

Quantification of lipid droplets in preadipocytes



Adipose Tissues • 2D Cell Models • High Content Screening • Automatic Detection • Dermatology • Obesity • Cosmetic

YOUR NEEDS

- Monitor pre-adipocyte differentiation
- Quantify the production of lipid droplets

OUR SOLUTIONS

- Fully automated imaging and image analysis
- Robust data, short delay and cost-saving



General Procedure



DIVA
EXPERTISE

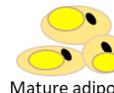
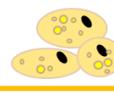
Cell isolation, culture and labelling
supported by DIVA Expertise



Preadipocytes



Differentiation process



Mature adipocytes

Image acquisition:

- Acquisition done with structured light or confocal microscopy.
- Several fields of view to maximize the amount of data.
- Image stack for each field of view to get each cellular structure on their focal plane.

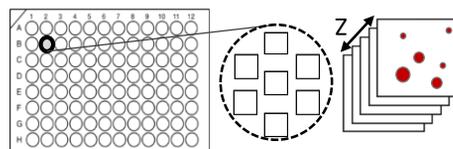
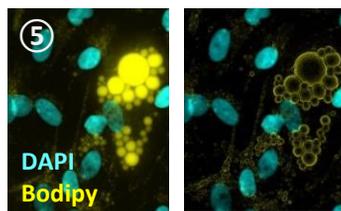
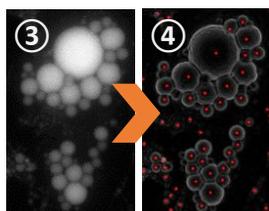
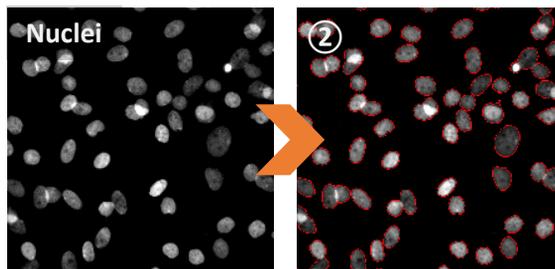
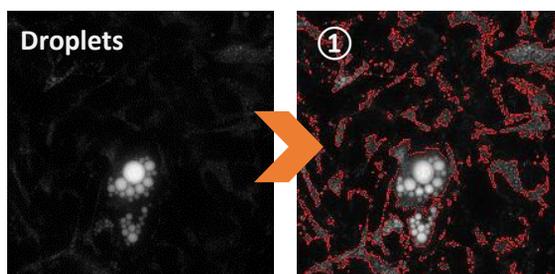


Image processing:

- ① Segmentation of droplets clusters on the Bodipy channel, calculation of the recognized surface area representing the **lipid production**.
- ② Detection and **counting of nuclei** on the DAPI channel. Estimation of nuclei in differentiation by colocalization with lipid droplets.
- ③ & ④ Individual droplet detection, estimation of **average diameter**.
- ⑤ Illustrative images on representative fields of view.

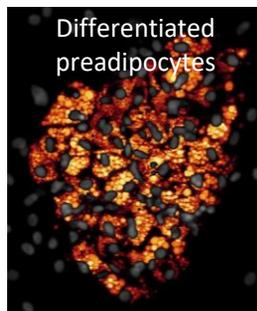


Application example

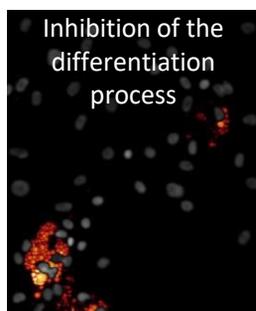


Undifferentiated preadipocytes

DAPI
Bodipy



Differentiated preadipocytes



Inhibition of the differentiation process

