

**Supplementary Table 1.** Table of outcome measures for meta-analysis \*denotes median age <sup>a</sup>Number of randomized patients with dactylitis at baseline, week 12-16, and week 24 <sup>b</sup>Number of randomized patients with enthesitis at baseline, week 12-16, and week 24 <sup>c</sup>Number of randomized patients achieving ACR20 criteria at week 12-16 and week 24 compared to baseline <sup>d</sup>Change of HAQ-DI scores (SD unless specified) of patients at weeks 12-16 and week 24 compared to HAQ-DI scores at baseline. <sup>e</sup>bracketed values denote HAQ-DI mean ranges. Values in bold were used in the meta-analyses.

Author and Year	Study Weeks	Control and Treatment Arm	Mean Age (SD)	Patients enrolled in each study arm (n)	Dactylitis <sup>a</sup>			Enthesitis <sup>b</sup>			ACR 20 <sup>c</sup>			Mean HAQ-DI (SD) <sup>d</sup>		
					Baseline	Week 12/14/16	Week 24	Baseline	Week 12/14/16	Week 24	Baseline	Week 12/14/16	Week 24	Baseline	Week 12/14/16	Week 24
Antoni 2005 (1)	14, 24	Infliximab 5 mg/kg	46.5 (11.3)	100	40	18	12	42	22	20	100	58	54	1.1 (0.6)	48.6 (43.3)	46.0 (42.5)
		Placebo	47.1 (12.8)	100	41	30	34	35	34	37	100	11	16	1.1 (0.6)	-18.4 (90.5)	-19.4 (102.8)
Carron 2017 (2)	14, 24	Golimumab 50mg	38.3 (13.2)	40	15	3	7	16	6	7	-	-	-	-	-	-
		Placebo	42.3 (13.7)	20	9	8	12	9	5	16	-	-	-	-	-	-
Genovese 2007 (3)	12, 24	Adalimumab 40mg	47.7 (11.3)	49	-	-	-	-	-	-	51	20	33	0.9 (0.5)	-0.3 (0.5)	-0.3 (0.5)
