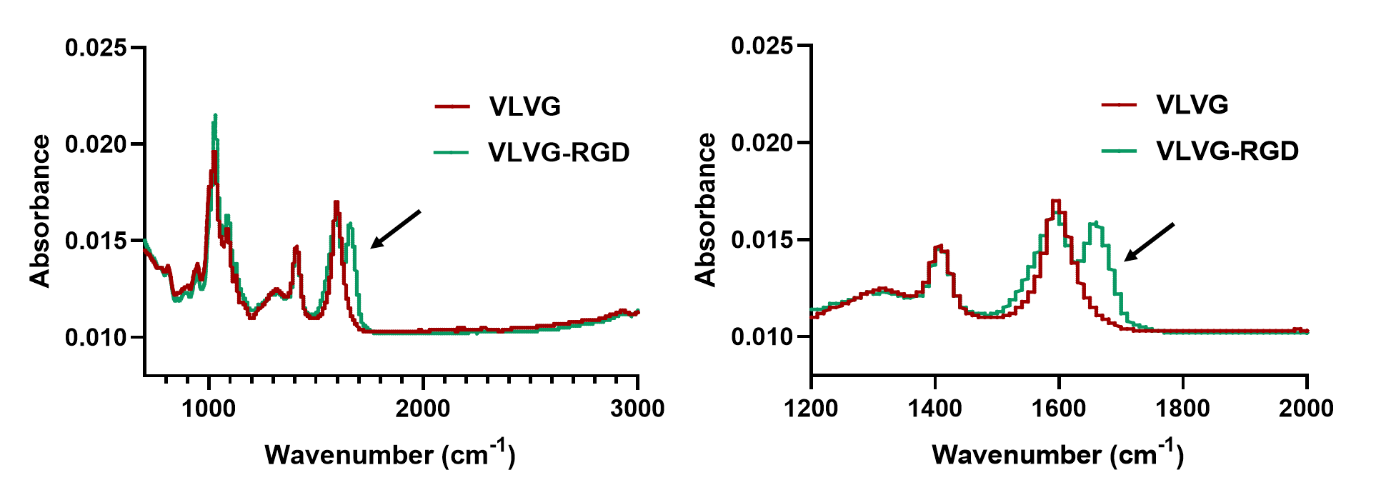
**Supplementary Information**

**Fourier Transform Infra-Red Spectroscopy (FTIR) analysis**

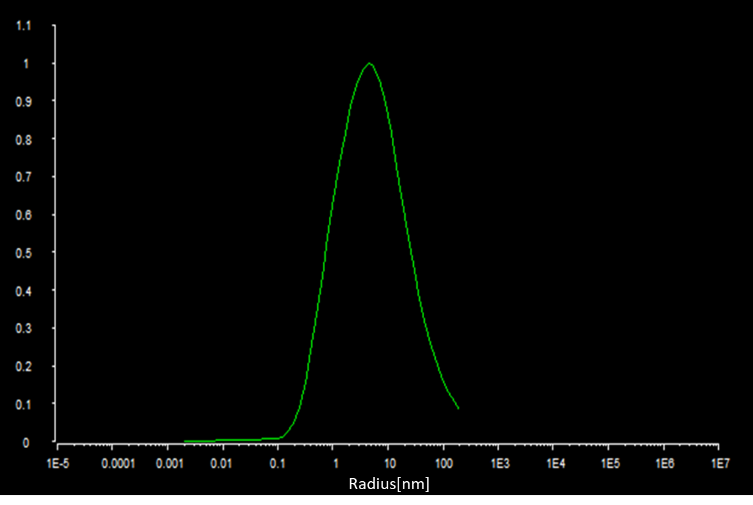
In the current study alginate-RGD was used. Its FTIR spectra confirming the presence of peptide bonds are shown in Figure S1. For FTIR analysis, alginate-VLVG and RGD-modified alginate-VLVG samples were prepared as thin films to verify the conjugation of the RGD peptide to the alginate chains. Measurements were performed in transmission mode on a Nicolet IS10 infrared spectrometer. The FTIR spectrum was taken in the range of 400–3000 cm−1 by collecting and averaging 32 spectra at a resolution of 4 cm−1.

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**Figure S1**: Analysis of the FTIR spectra of RGD-immobilized and unmodified alginate-VLVG confirms the presence of 1660 cm−1 band characteristic for peptide bond.

**Size and size distribution of the CaCl2 nanoparticles in canola oil**

Dynamic light scattering (DLS) was used to examine the size and size distribution of the CaCl2 nanoparticles formed after evaporation of the ethanol phase in canola oil with a CGS-3 instrument (ALV; Langen, Germany). Undiluted, as well as diluted, samples (2 and 4 times with oil containing SPAN80) were analyzed by scattered laser light (He–Ne laser, 20 mW, 632.8 nm) and detected under an angle of 90°, 20 times for 10s at 25°C. Refractive indices of 1.474 and 1.520 were used for the oil and the CaCl2, respectively. Correlograms were calculated by an ALV/LSE 5003 correlator and fitted with a version of the program CONTIN. The results are shown in Figure S2.



**Figure S2:** Size distribution of CaCl2 nanoparticles in canola oil containing 6% (w/w) of Span-80, which was used as a collecting bath, measured by DLS.

**Viscosity measurements**

Viscosities of a 0.5% (w/v) VLVG-alginate-RGD aqueous phase with and without 1.7% (w/v) gelatin were measured with a stress control rheometer (TA Instruments, model AR 2000) that was operated in the cone-plate mode with a cone angle of 1° and a 66-mm diameter. The apparent viscosities (Pa\*s) were assessed at different shear rates from 0.1 to 100 s−1. The measuring device was equipped with a temperature control unit (Peltier plate, ±0.05°C) operated at 25°C. The results are shown in Figure S3.



**Figure S3:** Viscosity of 0.5% (w/v) alginate-RGD aqueous phase with and without 1.7% (w/v) gelatin.