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Brain image simulation protocol

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Protocol status: Working
We use this protocol and it's working

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Abstract

This protocol details the method for simulating a brain image with small and large features

Attachments

DOCX

protocol_simulation....

13KB

Materials

File required: 'imageSimulation' folder

Toolbox required: Statistics and Machine Learning Toolbox, image processing toolbox

1 1. Prepare **negative control images** where no fluorescent puncta were labelled. These images are considered as background images.

2 2. Select one or several cropped images containing **large aggregates** in the library and apply a **sigmoid function** to the selected cropped image where x in the sigmoid function is determined by **the distance to the large aggregate in the cropped image**.

3 Simulate **small puncta** with 2D gaussian distribution on a **blank image** (same image size as the negative control image), the number of which should be determined from **real images**. The sigma of puncta should be determined from **real images** as well.

4 **Add** cropped **large aggregates** onto the **background images** at a random location. Then **add** the **simulated puncta** onto **the background image** to form a simulated image with **both small and large features**.

5 Record position, intensity and background information per small puncta expect for those overlapping with the large aggregates in the simulated image and save the results.

6 **Repeat** step2 to 5 again for other background images