		Placebo	50.4 (11.0)	51	-	-	-	-	-	-	49	8	27	1.0 (0.7)	-0.1 (0.3)	-0.4 (0.4)
Gladman 2007 (4)	12, 24	Adalimumab 40mg	48.6 (12.5)	151	-	-	-	-	-	-	-	-	-	1.0 (0.6)	-0.4 (0.5)	-0.4 (0.5)
		Placebo	49.2 (11.1)	162	-	-	-	-	-	-	-	-	-	1.0 (0.7)	-0.1 (0.5)	-0.1 (0.4)
Gottlieb 2009 (5)	12	Ustekinumab 63mg	50.0	76	33	28	-	34	17	-	76	32	-	0.9 (0.5 - 1.4) <sup>e</sup>	-0.25 (-0.50 - 0.00) <sup>e</sup>	-
		Placebo	47.5	70	22	21	-	32	27	-	70	10	-	0.8 (0.3 - 1.1) <sup>e</sup>	0.00 (-0.25 - 0.13) <sup>e</sup>	-
Kavanaugh 2009 (6)	14, 24	Golimumab 50mg	45.7 (10.7)	146	50	31	22	109	78	68	146	74	76	-	-	-0.33 (0.55)
		Golimumab 100mg	48.2 (10.9)	146	49	25	20	115	89	72	146	66	89	-	-	-0.39 (0.50)
		Golimumab (50mg and 100mg)	-	292	99	56	42	224	167	140	292	140	165	-	-	-
		Placebo	47.0 (10.6)	113	38	27	23	88	75	72	113	10	14	-	-	0.01 (0.49)
Kavanaugh 2016 (7)	12	Ustekinumab (45 and 90mg)	45.7 (11.68)	164	86	-	43	135	-	87	-	-	-	1.3 (0.63)	-	-0.33 (0.53)
		Placebo	47.4 (12.78)	92	46	-	31	71	-	53	-	-	-	1.4 (0.59)	-	-0.11 (0.39)
McInnes 2013 (8)	24	Ustekinumab 45mg	48.0	205	99	-	56	140	-	96	205	-	87	1.3 (0.8 - 1.8) <sup>e</sup>	-	-0.25 (-0.63 - 0.00) <sup>e</sup>
		Ustekinumab 90mg	47.0	204	95	-	53	148	-	90	204	-	101	1.3 (0.8 - 1.6) <sup>e</sup>	-	-0.25 (-0.75 - 0.00) <sup>e</sup>
		Ustekinumab (45 and 90mg)	-	409	194	-	109	288	-	186	409	170	188	-	-	-0.25 (-0.63 - 0.00) <sup>e</sup>
