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Application Note

CELLINK START

Description

CELLINK® START is our revolutionary polyethylene oxide-based bioink that is an excellent sacrificial bioink. CELLINK® START prints well through a wide range of nozzle shapes and diameters. This bioink can be utilized both for evaluation of construct geometry and for education and training purposes. CELLINK® START can be utilized as a sacrificial material for both structural support and for the generation of perfusable conduits networks that can act as a basis for vascular network formation. CELLINK® START is non-toxic and can be utilized in conjugation with a wide range of bioinks.

Application

The primary applications of CELLINK® START is as a support material for constructs that consist of complex geometries such as overhangs or irregular shapes that may require a temporary support. Additionally, it can be utilized as a sacrificial material for the incorporation of vascular networks within a construct. While CELLINK® START is non-toxic, it is recommended that the bioink is removed through washing with warmed PBS prior to cell culture or implantation.

Storage

CELLINK® START should be stored between four and twenty-five degrees Celsius. The shelf life of CELLINK® START is 24 months. Ensure the cartridges are capped prior to storage to prevent drying. Keep CELLINK® START unfrozen – placing CELLINK® START in the freezer risks impairing its printability

Mixing with Cells

It is not recommended to blend cells with CELLINK® START as it is intended for use as a sacrificial or support material.

Crosslinking

CELLINK® START is not crosslinkable as it is intended for use as a sacrificial or support material. To remove simply wash the bioprinted construct with warmed PBS to liquify the CELLINK® START and flush away from the construct.

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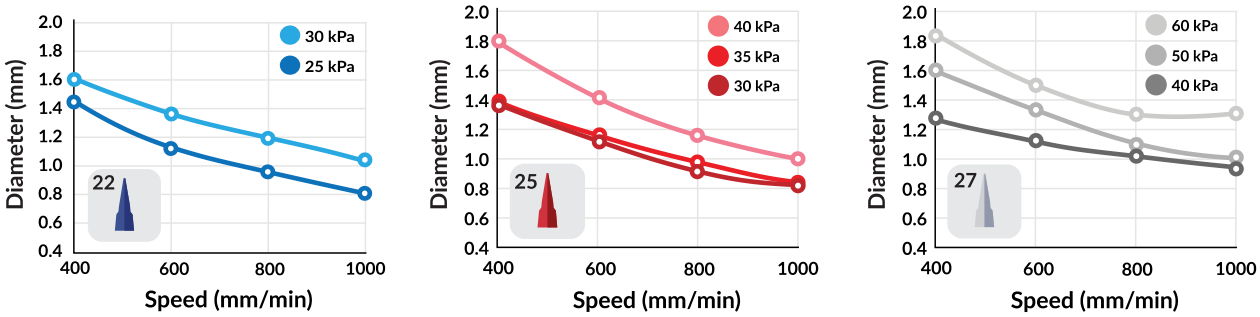
Printing Parameters

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 at room temperature, which is between 20-25 degrees Celsius.



Printability Observations

CELLINK® START can be considered a poor nozzle fidelic bioink. This means that the resulting filament diameter is can be larger than the inner dimension of nozzle it is extruded from. Due to this, it is recommended that CELLINK® START is printed at faster translation rate and lower pressure, to result in the smallest filaments. Because of this, CELLINK® START is recommended for use as support structures rather than a sacrifical material. For sacrificial networks, CELLINK® PLURONICS is recommended.

CELLINK® START is sensitive to the thermal environment during printing. It is recommended not to heat CELLINK® START beyond 25 degrees Celsius, as the viscosity of the bioink will decrease. Gently wash with warmed PBS solution to completely remove the CELLINK® START from the construct after printing. It is recommended that the nozzle be replaced if printing is paused for more than 30 minutes as CELLINK® START may dry at the tip and clog the nozzle during inactivity. If needed, CELLINK® START can be dyed to better visualize the filaments after deposition. This is recommended during printability observation or testing of vascular network generation codes.

Additional Information

This bioink plays a crucial role in the fabrication of tissue constructs from materials that may lack printability or require vascularization.

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