Do you want to add filter fields?:No
Automatically create a filter for each plate?:No
Create a CellProfiler Analyst workspace file?:No
Select the measurement display tool:ScatterPlot
Type of measurement to plot on the X-axis:Image
Enter the object name:None
Select the X-axis measurement:None
Select the X-axis index:ImageNumber
Type of measurement to plot on the Y-axis:Image
Enter the object name:None
Select the Y-axis measurement:None
Select the Y-axis index:ImageNumber