		Placebo	48.0	206	92	-	70	137	-	111	206	45	47	1.3 (0.8 - 1.8) <sup>e</sup>	-	0.00 (-0.38 - 0.13) <sup>e</sup>

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McInnes 2015 (9)	16, 24	Secukinumab 300mg	46.9 (12.6)	100	-	-	-	-	-	-	100	-	54	1.2 (0.6)	-	<b>-0.56 (0.05)</b>	
		Secukinumab 150mg	46.5 (11.7)	100	-	-	-	-	-	-	100	-	51	1.2 (0.6)	-	-0.48 (0.05)	
		Secukinumab 75mg	48.6 (11.4)	99	-	-	-	-	-	-	99	-	29	1.2 (0.7)	-	-0.32 (0.05)	
		Secukinumab (Combined)		299	<b>27</b>	-	<b>23</b>	<b>65</b>	-	<b>51</b>	299	<b>146</b>	<b>134</b>	-	-	-	
		Placebo	49.9 (12.5)	98	<b>111</b>	-	<b>59</b>	<b>188</b>	-	<b>112</b>	98	<b>25</b>	<b>15</b>	1.3 (0.6)	-	<b>-0.31 (0.06)</b>	
Mease 2000 (10)	12	Etanercept 25mg	43.5*	30	-	-	-	-	-	-	30	<b>22</b>	-	1.3 (0.9 - 1.6) <sup>e</sup>	0.1 (0 - 1) <sup>e</sup>	-	
		Placebo	46.0*	30	-	-	-	-	-	-	30	<b>4</b>	-	1.2 (0.8 - 1.6) <sup>e</sup>	1.1 (0.5 - 1.5) <sup>e</sup>	-	
Mease 2004 (11)	12	Etanercept 25mg	47.6	101	-	-	-	-	-	-	99	<b>15</b>	-	-	-	-	
		Placebo	47.3	104	-	-	-	-	-	-	97	<b>58</b>	-	-	-	-	
Mease 2005 (12)	12, 24	Adalimumab 40mg	49.2 (11.1)	151	-	-	-	-	-	-	162	<b>23</b>	-	1.0 (0.6)	-0.4 (0.5)	-0.4 (0.5)	
		Placebo	48.6 (12.5)	162	<b>117</b>	-	-	<b>118</b>	-	-	<b>151</b>	<b>87</b>	-	1.0 (0.7)	-0.1 (0.5)	-0.1 (0.4)	
Mease 2014 (13)	12	Brodalumab 140mg	53.0 (13.0)	57	-	-	-	-	-	-	57	21	-	-	-	-	
