

Laser bioprinting using BA-LIFT: from single cell to tissue engineering

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Laser bioprinting techniques are appearing as an ideal tool for cell printing due to their outstanding cell viability and high spatial resolution. In this presentation we discuss different applications of a particular adaptation, made at Laser Center UPM, of the Blister-Actuated Laser Induced Forward Transfer (BA-LIFT) technique [1] for cell printing. In our case we use a thick polyimide layer for blister generation to protect the cells from the incoming laser beam. Due to the transparency of this material in the VIS range we can implement both fluorescence and conventional vision systems coaxially with the laser path in order to identify the cells to be transferred, opening up the possibility of cell sorting [2]. In addition we discuss some current applications of the technique developed at our lab, from single cell isolation for translational oncology applications [3] to tissue engineering models.

References

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- [2] A Marquez et al 2020 Biofabrication 12 025019
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