

Materials List for:

# Measuring the Shape and Size of Activated Sludge Particles Immobilized in Agar with an Open Source Software Pipeline

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URL: <https://www.jove.com/video/58963>

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## Materials

Name	Company	Catalog Number	Comments
10% Bleach solution	Chlorox	31009	For workspace disinfection.
15 mL centrifuge tube with cap	Corning	430790	Per sample.
50 mL Erlenmeyer flask	Corning	4980-50	Other vessels are suitable so long as they can contain > 40 mL of sample and allow mixing
500 mL Kimax Bottle	Kimble-Chase	14395-50	Or otherwise sufficient for agar handling
Agar	BD	214010	Solid, to prepare 7.5% gel. 7 mL per sample.
Data analysis software	N/A	N/A	R or Python are suggested
Deionized water	N/A	N/A	Sufficient to prepare stain and agar. If unavailable, tap should be fine.
Desktop computer	N/A	N/A	Image analysis is not CPU intensive, any 'ordinary' desktop computer circa 2017 should be sufficient.
External hard drive	Seagate	STEB5000100	Not fully required, but extremely useful given the number and size of images. 2 or more TB of storage suggested.
Fiji	NIH	version 1.51d	Version is ImageJ core. Plugins are updated as of writing. Available at: <a href="https://imagej.net/Fiji/Downloads">https://imagej.net/Fiji/Downloads</a>
GIT	Open Source	version 2.19.1 or later	Available at: <a href="https://git-scm.com/">https://git-scm.com/</a>
Image capture software	ToupView	version 3.7.5177	Any compatible with camera, may come with camera. Should allow saving TIFF images with spatial calibration data.
Mechanical (X/Y) Stage	OMAX	A512	Not fully required, but greatly aids image acquisition.
Methylene blue	Fisher	M291-100	Solid, to prepare 1% w/v solution. 5 uL solution per sample.
Microscope camera	OMAX	A35140U	Any digital camera compatible with microscope. Resolution providing at least 5 um per pixel at 10x magnification and a dynamic range of at least 8 bits per pixel per color channel is suggested.
Optical Stage Micrometer	OMAX	A36CALM1	Or otherwise sufficient for spatial calibration.
Petri dish, 100 mm	Fisher	FB0875712	1 per sample.

PPE	N/A	N/A	Standard lab coat, gloves, and eyewear.
SparMoria macro	NCSU	version 0.2.1	Available at github repository : <a href="https://github.com/joeweaver/SParMorlA-Sludge-Particle-Morphological-Image-Analysis">https://github.com/joeweaver/SParMorlA-Sludge-Particle-Morphological-Image-Analysis</a>
Stereo/dissecting microscope	Nikon	SMZ-2T	Should provide 10 to 20x magnification and allow digital photos either with a built-in camera or provide a mounting point for a CCD.