

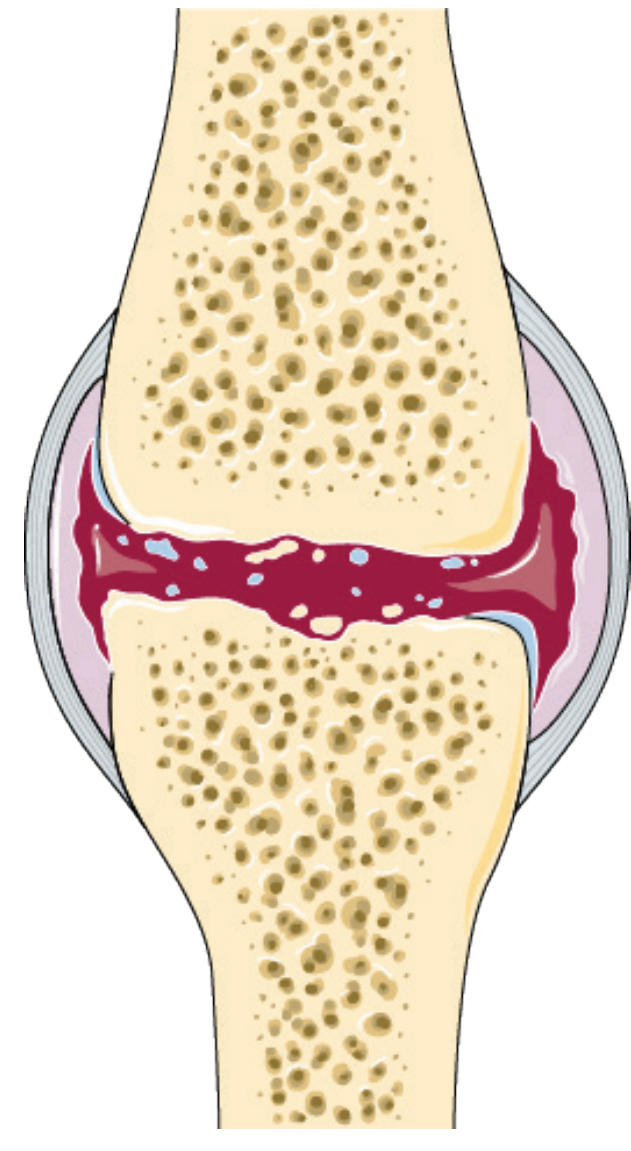
Single-cell bioprinting for Joint-on-Chip development

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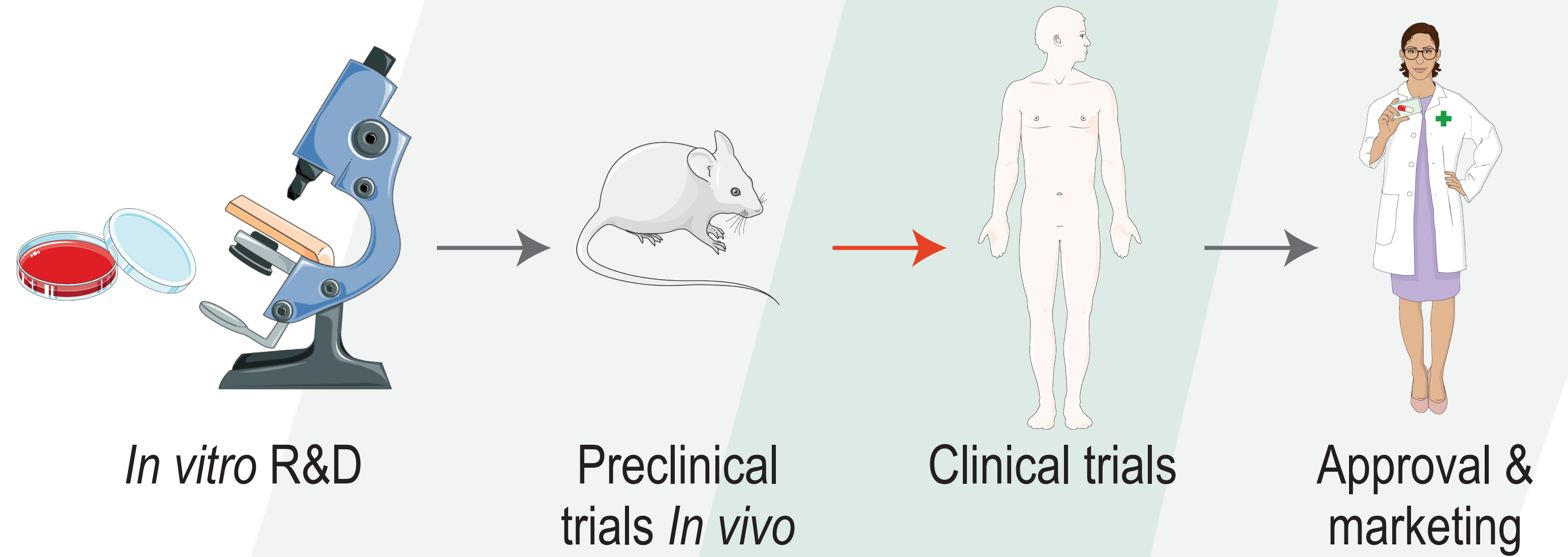
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INTRODUCTION

