Supporting Information

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Designing inherently photodegradable cell-adhesive hydrogels for 3D cell culture

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Figure S1. $^1$H NMR (400 MHz, D$_2$O) spectrum of sodium phenyl(2,4,6-trimethylbenzoyl) phosphinate.

Figure S2. (A) Chemical modification of gelatin to GelMA. (B) Degree of Functionalization (DoF) determined by TNBSA assay. (C) $^1$H NMR (400 MHz, D$_2$O, 315 K) spectra of unmodified gelatin and GelMA of different DoF (low, medium, high).
**Figure S3.** Mechanism of photodegradation of methacrylate-based hydrogels (L. Li, J. M. Scheiger, T. Tronser, C. Long, K. Demir, C. L. Wilson, M. A. Kuzina, P. A. Levkin, *Adv. Funct. Mater.* 2019, 29, 1902906).

**Figure S4.** UV/Vis spectra of GelMA solution in PBS and used media (+FCS/+PR, +FCS/-PR, -FCS/+PR and -FCS/+PR).
**Figure S5.** Rheological behavior of Gel-N10 samples: before irradiation and irradiated for 3 and 7 minutes.

**Method description:** The tests were conducted on the strain-controlled rheometer ARES G2 (TA Instruments, Eschborn, Germany). The samples of composition Gel-N10 (the same chosen for cell culture tests) were prepared in the cylindrical mold with the diameter of 12 mm and swollen in PBS for 24 hours. For the test 3 samples were chosen: 1) not irradiated, 2) after 3 minutes of irradiation, 3) after 7 minutes of irradiation. The diameter after swelling was ca. 20 mm and did not significantly change after irradiation. The test geometry was a 20 mm diameter plate of aluminum, and a constant axial force of 0.5 N was applied. The fixed value of strain of $\gamma_0 = 0.1\%$ was chosen to be representative to the viscoelastic regime and the frequency was varied from $\omega = 0.1$ to 100 rad s$^{-1}$. 