Supplementary Information 7. The forest plot illustrates the difference in cartilage regeneration between cellular and acellular biomaterials of each individual study.

Study or Subgroup	Mean	xperim SD		Con Mean		Total	Weight	Mean Difference IV, Random, 95% Cl	Mean Difference IV, Random, 95% CI
/ang et al 2011	27.3	14.72	16	55.71	12.58	8	1.0%	-28.41 [-39.72, -17.10]	
m et al 2010	64.72	11.5	9	75.61	11.5	9	1.0%	-10.89 [-21.52, -0.26]	
Wang et al 2015 Miller et al 2010	56 50	10.96	6 7	65.2 58.21	11.72	6 6	1.0% 1.0%	-9.20 [-22.04, 3.64] -8.21 [-19.71, 3.29]	=======================================
Suenther et al 2014	56	8.14	5	63.68	16.89	5	0.9%	-7.68 [-24.11, 8.75]	-+
Con et al 2010	74.64	12.14	8	81.79	8.93	8	1.0%	-7.15 [-17.59, 3.29]	
Christensen et al 2012	47.88	9.88	20	54.92	4.17	10	1.1%	-7.04 [-12.08, -2.00]	
Caminal et al 2015 ∟ohan et al 2014	52.74 55.42	14.36	13 12	58.33 59.4	19.44 9.43	2 6	0.6% 1.0%	-5.59 [-33.64, 22.46] -3.98 [-16.47, 8.51]	
ilova et al 2007	66.67	11.02	6	70.14	5.89	5	1.0%	-3.47 [-13.69, 6.75]	-+
onseca et al 2014	61.43	21.52	3	64.55	14.51	4	0.6%	-3.12 [-31.32, 25.08]	
Liu et al 2014	38.73 63.73	4.36	12 24	41.68 66.06	3.43 8.89	12	1.2%	-2.95 [-6.09, 0.19]	1
Guoetal 2010 Wegeneretal 2010	48.33	8.87 21.33	6	50	8.6	12 6	0.9%	-2.33 [-8.49, 3.83] -1.67 [-20.07, 16.73]	
Jagodzinski et al 2014		12.22	5	47.78	5	5	1.0%	-0.56 [-12.13, 11.01]	+
m et al 2010 (2)		11.51	6	48.34	12.76	6	1.0%	0.05 [-13.70, 13.80]	
Ahn et al 2009 Jurgens et al 2013	63.06 57.08	14.88	7 23	62.29 56.3	18.4 19.92	7 9	0.9% 0.9%	0.77 [-16.76, 18.30]	
Bolchaga et al 2002	19.52	3.05	27	18.2	2.62	27	1.2%	0.78 [-14.43, 15.99] 1.32 [-0.20, 2.84]	Į.
_ee et al 2014	63.94	18.95	12	62.33	5.08	4	1.0%	1.61 [-10.21, 13.43]	+
de Girolamo et al 2015	49.49	2.74	7	47.21	2.17	7	1.2%	2.28 [-0.31, 4.87]	†
Niederauer et al 2000	48.71 49.87	14.2	40 15	46.43	14.08	24 15	1.1% 0.9%	2.28 [-4.87, 9.43]	
Supta et al 2015 Setgood et al 2012	45.2	25.4 7.39	12	47.57 41.74	7.31	12	1.1%	2.30 [-15.39, 19.99] 3.46 [-2.42, 9.34]	+
lo et al 2010	53.69	19.64	24		14.67	12	1.0%	4.21 [-7.22, 15.64]	
hang et al 2011	52.95	21.87	16	47.86	21.43	8	0.9%	5.09 [-13.22, 23.40]	
i et al 2015	59.38	8.75	20	52.19	7.06	20	1.1%	7.19 [2.26, 12.12]	
garashi et al 2012 Betsch et al 2013	73.57 71.44	7.5 10.32	8 14	66.07 62.73	5 16.25	8 14	1.1% 1.0%	7.50 [1.25, 13.75] 8.71 [-1.37, 18.79]	-
ee et al 2012	59.23	25.78	12	50	23.36	12	0.8%	9.23 [-10.45, 28.91]	+
