



Description

CELLINK® is the first universal bioink optimized for 3D Bioprinting of human tissues with any commercially available or in-house 3D Bioprinting system. As a polysaccharide hydrogel (non-animal derived), CELLINK® is ideal for 3D cell culturing due to its biocompatibility and ease of bioprinting. Simply stabilize the bioprinted construct with our cross-linking solution. CELLINK® can be utilized as base bioink with our novel **VASKIT** to develop vascularized tissues and you are well on your way to building tissue models within your lab!

Application

CELLINK® is intended for and has been used with a wide range of cell types. As the world's first universal bioink, it can be readily supplemented with tissue specific constituents and biomolecules to tailor its application toward nearly every target tissue or cell type. In particular, the biological functionality of CELLINK® has been evaluated extensively for tissue engineering applications, such as cartilage. In these cases, the maturation of human chondrocytes bioprinted with CELLINK® into neo-tissues has been studied on gene expression and protein levels. For example, CELLINK® bioink supports the synthesis of cartilage-specific extracellular matrix components by human chondrocytes. Additionally, the material has shown compatibility with skin and tumor engineering applications.

Storage

CELLINK® should be stored at 4°C. The shelf life of CELLINK® is 6 months. Ensure the cartridges are capped prior to storage to prevent drying.

Mixing with Cells

We suggest you mix CELLINK® with a high concentration of cells and bioprint everything in one run with one printhead. You can either mix the cells manually or use our revolutionary **STARTINK-Kit** with our **CELLMIXER**, which is specifically designed to simplify the mixing process and offers a homogeneous suspension with an increased cell viability.

Crosslinking

CELLINK® is simply crosslinked with our crosslinking solution containing CaCl₂. Once your construct has successfully bioprinted, apply enough droplets to cover the construct. A 5 minute incubation is sufficient for most bioprinted structures. After that time, remove the crosslinking solution and wash with PBS and replace with the desired cell culture media.

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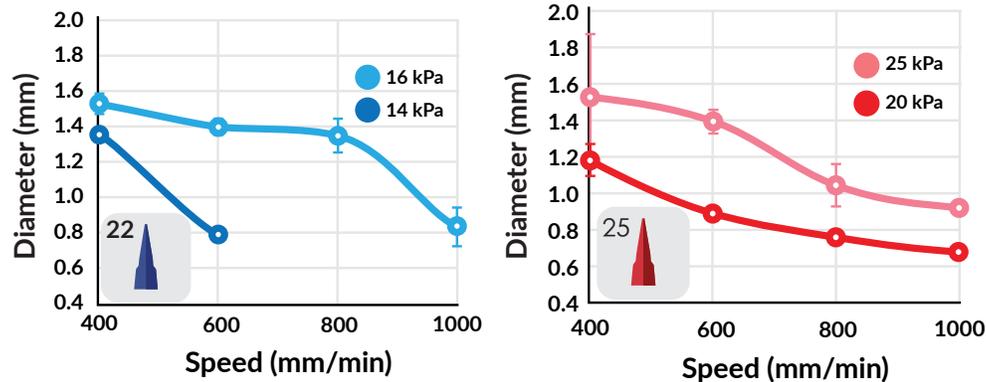
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Printing Parameters

For optimal printability we recommend you use the following parameters. Layer height should be set to equal to the nozzle inner diameter. Optimal printing temperature is from room temperature to 37 °C.



Printability Observations

CELLINK® can be considered an average nozzle fidelic bioink. This means that the resulting filament diameter may be larger in dimension to the nozzle it is extruded from. Due to this, it is recommended that CELLINK® is printed at faster translation rate and lower pressure, to result in the smallest filaments to maximum resolution. Due to the presence of the nanocellulose in CELLINK®, it is recommended that the smallest nozzle that is used is 25 gauge due to the elevated risk of clogging.

CELLINK® is not sensitive to the thermal environment during printing. It is recommended to print CELLINK® at room temperature but the bioink can also be printed at 37 °C if cells are blended into the bioink.

It is recommended that the nozzle be replaced if printing is paused for more than 10 minutes as CELLINK® may dry at the tip and clog the nozzle during inactivity.

A second printhead can be utilized with the BIO X syringe printhead or pneumatic head to dispense cross-linking solution during the bioprinting process to better control cross-linking kinetics and construct stability during the bioprinting of multiple constructs.

Additional Information

Use CELLINK® in conjunction with the **VASKIT** or **SUPPORT Kits** provided by CELLINK. This bioink makes an excellent bioink for the fabrication of a wide range of tissue types.

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