

SUPPORTING INFORMATION

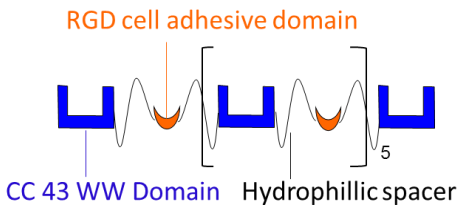
Quantitative criteria to benchmark new and existing bio-inks for cell compatibility

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MGSSHHHHHSSGLVPRGSSSGHIDDDDKVDGT[**RLPAGWEQRMD**
VKGRPYFVDHVTKSTTWEDPREPR]GTLDEL[AGAGAGPEG]₂**RGDS**
AGPEG[AGAGAGPEG]₂ELLDGT([**RLPAGWEQRMDVKGRPYFVDHV**
TKSTTWEDPREPR]GTLDEL[AGAGAGPEG]₂**RGDS**AGPEG[AGAGAG
PEG]₂ELLDGT)₅[**RLPAGWEQRMDVKGRPYFVDHVTKSTTWEDPRE**
PE]GTLE

Figure S1: Schematic (left) and amino acid sequence (right) of C7 component of RAPID ink. The cell-adhesive RGDS peptide is labeled in orange, the CC43 WW domain is labeled in blue, and the hydrophilic spacer is labeled in black. The CC43 WW domain sequence was first reported in Russ, et al. [50].

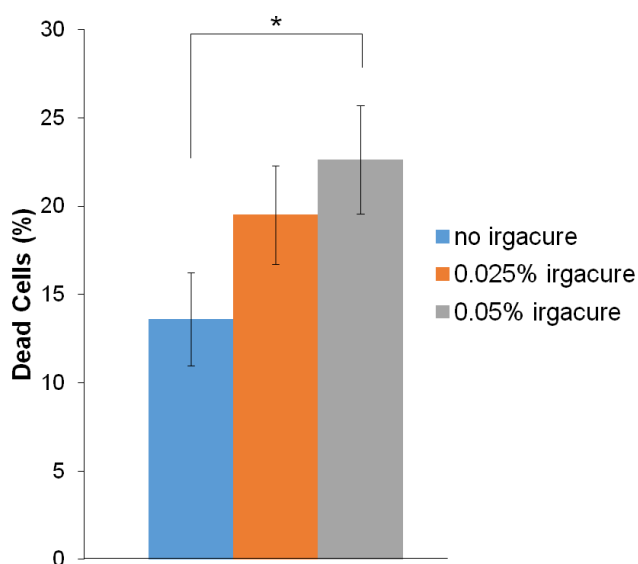


Figure S2: Quantified cell death of 3T3 cells encapsulated in PEDGA bio-ink with xanthan gum thickening agent (PEGDA + XG) after exposure to either Irgacure 2959 or no Irgacure for 1 hour without light exposure.

Sample	Peptides/chain
RAPID-high	37
RAPID-med	14
RAPID-P2	9

Table S1: Peptide conjugation to RAPID component 2. Average number of P1 (RAPID-high and RAPID-med) or P2 (RAPID-P2) peptides covalently tethered to alginate, as determined by BCA assay.

Material	60 $\mu\text{L}/\text{min}$	75 $\mu\text{L}/\text{min}$
PEGDA + XG	3.5	5.0
PEGDA + Alg	3.5	6.5
GELMA	10.0	12.0
RAPID-high	2.5	5.0
RAPID-med	2.5	5.0
RAPID-P2	2.5	5.0

Table S2: Printing pressures (PSI) required to maintain an average bio-ink flow rate of 75 or 60 $\mu\text{L}/\text{min}$.

Material	Viscosity ($\text{Pa}\cdot\text{s}$)
PEGDA	0.01 ± 0.002
PEGDA + XG at 23°C	2.8 ± 0.4
PEGDA + Alg at 23°C	0.6 ± 0.1
GelMA at 37°C	780 ± 120
RAPID-high at 23°C	3.6 ± 1.0
RAPID-med at 23°C	2.6 ± 0.4
RAPID-P2 at 23°C	2.4 ± 0.8

Table S3: Viscosity data for various bio-inks.