'in et al 2005	92.86	4.57	18	82.85	4.84	18	1.2%	10.01 [6.93, 13.09]	-
Köse et al 2005	52.69		16	42.09	7.75	16	1.0%	10.60 [-2.20, 23.40]	
Endo et al 2015 Zhao et al 2015	45.72 70.81	17.03 17.81	15 9	34.76 59.58	18.25 22.98	15 9	1.0% 0.8%	10.96 [-1.67, 23.59] 11.23 [-7.76, 30.22]	
Vayne et al 2005	47.95	17.01	20	36.58	9.95	20	1.1%	11.37 [5.77, 16.97]	-
Bal et al 2010	44.17	4.86	30	32.23	8.37	30	1.2%	11.94 [8.48, 15.40]	-
Betsch et al 2014	70.52	15.18	14	58.02	14.61	14	1.0%	12.50 [1.46, 23.54]	
Perka et al 2000 Kavakabe et al 2006	54.29	12.1	28 38	41.79	12.33	14 9	1.1%	12.50 [4.64, 20.36]	
kayakabe etal 2006 ⊋ietal 2010	53.72 47.19	20.25 18.54	15	41.19 33.81	18.03	15	1.0% 1.0%	12.53 [-0.89, 25.95] 13.38 [-0.42, 27.18]	
Chung et al 2014	54.08	15.44	20	40.62	7.63	20	1.1%	13.46 [5.91, 21.01]	
fasuoka et al 2006	63.58	6.57	12	48.93	4.94	12	1.1%	14.65 [10.00, 19.30]	-
an et al 2015	48.46	12.55	36	33.43	11.97	36	1.1%	15.03 [9.36, 20.70]	
Qietal 2014 Vang etal 2014	53.75 50.91	18.84	24 12	38.34 35.46	15.22 5.83	12 6	1.0% 1.1%	15.41 [3.97, 26.85] 15.45 [7.81, 23.09]	
(ie et al 2012	64.41	11.14	24	48.04	5.75	12	1.1%	16.37 [10.85, 21.89]	-
Maciulaitis et al 2015	55.22	11.86	8	38.63	8.59	7	1.0%	16.59 [6.20, 26.98]	
Duan et al 2014	55.54	14.16	58 15	38.91 36.45	13.16	58	1.1% 1.1%	16.63 [11.66, 21.60]	
Wang et al 2007 Chang et al 2013	53.11 70.79	10.09 15.9	16	53.24	9.78 13.8	13 12	1.0%	16.66 [9.29, 24.03] 17.55 [6.52, 28.58]	
Cang et al 2014	69.11	10.95	12		10.72	12	1.1%	18.53 [9.86, 27.20]	
Ding et al 2008	44.32	20.95	22	25.58	12.03	11	1.0%	18.74 [7.46, 30.02]	
Loken et al 2008	56.2	12.2	189	37.3	10.8	11	1.1%	18.90 [12.28, 25.52]	
Kazemnejad et al 2016 Schagemann et al 2009	58.83 75.74	10.47	12 24	39.71 56.21	3.89 12.42	12 12	1.1% 1.1%	19.12 [12.80, 25.44] 19.53 [10.78, 28.28]	-
vlazakiet al 2014	50.58	16.9	12	30.14	14.66	12	1.0%	20.44 [7.78, 33.10]	
darmotti et al 2012	61.87	27.99	14	41.22	13.58	14	0.9%	20.65 [4.35, 36.95]	
Frohberg et al 2016	66.5	17.91	12 6	45.5	4.36	6	1.0%	21.00 [10.28, 31.72]	
_im et al 2013 Zhao et al 2013	86.93 66.2	5.93 9.31	8	65.5 44.33	17.71 5.67	6 4	0.9% 1.1%	21.43 [6.49, 36.37] 21.87 [13.36, 30.38]	
(ie et al 2010	60.69	18.82	8	37.07	9.82	8	0.9%	23.62 [8.91, 38.33]	
Barron et al 2015	43.04	16.13	6	18.91	7.61	6	1.0%	24.13 [9.86, 38.40]	
Dietal 2014 Jangetal 2014	91.07 43.89	3.71	5 12	66.64 19.03	4.07 8.07	5	1.1% 0.9%	24.43 [19.60, 29.26]	
Beo et al 2013	61.61	30.23 5.36	6	36.18	5.93	12 6	1.1%	24.86 [7.16, 42.56] 25.43 [19.03, 31.83]	_