		Brodalumab 280mg		51.0 (12.0)	56	-	-	-	-	-	56	22	-	-	-	-	
		Brodalumab (Combined)		52.0 (11.0)	113	-	-	-	-	-	113	<b>43</b>	-	-	-	-	
		Placebo	53.0 (13.0)	55	-	-	-	-	-	-	55	<b>10</b>	-	-	-	-	
Mease 2015 (14)	24	Secukinumab 75mg	48.8 (12.2)	202	-	-	-	-	-	-	202	-	101	-	-	-0.40 (0.04)	
		Secukinumab 150mg		49.6 (11.8)	202	-	-	-	-	-	202	-	102	-	-	<b>-0.41 (0.04)</b>	
		Secukinumab (75mg and 150mg)		-	404	<b>208</b>	-	<b>99</b>	<b>255</b>	-	<b>134</b>	<b>404</b>	<b>216</b>	<b>203</b>	-	-	-
		Placebo	48.5 (11.2)	202	<b>116</b>	-	<b>98</b>	<b>117</b>	-	<b>102</b>	<b>202</b>	<b>49</b>	<b>35</b>	-	-	<b>-0.17 (0.05)</b>	
Mease 2017 (15)	12, 24	Ixekizumab 80mg Q4W	49.1 (10.1)	107	68	17	14	73	53	42	107	61	62	1.2 (0.54)	-0.37 (0.05)	-0.44 (0.05)	
		Ixekizumab 80mg Q2W		49.8 (12.6)	103	57	18	13	59	31	36	103	62	64	1.2 (0.57)	<b>-0.47 (0.05)</b>	<b>-0.50 (0.05)</b>
		Ixekizumab 80mg (combined)		-	220	<b>125</b>	<b>35</b>	<b>27</b>	<b>132</b>	<b>84</b>	<b>78</b>	<b>210</b>	<b>123</b>	<b>126</b>	-	-	-
		Adalimumab 40mg		48.6 (12.4)	101	<b>54</b>	<b>21</b>	<b>12</b>	<b>68</b>	<b>44</b>	<b>45</b>	<b>101</b>	<b>52</b>	<b>58</b>	1.1 (0.59)	-0.35 (0.05)	<b>-0.37 (0.05)</b>
		Placebo	50.6 (12.3)	106	<b>57</b>	<b>26</b>	<b>43</b>	<b>67</b>	<b>48</b>	<b>54</b>	<b>106</b>	<b>33</b>	<b>32</b>	1.2 (0.60)	-0.13 (0.05)	<b>-0.18 (0.05)</b>	
