

Call: HORIZON-HLTH-2024-TOOL-11

(Tools and technologies for a healthy society (Single stage - 2024))

Topic: HORIZON-HLTH-2024-TOOL-11-02

Type of Action: HORIZON-RIA

(HORIZON Research and Innovation Actions)

Proposal number: 101191776

Proposal acronym: Kidney2Go

Type of Model Grant Agreement: HORIZON Action Grant Budget-Based

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Proposal ID **101191776**

Acronym **Kidney2Go**

1 - General information

Fields marked * are mandatory to fill.

Topic	HORIZON-HLTH-2024-TOOL-11-02	Type of Action	HORIZON-RIA
Call	HORIZON-HLTH-2024-TOOL-11	Type of Model Grant Agreement	HORIZON-AG

Acronym **Kidney2Go**

Proposal title **Large-scale bioprinting of kidney components (Kidney2Go)**

Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &

Duration in months **60**

Fixed keyword 1 **Tissue engineering**

Fixed keyword 2 **Regenerative medicine**

Fixed keyword 3 **Health-related biotechnology**

Fixed keyword 4 **Biomedical engineering**

Free keywords ***Femtosecond laser, two photon polymerization, bioprinted kidney, nephron-on-chip***

Abstract *

Kidney2Go mission is to revolutionize high-resolution high-speed regenerative tissue bioprinting by FemtoBrush technology, demonstrated by large-scale bioprinting of kidney tissue components.

Bioprinted regenerated tissue has the potential to replace or repair any diseased tissue in any complex disease. To fulfil this promise, bioprinting technologies first and foremost need to combine high-resolution with high-speed for large-scale bioprinting. Current bioprinting technologies, however, largely fall short in either resolution or speed.

Femtosecond lasers are trending in the field of bioprinting. Two photon polymerization, femtosecond laser based printing, is a cold process with minimal impact on biomaterials and different cell types during printing. Vital3D developed FemtoBrush bioprinting is based on 2PP with embedded spatial beam shaping technology. FemtoBrush technology allows to dynamically tune and improve resolution and throughput on demand during the printing, resulting in a fast, versatile, high-resolution printing. Kidney2Go thus considers FemtoBrush bioprinting as the missing link and future cornerstone in regenerative tissue printing.

Regenerative kidney tissue represents an unmet clinical need and offers an excellent opportunity to demonstrate Kidney2Go bioprinting technologies. Chronic (end-stage) kidney disease is associated with high morbidity and mortality, as current treatments fall short. The lack of donor kidneys for transplantation implies that most patients rely on dialysis as sole treatment option. But this treatment is expensive, cumbersome, and the bare minimum for patients to survive. Future treatment using bioprinting to replace damaged or lost kidney tissue may overcome these treatment gaps.

Remaining characters

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