eronesi et al 2015		10.08	10	61.11	10.2	10	1.1%	26.19 [17.30, 35.08]	
rakaki et al 2015		34.29		13.35		12	0.8%	26.25 [6.00, 46.50]	
Song et al 2006 Dorotka et al 2005	62.14 53.69	15.12	32 7	35.54 24.17	16.1 5.39	16 6	1.1% 1.1%	26.60 [17.13, 36.07] 29.52 [19.68, 39.36]	
Jorotka et al 2005 Schaefer et al 2002		12.29	19	32.93		12	1.1%	29.67 [19.51, 39.83]	-
1armotti et al 2013	77.91	8.09	4	47.61	5.15	4	1.1%	30.30 [20.90, 39.70]	
in et al 2006.	76.34	17.64	24	44.93	11.65	12	1.1%	31.41 [21.75, 41.07]	—
'in et al 2016 Thu et al 2016	83.79 72.5	9.7 14.61	24 12	51.93 40.36	6.85	24 12	1.1%	31.86 [27.11, 36.61]	-
nu et al 2016 o et al 2008	68.58	6.65	12	36.07		12	1.0% 1.1%	32.14 [21.81, 42.47] 32.51 [24.73, 40.29]	-
hao et al 2006		19.88	9	29.92		6	0.7%	32.51 [8.49, 56.53]	
eng et al 2014	84.93	5.23	12	52.32		12	1.1%	32.61 [26.16, 39.06]	-
renkel et al 1997	74.43	9.29	23	41.09	16.14 3.14	23 18	1.1% 1.2%	33.34 [25.73, 40.95] 34.00 [31.91, 36.09]	
iang et al 2007 Reyes et al 2013	60.5 81.13	3.44 13.55	20 24	26.5 46.99	27.4	18 12	0.9%	34.14 [17.72, 50.56]	
Shimomura et al 2014	80.7	21.74	18	46.12	22.27	13	0.9%	34.58 [18.85, 50.31]	
to et al 2005	70.36	7.04	12	34.29	12.55	12	1.1%	36.07 [27.93, 44.21]	—
Vang et al 2016 Han et al 2009	72.46 63.57	12.73	18 30	36.23 26.43	9.01	18 15	1.1% 1.0%	36.23 [29.03, 43.43] 37.14 [26.50, 47.78]	
1an et al 2009 1a et al 2015		14.35	16	7.14	4.79	15	1.1%	37.14 [28.50, 47.78]	
ao et al 2012	62.75	17.67	12	23.8	13.17	12	1.0%	38.95 [26.48, 51.42]	
lecas et al 2014	61.25		10	22.08	12	10	1.0%	39.17 [26.81, 51.53]	
Pei et al 2009 Nou et al 2009	60.71	9.86	30	20.43	12	30	0.9%	40.28 [22.71, 57.85]	
(hou et al 2008 Sao et al 2012	84.39 82.15	9.44	20 10	42.23 39.29	8.98 20.29	20 10	1.1% 0.9%	42.16 [36.45, 47.87] 42.86 [27.89, 57.83]	
Vang et al 2006	70.93		40	27.54		20	1.1%	43.39 [36.46, 50.32]	
Vang et al 2010	64.15	21.98	24	20.29	6.21	9	1.1%	43.86 [34.18, 53.54]	
Song et al 2014	74.03		11	27.11		11	0.9%	46.92 [30.31, 63.53]	
Cheng et al 2014 Bai et al 2008	76.83 83.47	16.87 12.38	12 8	29.08 34.36	18.87 10.89	6 8	0.9% 1.0%	47.75 [29.89, 65.61] 49.11 [37.68, 60.54]	
'an et al 2007	56.76	29.62	56	6.25	8.03	8	1.1%	50.51 [40.96, 60.06]	
Duan et al 2013	79.13	5.13	8	27	6.06	8	1.1%	52.13 [46.63, 57.63]	-
Guo et al 2007	66.67	25.14	10	12.5	6.83	5	0.9%	54.17 [37.48, 70.86]	
								18.35 [15.08, 21.62]	l .
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