Zooniverse Project

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Science Scribbler: Placenta Profiles

Understanding Mitochondrial dynamics in the placenta, and training computers analyse data faster in future.

This project is created with the intention to advance scientist's ability to analyse mitochondria in the placenta using electon microscopy and segmentation. "Through the Placenta Profiles project we hope to learn more about the normal structure of the placenta and uncover any changes that could help explain how the placenta fails during pregnancy complications. Studying the structure of the placenta is difficult because there are lots of different cell types. This project, Placenta Profiles - Mito Mapper, will focus on the mitochondria in the syncytiotrophoblast (the outer cell layer of the placenta)." the research team states.

"The placenta samples used were all donated to research by women following the birth of their child." Stated further by the research team.

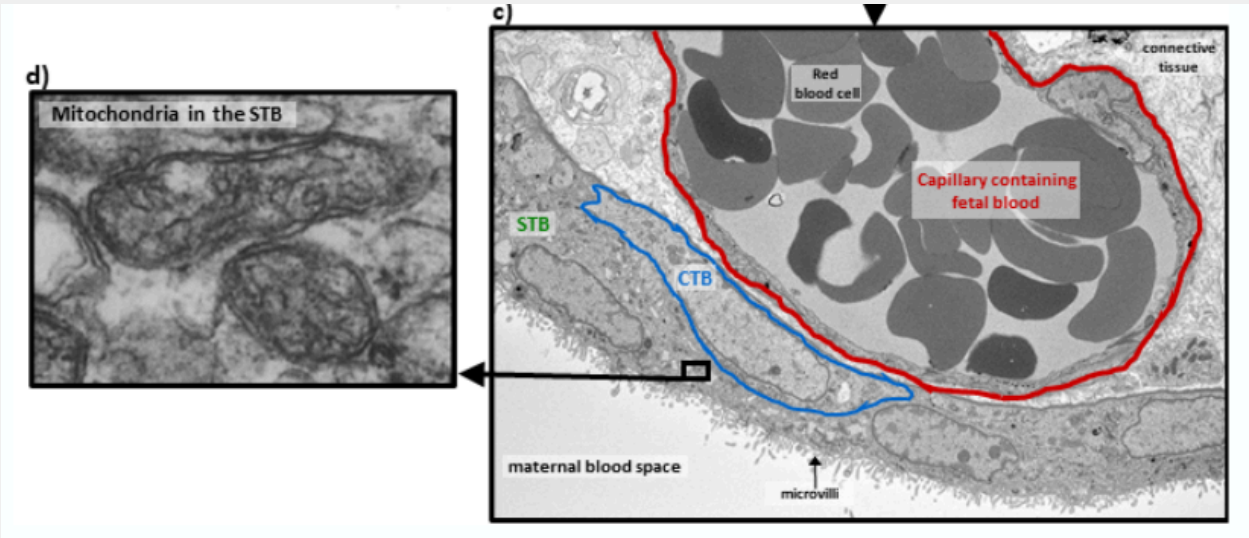


Image taken from Zooniverse

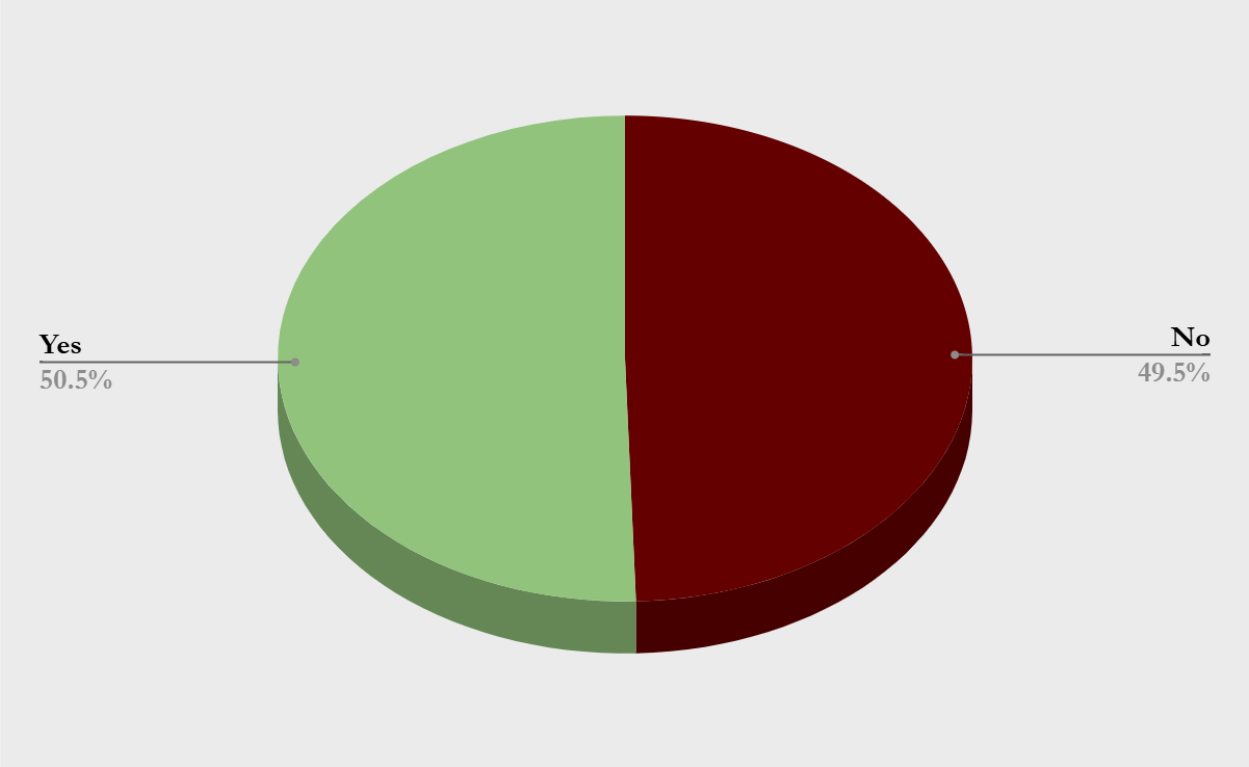
Method:

Volunteers have to place a mark on near the circle of each mitochondria they see in each image. “Placenta Profiles will use high magnification images of placentas taken using a technique called serial block face scanning electron microscopy, or SBF-SEM for short.” Given in their description.

Observations, done on 100 images in this project, were logged in Google sheets, tracking whether the center of the mitochondria was in the green circle. Charts were then used to summarize it.

Table 1.

Presence of Mitochondia in the center of the circle.



The above chart reveals that (almost) half of the mitochondria was in the circle’s center and other half wasn’t. This might be because there isn’t a strong tendency of the mitochondria to be centered inside those circles, so my observation suggests neutrality.

Many times there were no mitochondria in the circle or presence of artefact.

Conclusion:

This project aimed to improve researcher's/ doctor's understandings of mitochondrial dynamics in the placenta. Overall, the observations recorded displayed a neutral distribution of mitochondria presence in the center of the circle.