

Supplemental Fig. 1A

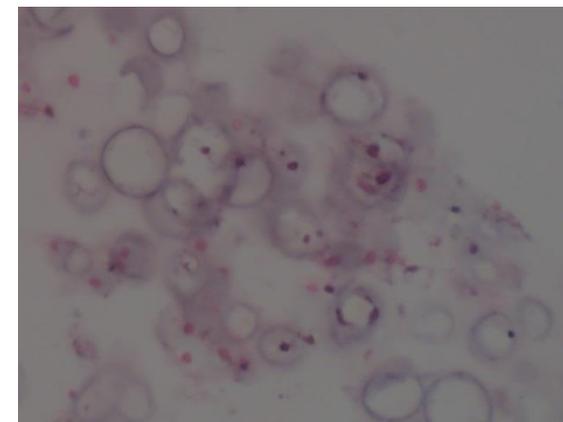
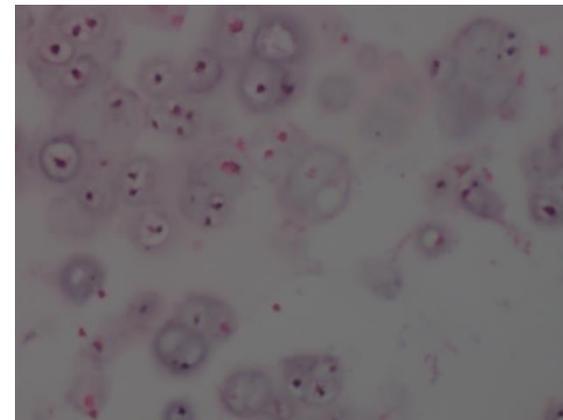
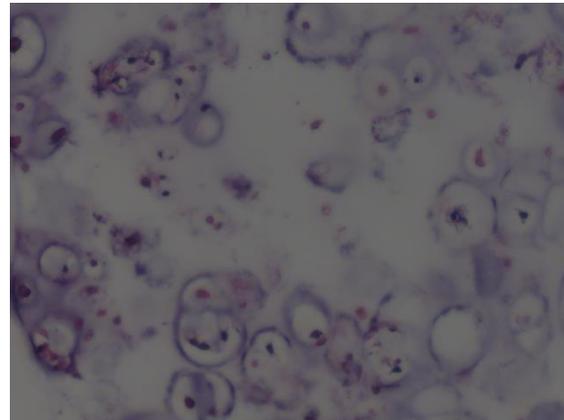
H&E

ECM

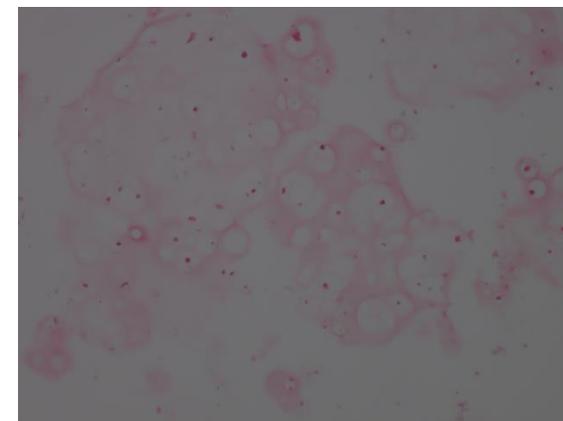
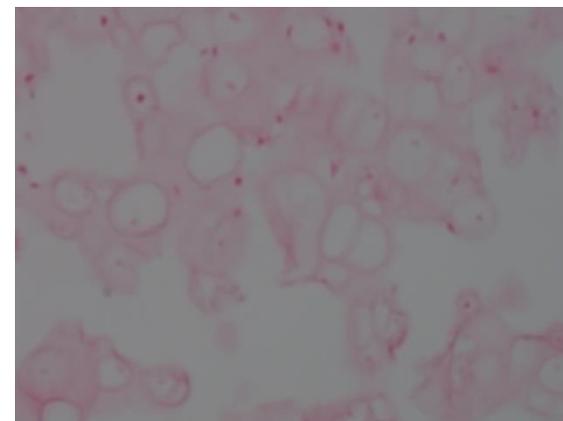
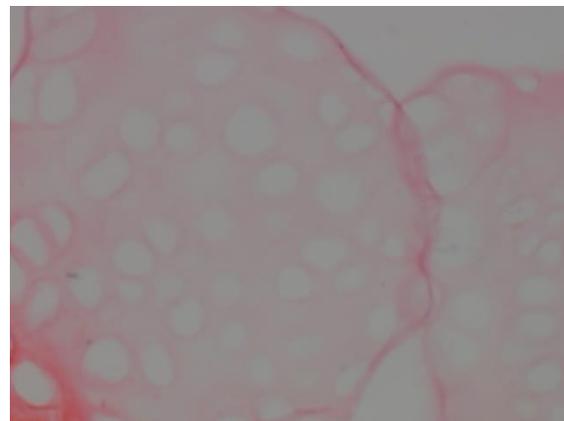
IPN (SMS)

