

First, download the python codes:

```
git clone https://github.com/QibingJiang/cell_process_moffitt_py_2023.git
```

Second, run the following command,

```
cd cell_process_moffitt_py
```

First, there are some package need to be installed:

```
pip install opencv_python
```

```
pip install scipy
```

```
pip install astropy
```

```
pip install shutil
```

Now, you can run the python codes:

```
python3 ./cell_process.py configure.txt input_dir
```

input\_dir is the directory where the images are. For example,

```
python3 ./cell_process.py configure.txt /home/qibing/disk_t/Pt204/RawData/Beacon-2
```

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You do not need to specify output directory. The result would be put into the TimeLapseVideos\_cbb folder under each patient folder. For example:

```
"/home/qibing/disk_t/Pt204/TimeLapseVideos/"
```

In the TimeLapseVideos\_cbb folder,

1. Results contains files Results\_\*.csv, each of which is the live cell area for one Beacon.

2. In the video, the cells in blue circles are live, and yellow for dead.

3. Cell\_tracks contains other information. The file named Beacon\_\*\_cell\_tracks.txt contains the information for each cell track. In this file, each row represents one image (one time point). the 5 columns are track-id, x-coordinate, y-coordinate, cell area, cell core brightness average, eccentricity. The coordinates origin is at the top left corner of the image. Image size is 1328(width)x1048(height). x-coordinate is horizontal, and always positive. y-coordinate is vertically, and always positive.

4. In the file named Beacon\_\*\_live\_dead\_table.txt, each row represents one image (one time point). The 4 columns are the number of live cells, the number of dead cells, the area sum of live cells, the area sum of dead cells.

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If you want to compile the python codes to executable file, then install the package:

```
pip install pyinstaller
```

Now you can run the command:

```
pyinstaller ./cell_process.py
```

The executable file is here ./dist/cell\_process/cell\_process