Arthritis is a global aging problem, disabling more than 350 million people worldwide. There are no current treatments for it.

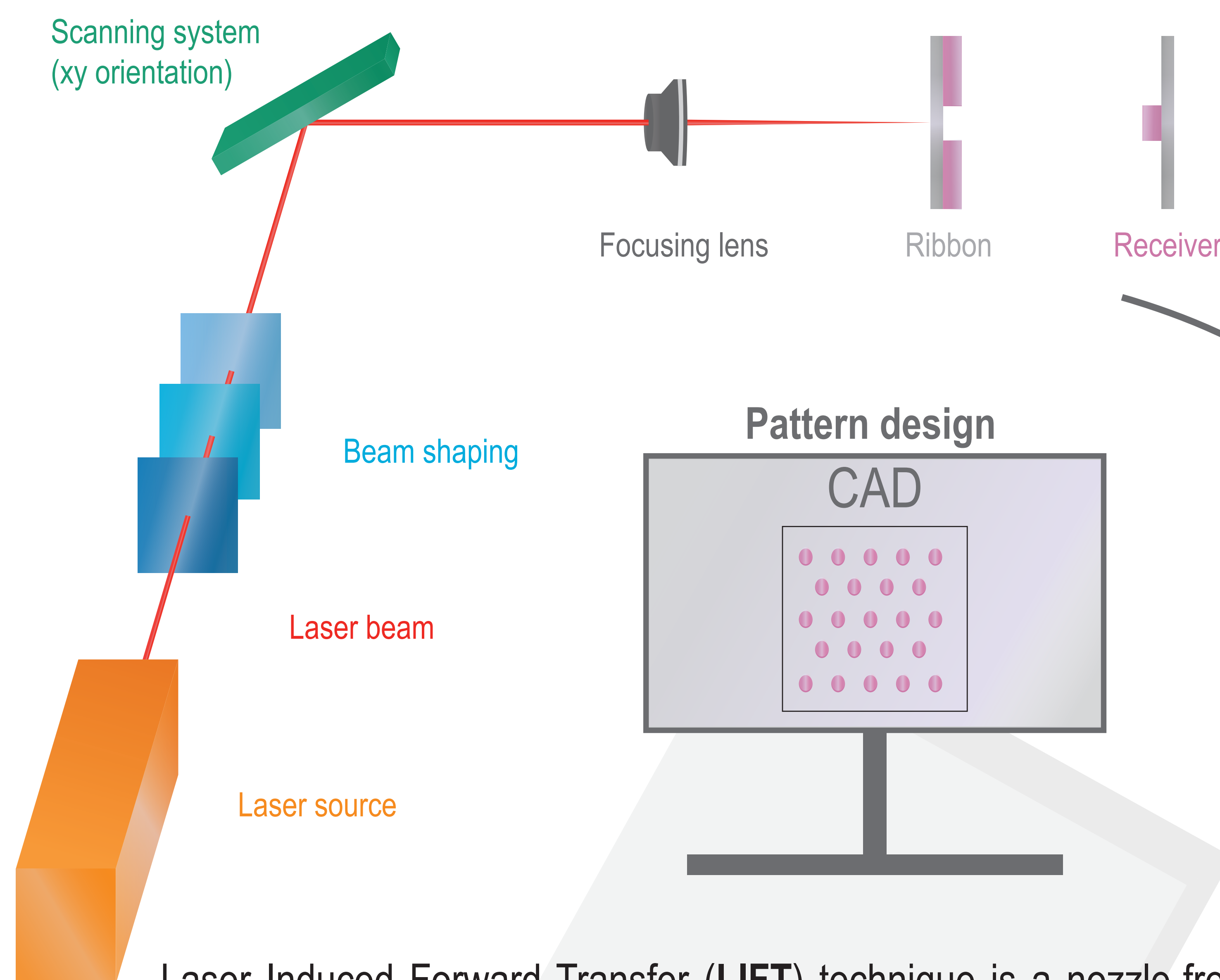


There is a need for better **representative** modeling platforms to target and test curative treatments for pathologies such as Osteoarthritis.



