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Application Note

CELLINK SUPPORT

Description

CELLINK® SUPPORT is the first universal biomaterial thickener for the development of bioinks. CELLINK® SUPPORT has been optimized for blending with nearly every traditional 3D culturing material to enhance its viscosity and incorporate shear thinning characteristics. This allows CELLINK® SUPPORT to impart printability on nearly any biomaterial, greatly broadening the biomaterials that can be utilized as bioinks. CELLINK® SUPPORT is compatible with any commercially available or in-house 3D Bioprinting system. Additionally, CELLINK® SUPPORT can be utilized as a sacrificial bioink to support constructs with complex geometries.

Application

CELLINK® SUPPORT is intended for and has been used with a wide range of cell types. As a universal bioink thickener, it can supplement many traditional biomaterials, allowing wide application toward nearly every tissue target or cell type. Additionally, it can be utilized with biomaterials that crosslink through many modalities, such as ionic, photo-crosslinking such as UV or blue light, and self-assembly.

Storage

CELLINK® SUPPORT should be stored at four to eight degrees Celsius. The shelf life of unmixed CELLINK® SUPPORT is six months. The valid expiration date is always stated on the package. Shelf life after mixing will depend on what the user blends it with. Ensure the cartridges are capped prior to storage to prevent drying. Keep CELLINK® SUPPORT unfrozen – placing CELLINK® SUPPORT in the freezer risks impairing its printability.

Bioink Thickening

We suggest you mix CELLINK® SUPPORT with other biomaterials sufficiently to ensure uniform mixing. Either a dual syringe mixing technique or the CELLMIXER is recommended for blending. Ensure that the concentration of the biomaterial that is to be blended is the correct concentration to result in the desired final concentration after mixing.

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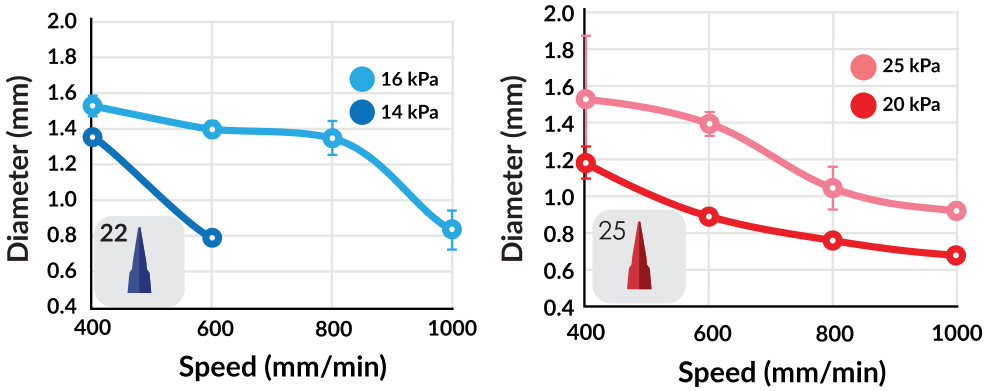
Crosslinking

CELLINK® SUPPORT does not crosslink as it is intended as a support material. However, CELLINK® SUPPORT can also be used as a sacrificial material. To remove, wash away gently with warm PBS.

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 degrees Celsius, where room temperature is between 20-25 degrees Celsius.



Printability Observations

CELLINK® SUPPORT 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® SUPPORT 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® SUPPORT, it is recommended that the smallest nozzle that is used is 25 gauge due to the elevated risk of clogging.

CELLINK® SUPPORT is not sensitive to the thermal environment during printing. It is recommended to print CELLINK® SUPPORT at room temperature but the bioink can also be printed at 37 degrees Celsius 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® SUPPORT may dry at the tip and clog the nozzle during inactivity.

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