Supporting Information

The influence of cobalt ions on collagen gel formation and its interaction with osteoblasts

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Circular Dichroism: Circular dichroism of CoCol gels in the liquid phase at concentrations of 0ppm, 35ppm, 67ppm, 133ppm and 200ppm showed a decrease in ellipticity with the addition of cobalt. This depletion is similar to that of denatured collagen type I, suggesting that the presence of cobalt destroys the triple helix of collagen.

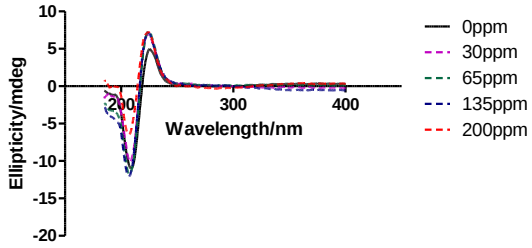

Figure S1: Circular dichroism of CoCol gels, potentially indicating that cobalt ions interfere with the triple helix formation of collagen fibrils

D-Spacing: AFM images were acquired of CoCol gels and the D-Spacing was measured. There is a trend indicating a decrease in D-spacing with the addition of cobalt ions into the collagen matrix, as shown in Table 1. This seems to show that the cobalt ions influence the collagen formation prior to the fibril formation stage.

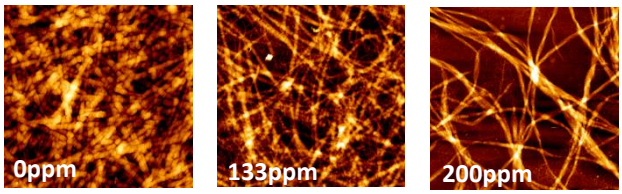

Figure S2: AFM images of 1 mg mL^{-1} collagen with added cobalt ions depicting the change in D spacing.

	Average Banding (nm)	Error (nm)
0ppm	66.44859	± 2.401994
135ppm	60.77065	± 3.707166
200ppm	60.71429	± 5.707685

Table S1: Decrease in average D-spacing of collagen when cobalt ions are present.

Fibrillogenesis: Turbidity results, including error bars, gave evidence of an increase in collagen matrix heterogeneity with an increase in cobalt concentration due to the increased levels of variance within the data set.

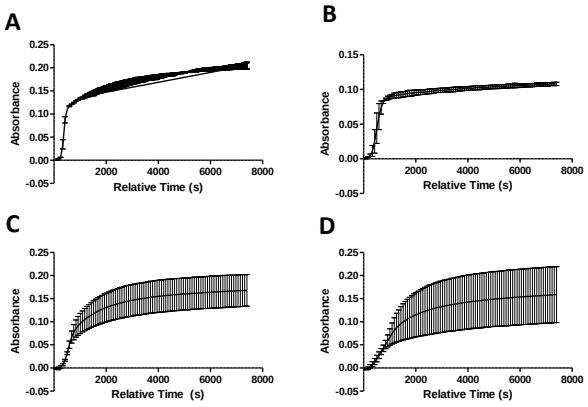

Figure S3: Turbidity results with error bars at cobalt concentrations of 0ppm (A), 67ppm (B), 133ppm (C) and 200ppm (D). Increase in variation is indicative of an increase in collagen heterogeneity