Ritchlin 2014 (16)	24	UST 45mg (40.0 - 56.0)	49.0	103	46	-	30	70	-	53	103	-	45	-	-	-0.13 (-0.38 - 0.00) <sup>e</sup>	
		UST 90mg (41.0 - 57.0)		48.0	105	38	-	22	70	-	49	105	-	46	-	-0.25 (-0.50 - 0.00) <sup>e</sup>	
		Combined UST		-	208	<b>84</b>	-	<b>52</b>	<b>140</b>	-	<b>102</b>	<b>208</b>	<b>76</b>	<b>91</b>	-	-0.25 (-0.38 - 0.00) <sup>e</sup>	
		Placebo	48.0 (38.5 - 56)	104	<b>33</b>	-	<b>25</b>	<b>68</b>	-	<b>60</b>	<b>104</b>	<b>18</b>	<b>21</b>	-	-	<b>0.00 (-0.13 - 0.13)<sup>e</sup></b>	
Torii 2010 (17)	14	Infliximab 5mg/kg	46.9 (46.0)	35	-	-	-	-	-	-	35	<b>19</b>	-	-	-	-	
		Placebo	43.3 (42.0)	19	-	-	-	-	-	-	35	<b>1</b>	-	-	-	-	
Mease 2014 (18)	12,24	Certolizumab 200 mg Q2W	48.2 (12.3)	138	35	-	-	86	-	-	138	<b>80</b>	-	-	-	-	
		Certolizumab 400mg Q4W		47.1 (10.8)	135	38	-	-	76	-	-	135	<b>70</b>	-	-	-	-

		Certolizumab (combined)	-	273	-	-	-	-	-	273	150	164	-	-	-	-0.50
		Placebo	47.3 (11.1)	136	35	-	-	86	-	-	136	33	32	-	-	-0.19
Van der Heijde 2018 (19)	24	Certolizumab (200mg Q2W + 400mg Q4W combined)	-	273	242	-	158	88	-	65	273	-	249	-	-	-
		Placebo	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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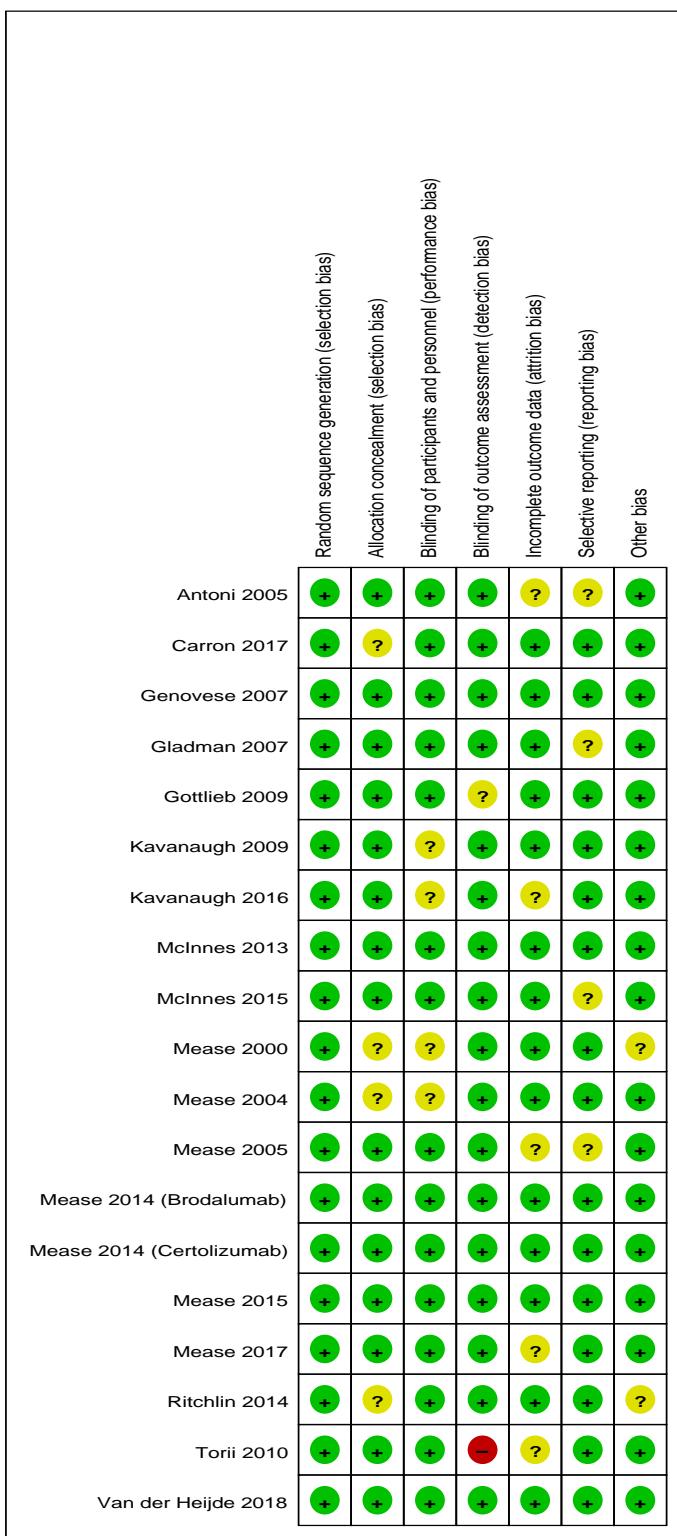
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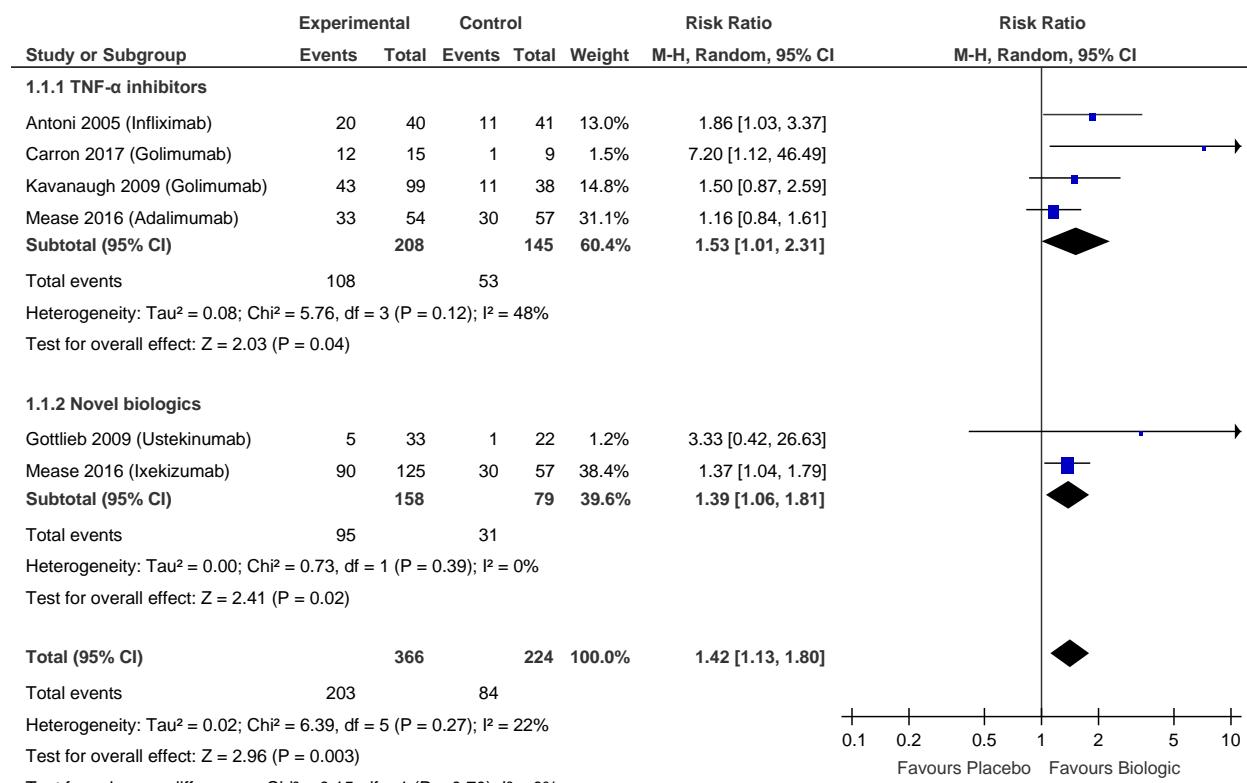
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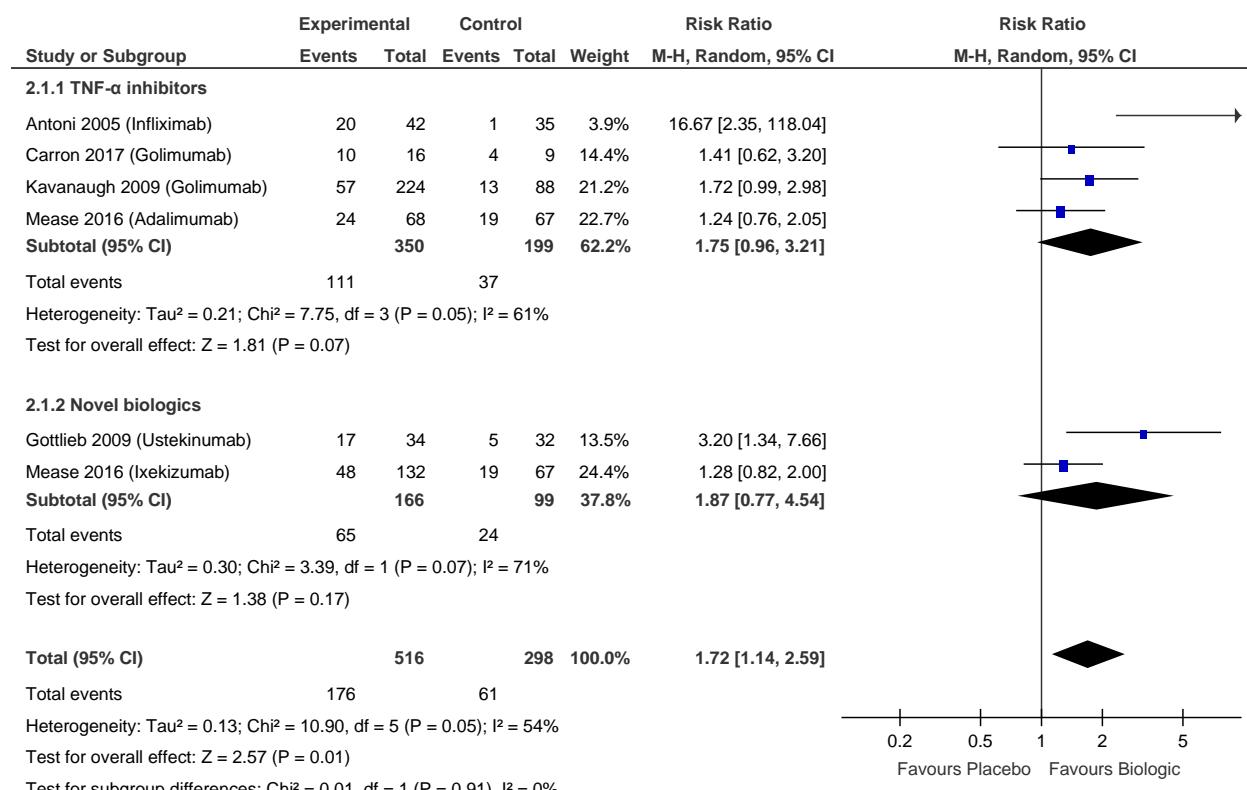
