

## Time resolved study of living cells transference by BA-LIFT

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Blister Actuated - Laser-Induced Forward Transfer (BA-LIFT) [1], is a disruptive technique in the bioprinting field through which a wide variety of bioinks can be printed preserving cell integrity. BA-LIFT has been used to print several types of cells. All of them exhibit an extremely high cell viability meanwhile their metabolic capacities remain unaltered. The use of a polymeric intermediate layer, main characteristic of the BA-LIFT approach, creates a smooth transference process mediated by a blister formation. The deformation of the intermediate layer into a blister pushes forward the bioink forming a jet that collapses generating a droplet. We have been able to successfully develop a numerical FEM-CFD to study the transference process. Our approach [2], uses a thick intermediate layer made of a commercial adhesive polyimide tape which protects the bioink from the upcoming laser radiation. This approach not only eases the donor preparation due to its simplicity but also enables real time image acquisition due to its transparency in the visible range. Top and side viewing systems can be attached to the transference set-up, allowing us to track cells down during the whole transference process.

### References

- [1] M. Brown et al. J. of Appl. Phys. 107 (2010) 083103-083103. doi:10.1063/1.3327432.
- [2] A Marquez et al 2020 Biofabrication 12 025019

### Graphical abstract