SMS bottom

LhCG+



dLhCG+



Supplemental Fig. 1B

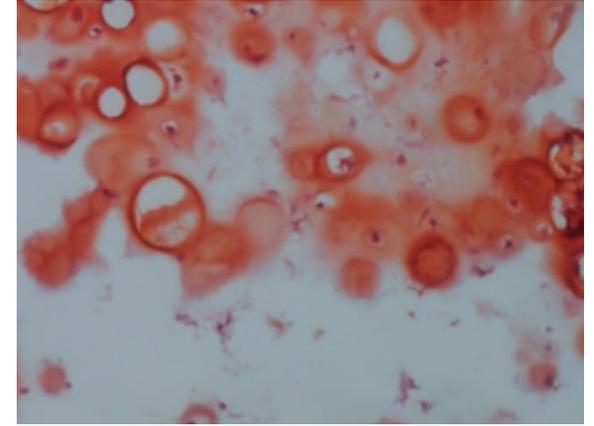
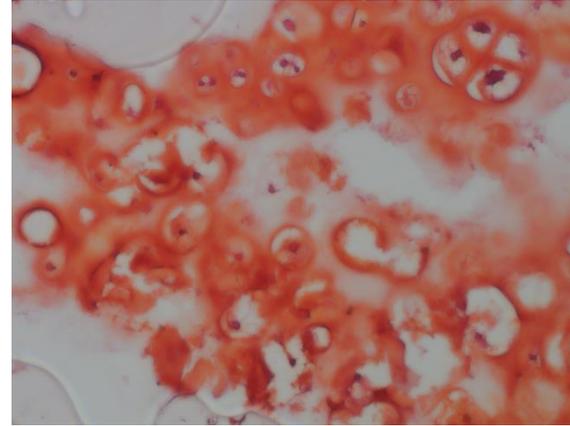
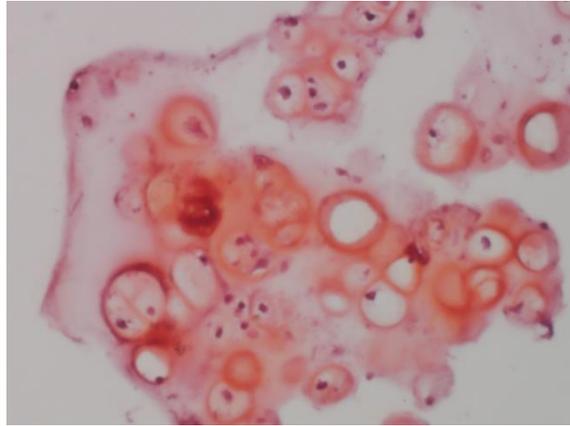
Saf O

