

## Specification Sheet

# GelMA HA

<b>Product description</b>	GelMA HA incorporates methacrylated hyaluronic acid into our CELLINK GelMA bioink. Ready-to-print and easily photocrosslinked through photoinitiator activation (LAP at 0.25%). Recommended for use with BIO X, a temperature-controlled printhead and a heated print bed. For description on how to mix with cells, bioprint and crosslink, follow the <b>Bioprinting Protocol</b> .
<b>Intended use</b>	Biocompatible material for 3D bioprinting, <b>Research Grade</b> . For research use ONLY. Not intended for <i>in vitro</i> diagnostics or <i>in vivo</i> uses. Not intended for administration in humans or animals. Produced under sterile and aseptic conditions.
<b>Product number</b>	IK3HA001
<b>Shelf life</b>	3 months, expiration date stated on package.
<b>Storage and handling</b>	Store at 4-8°C. DO NOT FREEZE. Avoid temperature fluctuations. Ensure that the bioink container is capped prior to storage to prevent drying.
<b>Safety</b>	Handle in accordance with good hygiene and laboratory safety practices. Read <b>Safety Data Sheet</b> for more information regarding ingredients and potential hazardous compounds.
<b>Related documents</b>	Bioprinting Protocol as well as Safety Data Sheet can be downloaded from our website <a href="https://cellink.com/product/gelma-ha/">https://cellink.com/product/gelma-ha/</a> or scan the QR code below.



Property	Specification	Method
<i>Appearance</i>	Clear amber gel	Visual inspection.
<i>Sterility</i>	Sterile	Tested for the presence of bacteria, fungi and yeast.
<i>Endotoxin level</i>	<50 EU/mL	Limulus Amoebocyte Lysate assay, Pharmacopoeia 2.6.14 "Bacterial endotoxins": Method D, accredited by SWEDAC. Accreditation Certification 1240: ISO 15189, 2010-11-22.
<i>Cell viability</i>	≥75% live cells	3D cell culture performed with mesenchymal stem cells for 7 days. Based on routine QC performed every fourth month.
<i>pH</i>	7.4	Assessed with pH meter.
<i>GelMA degree of methacrylation</i>	45-55%	<sup>1</sup> H NMR performed at room temperature, acquired with a spectral width of 8013 Hz, or 16 ppm, averaged over 64 scans using 64K time domain points. Acrylate peaks present at 5.4 and 5.6, methyl at 1.9 ppm.
<i>HAMA degree of methacrylation</i>	10-30%	<sup>1</sup> H NMR performed at room temperature, acquired with a spectral width of 8013 Hz, or 16 ppm, averaged over 64 scans using 64K time domain points. Acrylate peaks present at 5.6 and 6.0, methyl at 1.8 ppm.
<i>Viscosity</i>	1-100 Pa·s	Tested using rotational 20 mm plate-plate HR-2 TA Instruments Rheometer. Flow sweep parameters: shear rate from 0.002 s <sup>-1</sup> to 500 s <sup>-1</sup> , 26°C.
<i>Gelation temperature</i>	24-28°C	Tested using rotational 20 mm plate-plate HR-2 TA Instruments Rheometer. Temperature sweep from 40°C-15°C, at 1% strain and 10 rad/s angular frequency.