**Supplementary Figure 1:** Cochrane risk of bias summary.



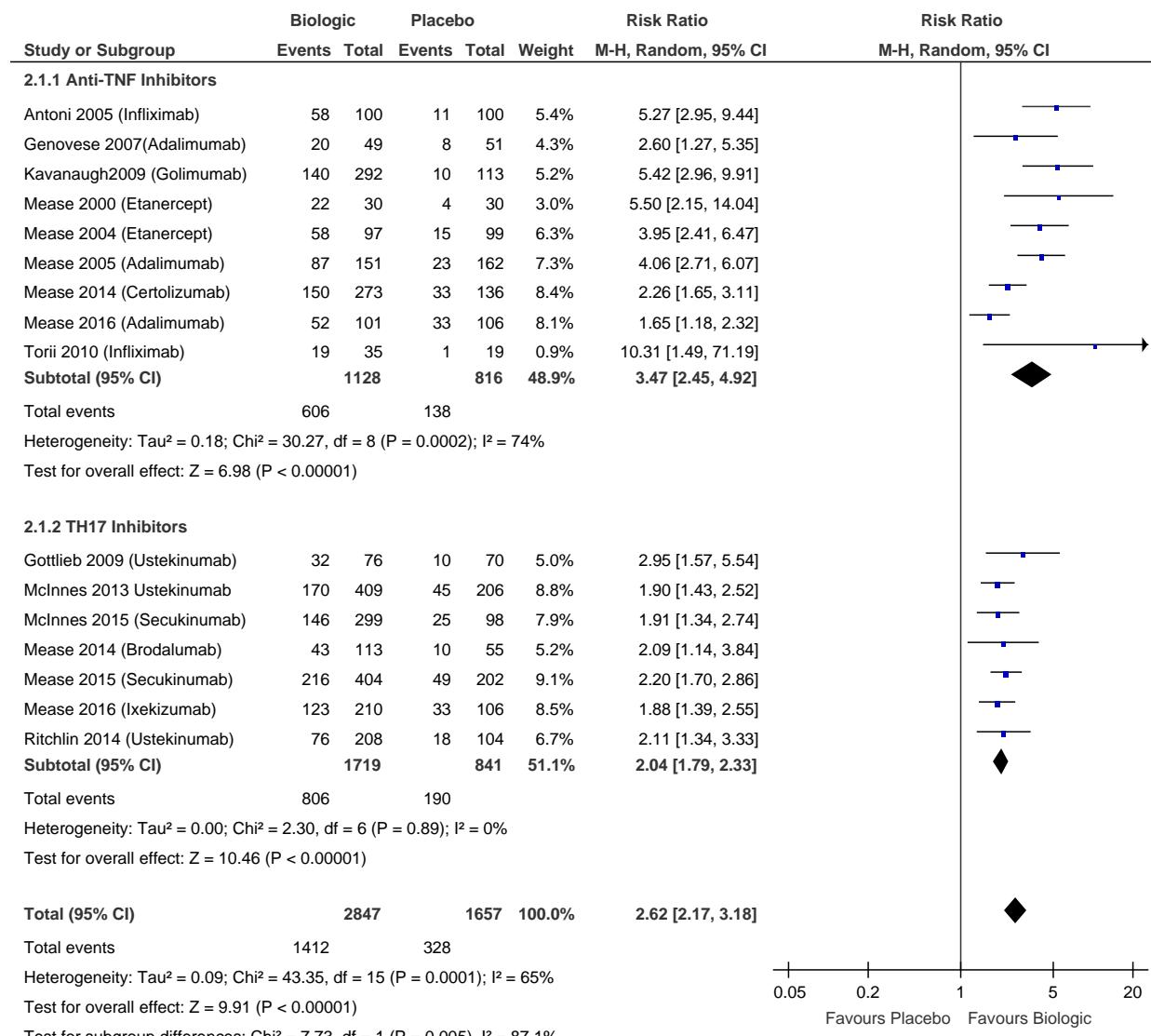
**Supplementary Figure 2:** Forest plot of dactylitis Resolution for TNF- $\alpha$  inhibitors and novel biologics at week 12-14. The square sizes represent the statistical weight for each study. The black horizontal bars represent 95% confidence intervals. The diamond values indicate the pooled effect estimates.



