materials

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Supplementary Materials

Architecture-Promoted Biomechanical Performance-Tuning of Tissue-Engineered Constructs for Biological Intervertebral Disc Replacement

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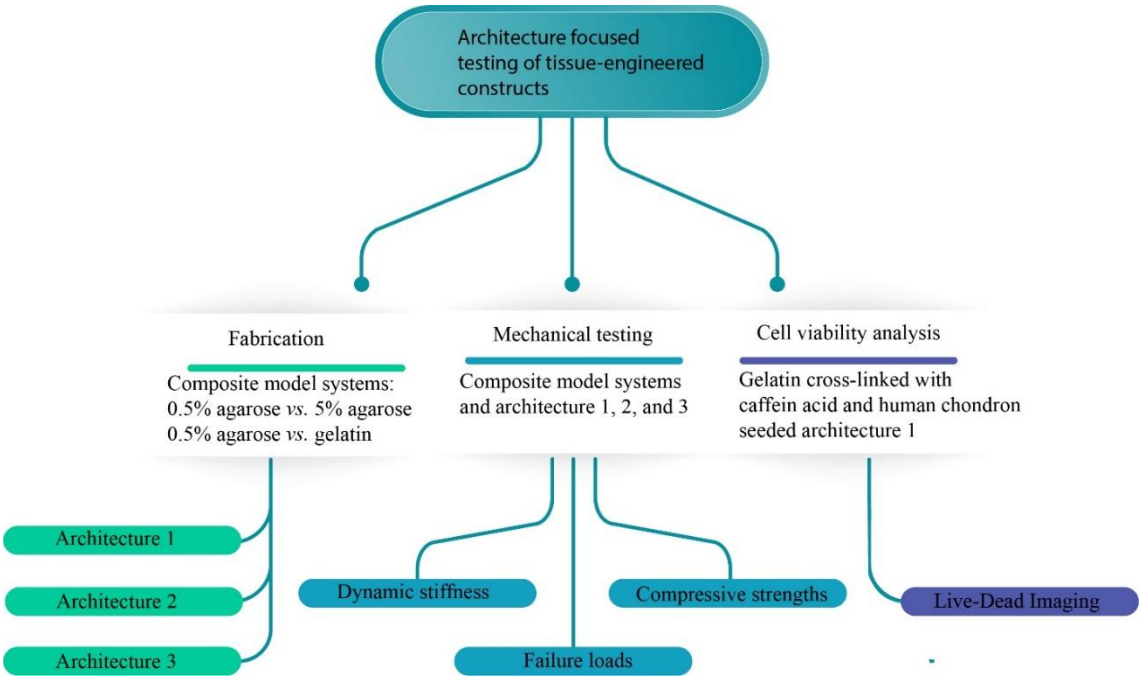

Figure S1. Experimental Setup.

Table S1. Composition of the 3D-life hydrogel.

Solution	Concentration	Volume [µL]
H_2O		1.5
buffer solution (pH 5.5)		2.5
mal-Dextran		5
SH-peptide		10
cell suspension	$16x10^6$ cells mL^{-1}	5
PEG-Link		6

Table S2. Composition of the reagents for the 3D-life hydrogel.

Reagent	Composition
Mal-Dextran	30 mmol L^{-1} maleimide groups on dextran 5 mmol L^{-1} phosphate buffer
PEG-link	20 mmol L^{-1}thiol groups on PEG
buffer (pH = 5.5)	10 g L^{-1} glucose 0.5 mol L^{-1} 2-(N-morpholino)ethanesulfonic acid (MES) 0.05 mol L^{-1} K Cl 1.1 mol L^{-1} NaCl 0.2 mol L^{-1} NaH_2PO_4 0.2 g L^{-1} phenol red pH-adjusted with HCl
cell suspension	chondrons in PBS (16×10^6 cells mL^{-1})
water	H_2O (cell biology grade)

Table S3. Composition of the chondrocyte cultivation medium.

Solution	Supplier	Concentration [mg/mL]	Volume [mL]
Ham's F12 Nutrient Mix GlutaMax™	Life technologies		250
DMEM high glucose Gluta-Max™	Life technologies		250
Fetal Calf Serum (FCS)	BioChrom		50
Penicillin/Streptomycin	SigmaAldrich		10
Fungizone antimycotic	Life technologies		6
L-Ascorbic acid 2-phosphate sesquimagnesium salt hydrate	SigmaAldrich	25	0.5

Table S4. Composition of the digestion solution for chondron isolation.

Solution	Supplier	Concentration [u/mL]	Volume [mL]
Dispase 2	Roche	2.4	8
Collagenase P	Roche	1.5	2

Table S5. Composition of the digestion solution for chondrocyte isolation.

Solution	Supplier	Concentration [u/mL]	Volume [mL]
Dispase 2	Roche	2.4	8
Collagenase XI	SigmaAldrich	1500	2
Chondrocyte medium			8