

The Spheroid Light Microscopy Image Atlas for morphometrical analysis of three- dimensional cell cultures

Commonly used acronym: SLiMIA

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Contact person

Eva Blondeel

Organisation

Name of the organisation Ghent University (UGent)

Department Department of Human Structure and Repair

Specific Research Group or Service Laboratory of Experimental Cancer Research

Country Belgium

Geographical Area Flemish Region

SCOPE OF THE METHOD

The Method relates to	Other: Morphological analysis
The Method is situated in	Translational - Applied Research
Type of method	In silico

DESCRIPTION

Method keywords

Image analysis

spheroids

morphological analysis

image atlas

3D cell culture

Scientific area keywords

3D in vitro models

cancer

Translational Research

biomedical research

Microscopy

Method description

Here, we introduce an open-access Spheroid Light Microscopy Image Atlas (SLiMIA) that can serve as a training set for morphology studies of 3D cell cultures. We provide images with a variety of metadata: 9 microscopes, 47 cell lines, 8 culture media, 4 spheroid formation methods and multiple cell seeding densities; totalling approximately 8,000 images of spheroids. This comprehensive dataset can guide spheroid researchers and promote economizing of resources by advancing 3D cell culture optimization, standardization and implementation by the community at large. Considering the exponentially growing interest in spheroid morphometrical analyses and the emerging technological possibilities to do so, this atlas can be applied to train and develop image segmentation models to deepen our understanding of 3D spheroid morphometry in biomedical research.

Method status

Published in peer reviewed journal

PROS, CONS & FUTURE POTENTIAL

Advantages

SLiMIA is a dataset comprising approximately 8,000 images and has an enormous potential to assist in the development, training and validation of spheroid segmentation models and to connect spheroid morphometry with methodological metadata.

Future & Other applications

SLiMIA can be applied to compare spheroid diversity and to develop morphometric analysis software with potential applications on other 3D cultures such as organoids and patient-derived tissue fragments.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

Associated documents

[SLiMIA publication.pdf](#)

Links

[The Spheroid Light Microscopy Image Atlas for morphometrical analysis of three-...](#)

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