

MULTIDIMENSIONAL AND HIGH RESOLUTION IMAGING, OVERCOMING THE MOUNTING ISSUES WITH AN ALL-IN-ONE 3D PRINTED CHAMBER, THE UNIVERSLIDE

Kevin Alessandri^{1,2,3,*}, Laetitia Andrique^{3,4,*}, Maxime Feyeux^{3,5,*}, Andreas Bikfalvi^{3,4}, Pierre Nassoy^{1,2,3} & Gaëlle Recher^{1,2,3,\$}

¹. LP2N, CNRS UMR 5298; ². Institut d'Optique Graduate School; ³. Université de Bordeaux; ⁴. LAMC, Inserm U1029; ⁵. IMN, CNRS UMR 5293;

Email: gaelle.recher@institutoptique.fr

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1. ABSTRACT:

The emergence of diversified microscopy techniques allowing 3D high-speed and high-resolution imaging of living samples has generated the need for a versatile sample chamber that allows optimal culture conditions, biocompatibility, medium throughput; and that could be easily moved to any microscope and back the incubator. We have developed an imaging chamber that can be built and assembled in the lab on a DIY way. We deliver to the community in an Open format (CC), the STL files to be used by 3D printers. We have proven this chamber perfectly adaptable for imaging hollowed hydrogel capsules filled with fluorescent cells, and fluorescent zebrafish larva. We expect this chamber to be suitable for any 3D biological sample imaged on any “regular stand”-based microscope.

2. FIGURE:

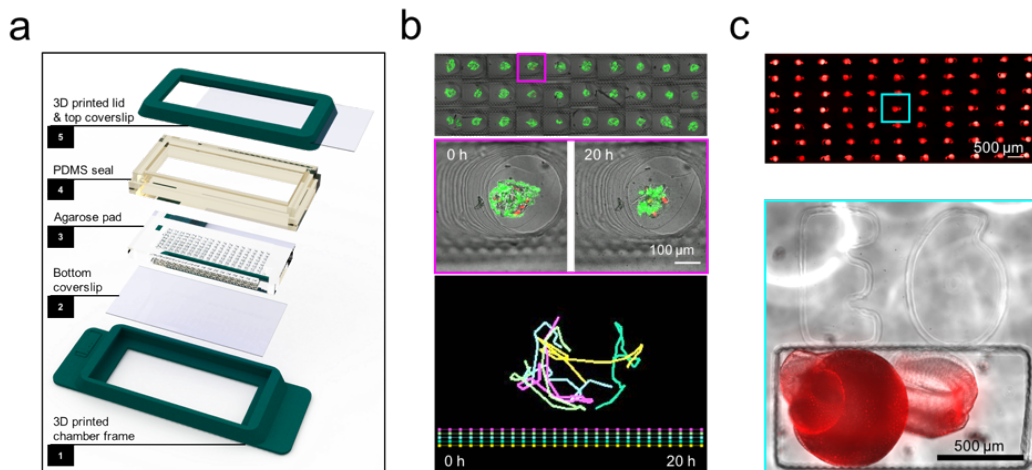


Figure: Medium throughput universal imaging chamber, the UniverSlide. **a.** D drawing of the different parts of the chamber, comprising the main chamber frame (1), the bottom coverslip (2), the agarose pad (3) that is imprinted according to the sample of interest, the PDMS seal (4) and the frame of the lid (5) in which the top coverslip is slid. **b.** Hollowed hydrogel capsules filled with 2 populations of fluorescent cells are imaged in 3D for 20 hours without any movement, allowing accurate cell tracking in time and space. **c.** The shape of the agarose well can be adapted to any sort of sample, for example here, up to 77 zebrafish larvae are imaged at once.