

BIOPRINTING PROTOCOL FOR HUMAN NOSE WITHOUT CELLS

Overview: This protocol is a specific way to a human nose from a CT scan using CELLINK Start bioink.

Materials:

Human nose CT Scan at a scale of 50% of original size

Slic3r Software (v1.2.9)

CELLINK Start bioink

INKREDIBLE 3D Bioprinter by CELLINK

[Straight tip, 22 GA](#)

[Conical tip, 27 GA](#)

[Conical tip, 25 GA](#)

[Conical tip, 22 GA](#)

Protocol:

1. The first step is to upload the human nose CT image to the Slic3r software to create an STL file. Using Slic3r (v1.2.9), convert the 3D model to a bioprinting protocol and toolpath with the following parameters:
 - Layer height = 0.40mm
 - External perimeters extrusion width = 0.45mm
 - Perimeters = 1
 - Infill density = 30%
 - Infill Pattern = Rectilinear
 - Printing speed, F = 600mm/min

Upload the bioprinting protocol with the following name:

"Human_Nose_Scale50_LH04_Infill40_F600.gcode"

2. The following bioprinting parameters can be used with the INKREDIBLE 3D Bioprinter by CELLINK using the pneumatic-driven micro-extrusion technology.

- Printing pressure for PH1: 100-110 kPa (Nozzle: [Straight tip, 22 GA](#))
- Printing pressure for PH1: 50-60 kPa (Nozzle: [Conical tip, 27 GA](#))
- Printing pressure for PH1: 30-35 kPa (Nozzle: [Conical tip, 25 GA](#))
- Printing pressure for PH1: 25 kPa (Nozzle: [Conical tip, 22 GA](#))
- Printing speed: 600 mm/min
- Printhead temperature: Room temperature (22°C)
- Printbed temperature: Room temperature (22°C)

3. Bioprinting metrics

- a. Time for bioprinting: 6 minutes per construct
- b. Volume of bioink per construct: 1 mL

G-codes:

Human_Nose_Scale50_LH04_Infill40_F600.gcode

Further Information:

human nose.stl

References:

N/A