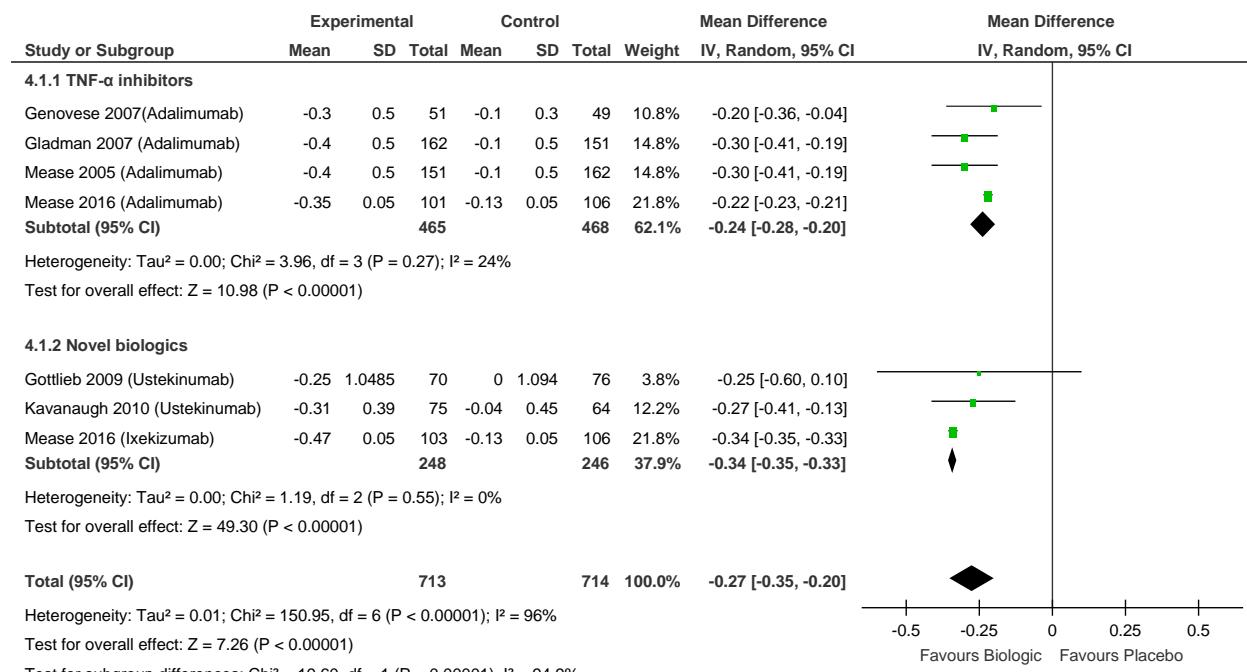
**Supplementary Figure 3:** Enthesitis Resolution for TNF- $\alpha$  inhibitors and novel biologics at week 12-14. The square sizes represent the statistical weight for each study. The black horizontal bars represent 95% confidence intervals. The diamond values indicate the pooled effect estimates.



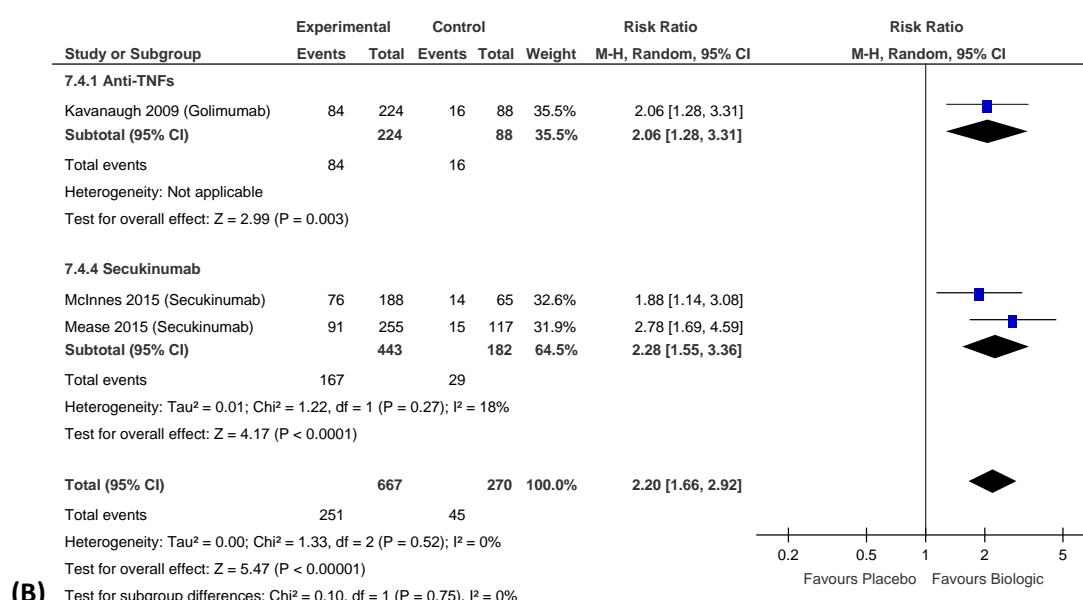