ECM

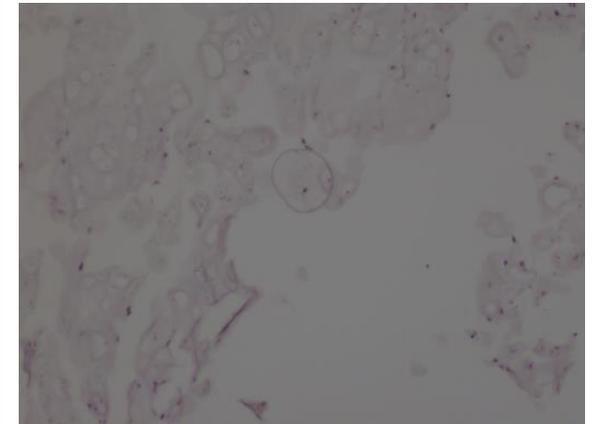
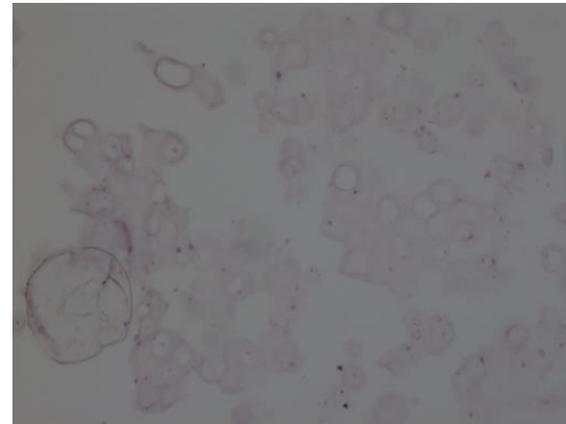
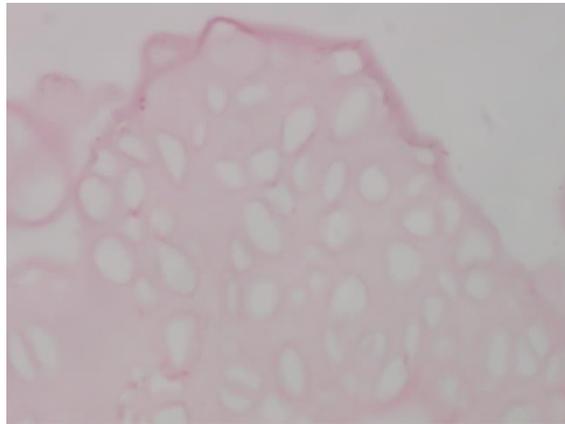
IPN (SMS)