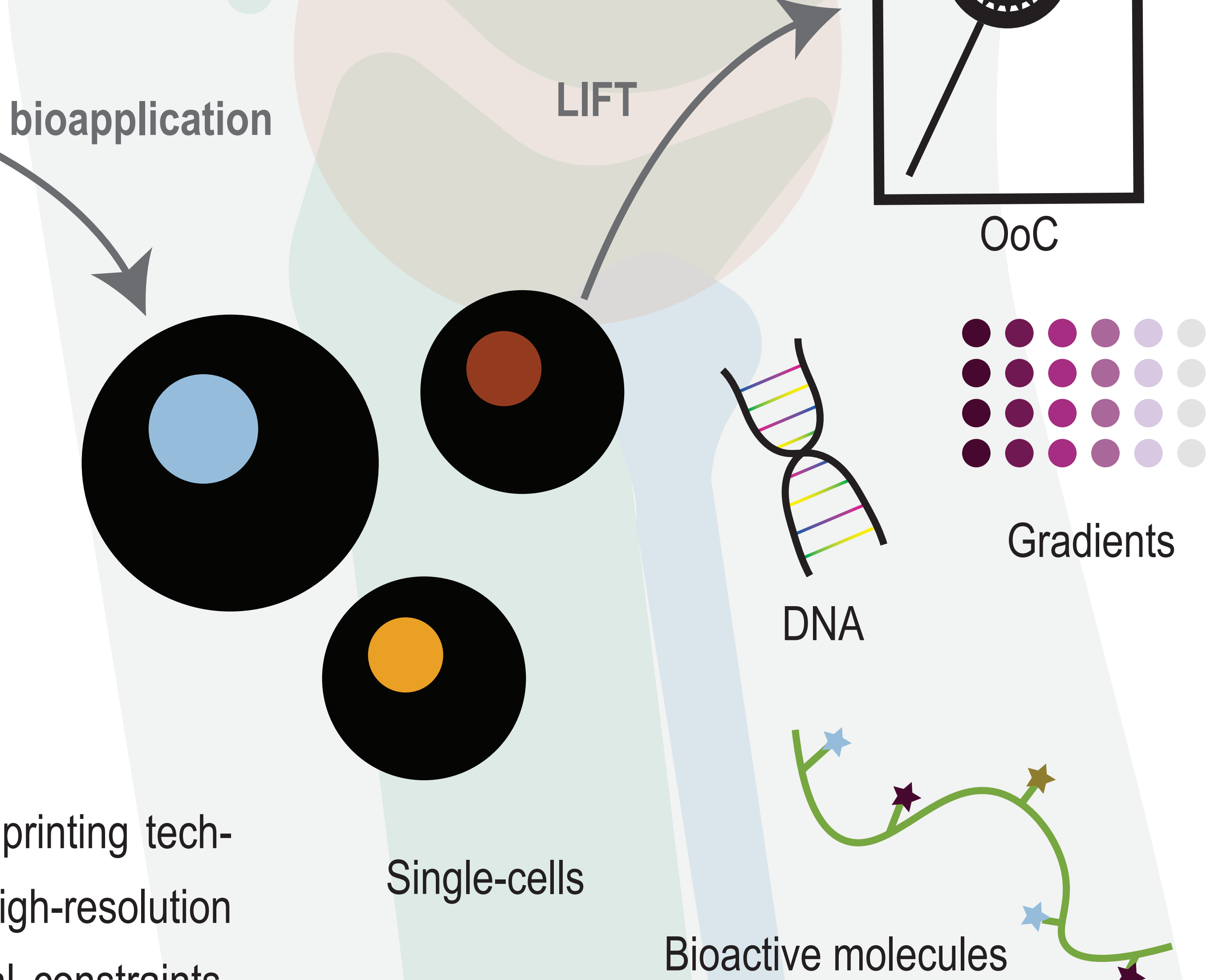
Organs-on-chips (OoC) are great alternatives candidates. However, current strategies in OoC **overlook the importance of microarchitecture** of a tissue to develop and study the cell-cell and cell-matrix interactions.

