MISpheroID: a knowledgebase and transparency tool for minimum information in spheroid identity

Commonly used acronym: *MISpheroID*

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SCOPE OF THE METHOD

The Method relates to	Other: transparency and reproducibility in 3D culture conditions such as spheroids, organoids, etc
The Method is situated in	Basic Research, Education and training, Translational - Applied Research
Type of method	Other: knowledgebase and transparency tool

DESCRIPTION

Method keywords

3D cel culture

spheroids

organoids

Reproducibility

transparency

standardization

Scientific area keywords

spheroids

reproducibility

in vitro 3D modelling

transparency

standardization

Method description

Spheroids are three-dimensional cellular models with widespread basic and translational application across academia and industry. However, methodological transparency and guidelines for spheroid research have not yet been established. The MISpheroID Consortium developed a crowdsourcing knowledgebase that assembles the experimental parameters of 3,058 published spheroid-related experiments. Interrogation of this knowledgebase identified heterogeneity in the methodological setup of spheroids. Empirical evaluation and interlaboratory validation of selected variations in spheroid methodology revealed diverse impacts on spheroid metrics. To facilitate interpretation, stimulate transparency and increase awareness, the Consortium defines the MISpheroID string, a minimum set of experimental parameters required to report spheroid research. Thus, MISpheroID combines a valuable resource and a tool for three-dimensional cellular models to mine experimental parameters and to improve reproducibility.

Lab equipment

no

Method status

Published in peer reviewed journal

PROS, CONS & FUTURE POTENTIAL

Advantages

Thus, MISpheroID is a unique open-access resource that facilitates systematic reporting on essential spheroid methodology with the aim to increase consistency and awareness in both academic and industrial research environments.

Challenges

Keep it updated and keep it active in the long term.

Modifications

Include additional essential spheroid methodological aspects based on empirical evidence.

Future & Other applications

Other emerging 3D model systems, such as organoids and self-renewing multicellular aggregates that self-organize into lumen-containing ex-vivo organs, may also benefit from the MISpheroID tool to improve transparency and document heterogeneity.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

Peirsman, A.; Blondeel, E.; MISpheroID consortium; De Wever, O. (2021) MISpheroID: a knowledgebase and transparency tool for minimum information in spheroid identity. Nat. Methods 18, 1294–1303

Associated documents

MISpheroID.pdf