SMS bottom

LhCG+



dLhCG+



Supplemental Fig. 1C

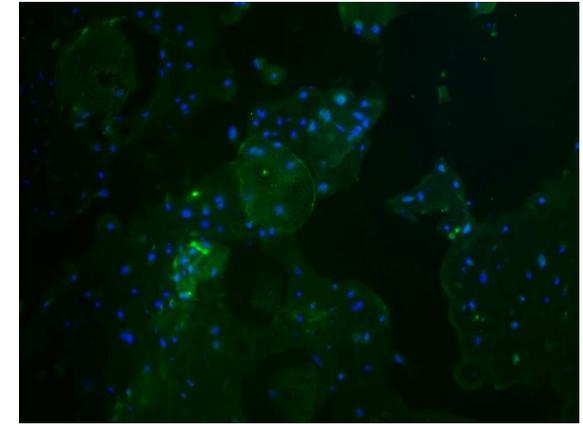
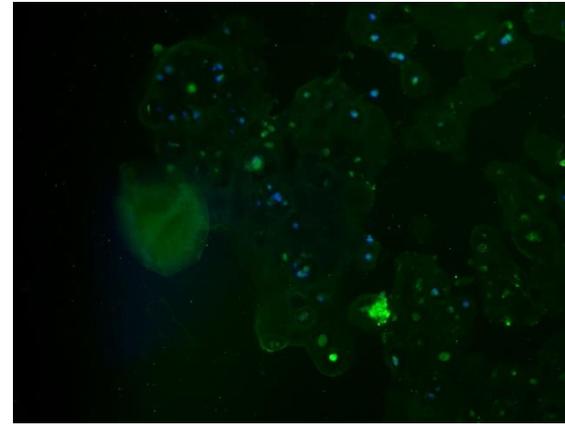
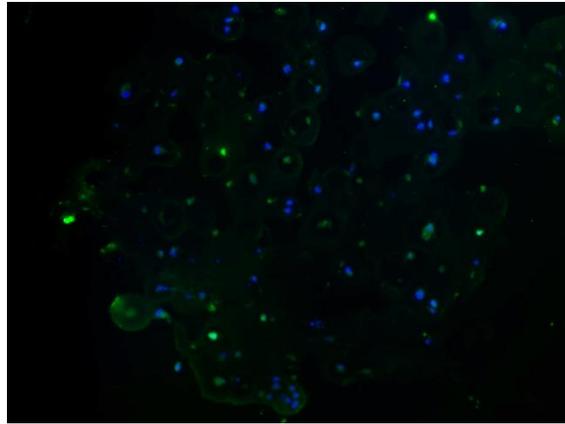
Col I
IHC

ECM

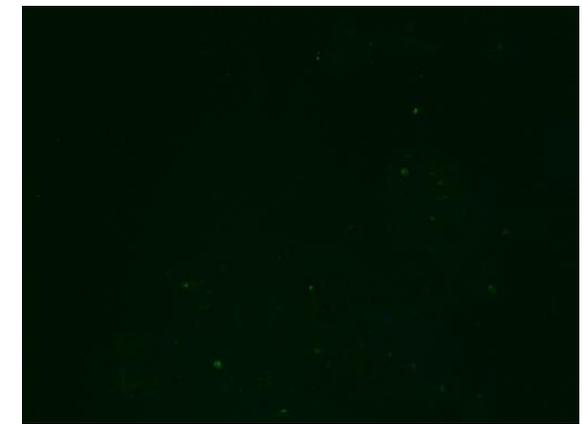
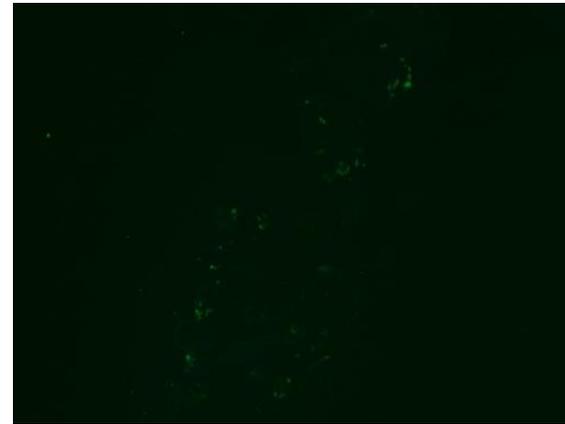
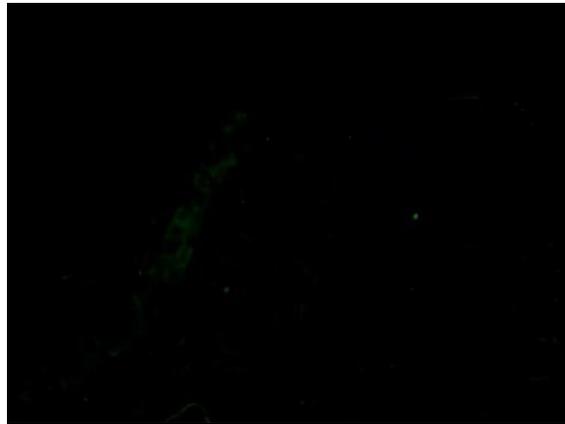
IPN (SMS)