METHODS



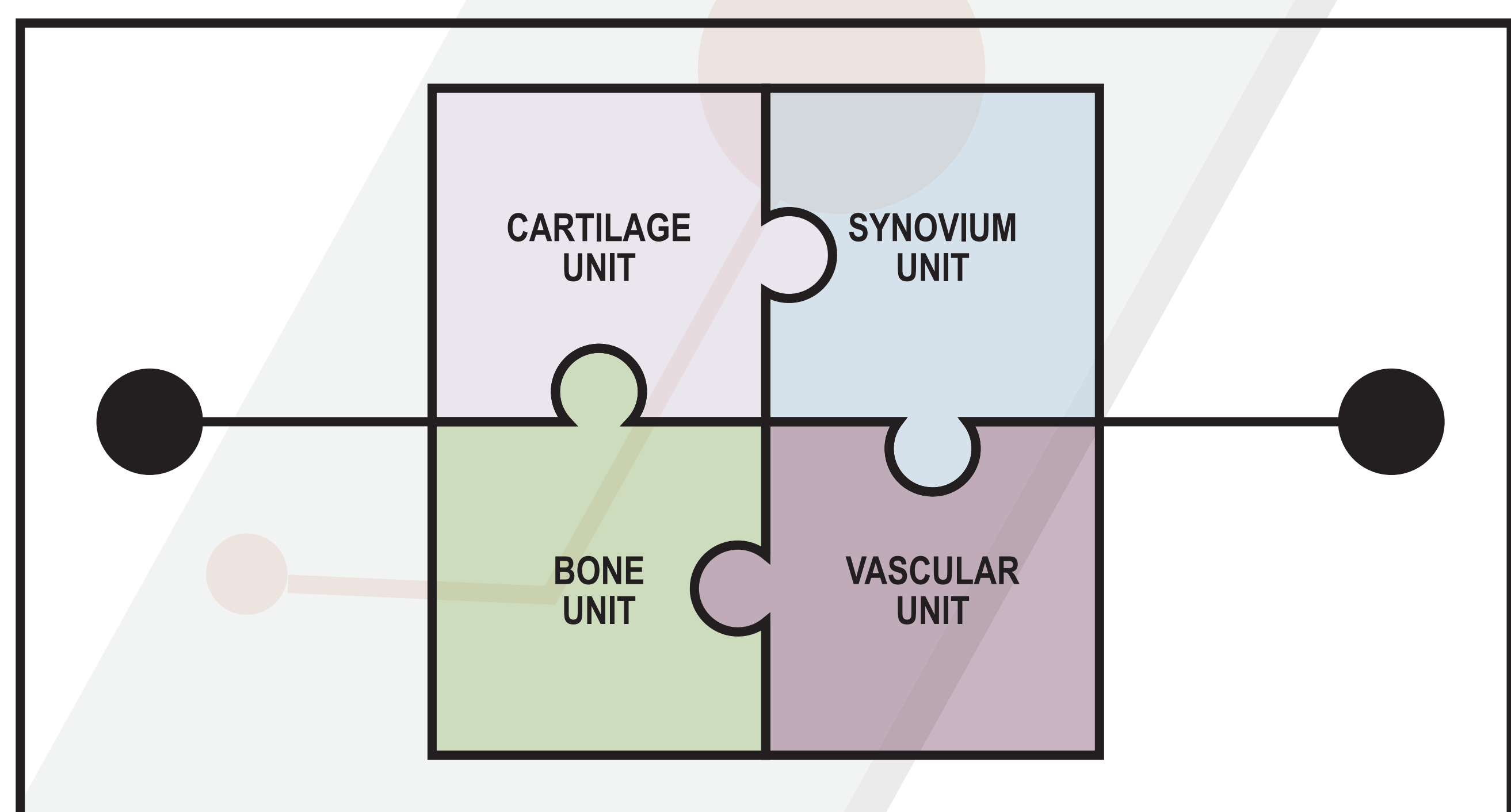
Laser Induced Forward Transfer (**LIFT**) technique is a nozzle-free printing technique that relies on thrusting donor material onto a receiver substrate. This high-resolution biofabrication tool preserves high-viability levels and has little to no material constraints.

Micro patterning single-cells, bioactive materials, biochemical and mechanical cues for the micro-environment tailoring in hydrodynamic systems:



RESEARCH GOAL

JOINT-ON-CHIP
HEALTHY DISEASED



TAILORED MICROARCHITECTURE
PATTERNED BIOCHEMICAL CUES
MECHANICAL ACTUATION

FUTURE PERSPECTIVES

