

Table S1. Storage moduli of polymer solutions (G'_p) and polymer-mucin mixtures (G'_t) measured at 1 Hz frequency and calculated interaction parameter ($\Delta G'$). Data were reported as the mean \pm SD (n = 3).

| Samples | G'_p (Pa) | G'_t (Pa) | $\Delta G'$ (Pa) |
|------------------------|----------------|----------------|------------------|
| P407 | 6700 \pm 400 | 6400 \pm 200 | -400 \pm 200 |
| P407/PRO ₁₀ | 5500 \pm 300 | 4100 \pm 500 | -1400 \pm 700 |
| P407/PRO ₁₅ | 6200 \pm 100 | 3900 \pm 300 | -2200 \pm 200 |
| P407/PRO ₂₀ | 6000 \pm 100 | 2700 \pm 500 | -3300 \pm 500 |
| P407/KEL ₁₀ | 6000 \pm 200 | 4000 \pm 200 | -2000 \pm 300 |
| P407/KEL ₁₅ | 5400 \pm 300 | 3600 \pm 500 | -1900 \pm 400 |
| P407/KEL ₂₀ | 4100 \pm 300 | 2200 \pm 600 | -2000 \pm 800 |
| P407/MAN ₁₀ | 6200 \pm 400 | 4300 \pm 100 | -1900 \pm 500 |
| P407/MAN ₁₅ | 5500 \pm 200 | 3000 \pm 700 | -2600 \pm 800 |
| P407/MAN ₂₀ | 5100 \pm 300 | 3000 \pm 500 | -2100 \pm 800 |

P407: poloxamer 407; PRO: Protanal LF 10/60; KEL: Keltone LVCR; MAN: Manucol DH.

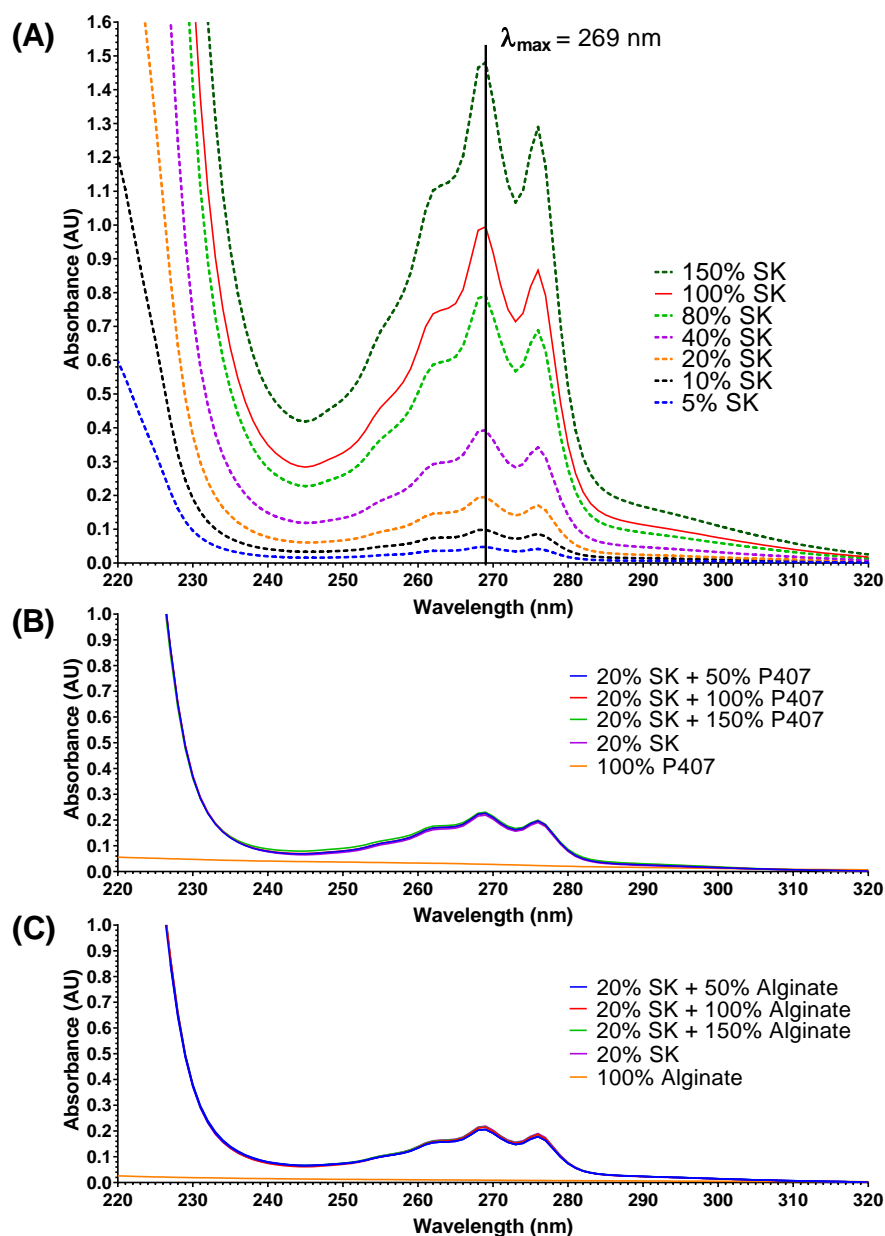


Figure S1. (A) UV spectra of (*S*)-ketamine hydrochloride (SK) at various concentrations expressed as percentages of the maximal concentration awaited during dissolution testing (“100% SK” = 0.52 mg/mL). **UV spectra of (B)** P407, SK and SK/P407 mixtures, **(C)** alginate, SK and SK/alginate mixtures. Different proportions of excipients were studied (100% corresponding to the total release of excipient) with a constant concentration “20% SK” (0.10 mg/mL).