SMS bottom

LhCG+



dLhCG+

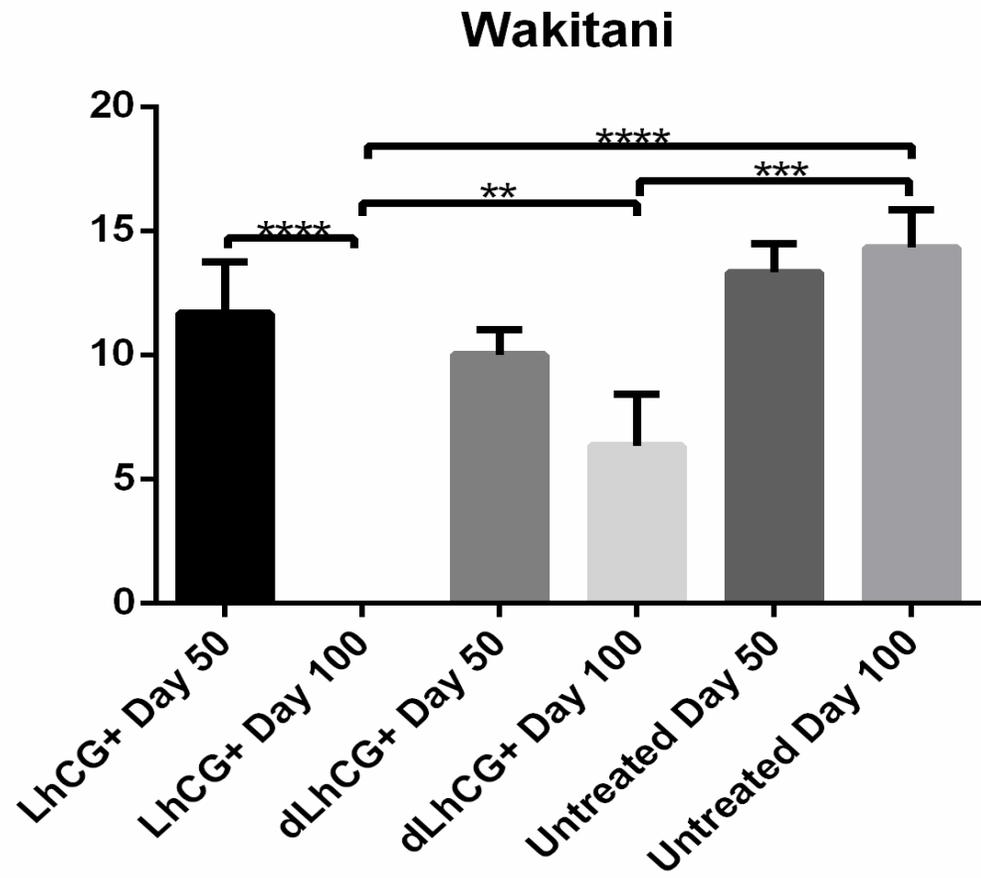


Supplemental Figure 1.

