WEBINAR: Automated Colony Counting – New Methods Can Save Researchers Time and Cost

Questions and answers from the April 22, 2020 webinar titled "Automated Colony Counting – New Methods Can Save Researchers Time and Cost "

This document includes questions we received and answered during the webinar, as well as those that we did not have time to address.

Q. How does GelCount account for lighting effects due to the meniscus?

The GelCount imaging system has been designed in a way to remove as much distortion from the meniscus as possible. If distortion does exist, there are a few options available. One thing to keep in mind is that even with such distortion, the software can still detect colony edges and properly count them. One option is to modify the size of the mask to exclude colonies located on the very outside edge. If every well has the same mask, then they should still be completely relative to one another in counts and other data generated. The simplest way, of course (if protocols allows for it) is to fill up wells to the top and remove the meniscus.

Q. Does the GelCount work with sphere formation in liquid media such as tumorspheres formed in suspension?

One of the primary functions of the GelCount is to count sphere formation in a variety of medias. If minimum thresholds of 30µm is met then there should not be any issues.

Q. Has the GelCount software been used to count bacterial colonies?

The GelCount has been used to count bacterial colonies as well as organoids and yeast colonies as well.

Q. Are there certain requirements for the medium in which the colonies are dispersed so counting is possible?

In the 3D scenario the media should not be too opaque as the system needs to image the colonies within. Please contact us with any questions about specific media so we can discuss your unique application.

Q. How does GelCount count colonies that are not rounded and grow one over other and fuse to each other?

There are ways in which the GelCount and software can be optimized to count a variety of colony types. There are different options and optimizations depending on applications, so please contact us so we can review your specific use-case and come up with some recommendations for you.

Q. Can the lid be kept on while imaging?

Yes, lids can be left on while imaging. The user needs to make sure there is no writing above the area being imaged and any condensation on the lid is wiped off.

Q. Can this software do repeated counts of the same plates across days?

Yes, the GelCount can count the same plates as many times as one needs.

Q. Can the GelCount be used for 96 well plate? How much time does it take to count the whole plate?

Yes, the GelCount can count 96 well plates. On that note, the GelCount is compatible with 6-, 12-, 24-, 48- and 96-well plates (up to 4 plates of any one type may be imaged simultaneously), as well as with 35 mm (up to 24), 50 mm (up to 12) and 100mm (up to 4) Petri dishes and some specific T25 flasks.

The time it takes to image each one of these depends on the resolution needed. It is application dependant and as can be discussed with us at any time. See the question below for sample times it takes to process various plates.

Q. What throughput rates can be achieved with the GelCount?

The throughput rate is largely limited by the speed of image acquisition, which is in itself a function of the user chosen image resolution and the plate or dish type used. Typical processing time (acquiring the image and processing it) for four 6-well plates of adherent, stained colonies is around 6 minutes (600 ppi). Alternatively, the processing time for four 6-well plates of non-adherent colonies in soft agar is about 12 minutes (1,200 ppi). At the highest demand, which is four 96-well plates, imaged at maximum resolution (2,400 ppi), the total processing time would be around 45 minutes.

Q. Can images be used from other imaging modalities to count colonies by using only the software?

The algorithm used by the GelCount software needs to read images acquired from the hardware component. We cannot import images acquired from other sources.

Q. Do colonies in semi-solid media, or spheroids in suspension need to be stained?

The GelCount will generally detect unstained colonies effectively. Performance can be boosted in some cases (e.g. very small colonies) by using MTT-based metabolic stains.

Q. is there a minimum size that can be counted?

The GelCount has a resolution of approximately 30µm as a minimum. Keep in mind, however, that colonies need to consist of approximately 50 cells to be considered a colony, so the 30-micron resolution should never be an issue.

Q. Can the system count stem cell colonies?

It would be best to discuss your particular application to determine suitability of the GelCount. The GelCount was not designed to detect highly diffuse colonies or highly irregular colonies. For this reason, the system may not dependable count stem cell colonies, but worthy of exploring with us regardless.