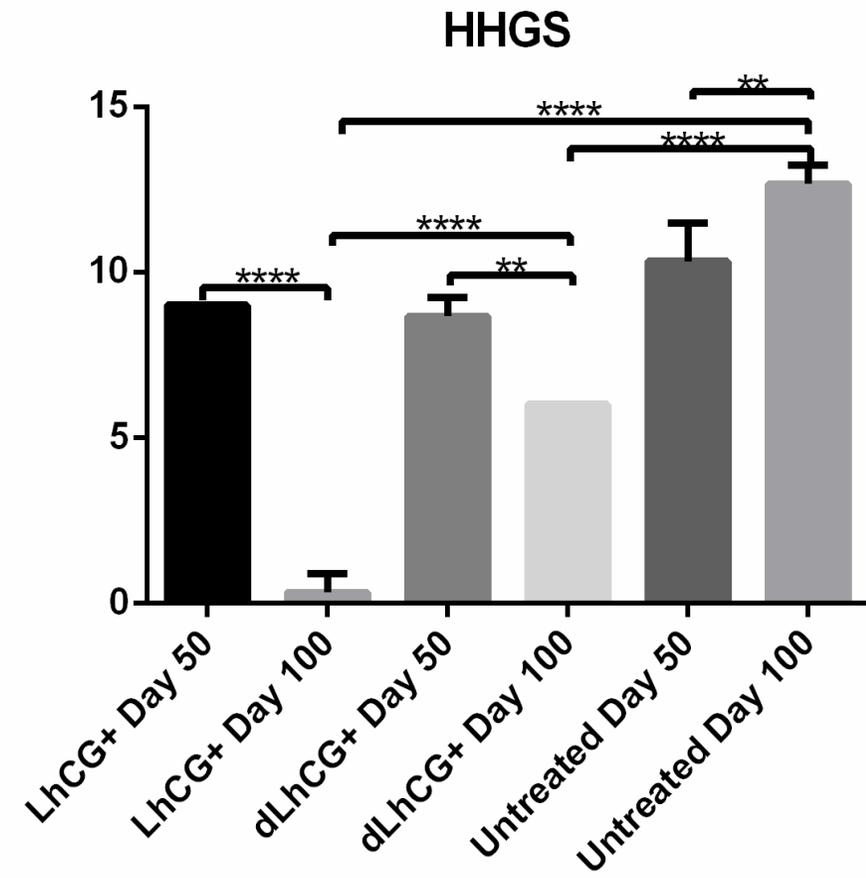
In vitro histology of LhCG+ and dLhCG+ A) with hematoxylin and eosin, B) Safranin O and C) immuno-histochemical staining using primary antibody of Type I collagen. The positive staining of hematoxylin stains nucleus into a purple colour. The positive staining of eosin stains extracellular matrix into pink colour. The positive staining of safranin O stains the glycosaminoglycan into a red colour. The positive immunohistochemical staining of Type I collagen emits green fluorescence. The positive staining of 4',6-diamidino-2-phenylindole emits blue fluorescence

Supplemental Figure 2

A



B



Supplemental Figure 2.

The histological scores are based on both Histological Histochemical Grading System (HHGS) and Wakitani scoring system. A low score (min. 0; max. 14) defines a native-like cartilage tissue with full thickness defect filling and good integration with adjacent host cartilage. (*) indicates statistical significance ($p < 0.05$); ** indicates $p \leq 0.01$, *** indicates $p \leq 0.001$.

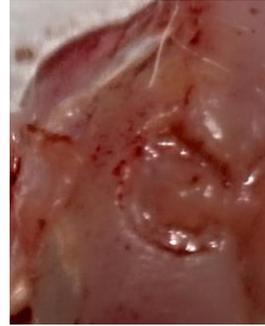
Supplemental Figure 3

A. dLhCG+

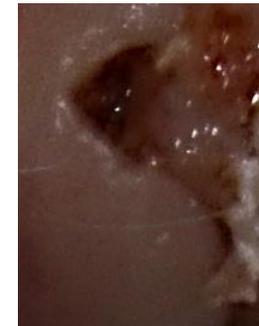
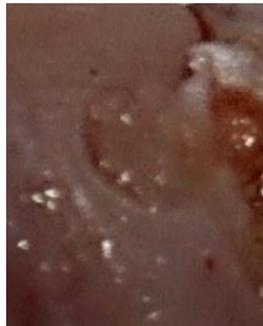
B. LhCG+

C. Untreated

Day 50



Day 100



Supplemental Figure 3.

Macroscopic observation of osteochondral repair by engraftment of full-scaled osteochondral implants: LhCG+ and dLhCG+ in comparison to “Untreated” defect which did not receive any engraftment, at the two testing time points. Testing time points are on Day 50 and Day 100, respectively. Scale bar: 1mm.