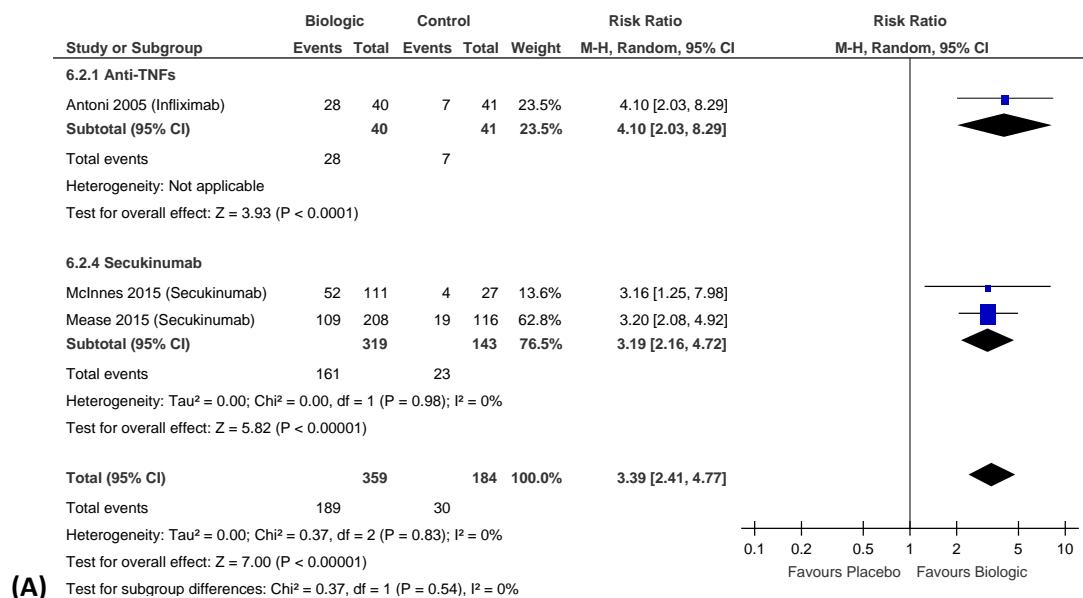
**Supplementary Figure 4:** Forest plot of ACR20 responses for TNF- $\alpha$  inhibitors and novel biologics at 12-16 weeks. The square sizes represent the statistical weight for each study. The black horizontal bars represent 95% confidence intervals. The diamond values indicate the pooled effect estimates.



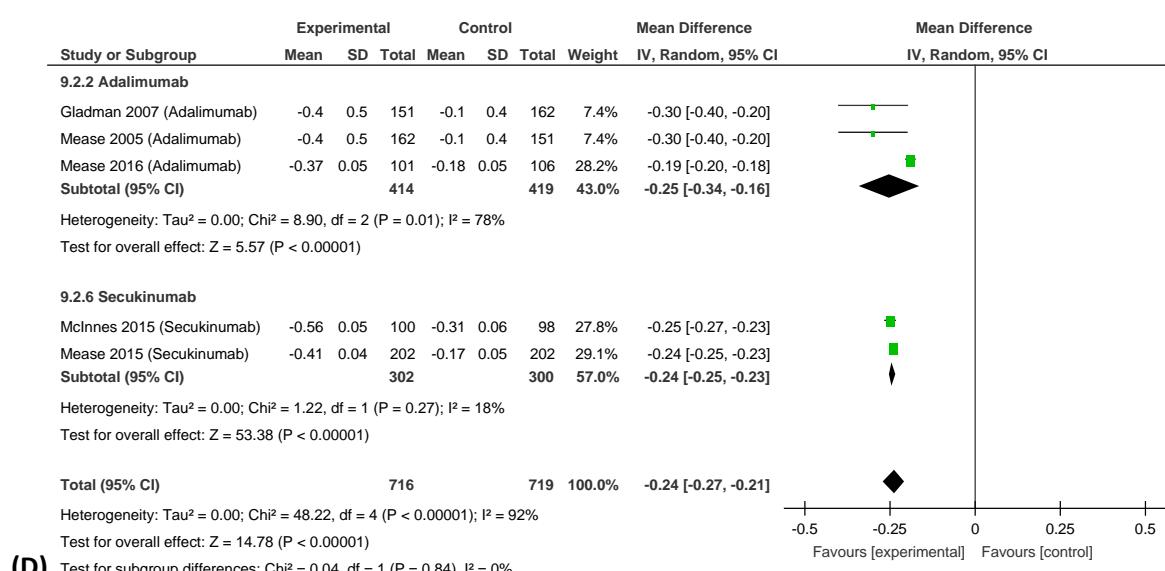
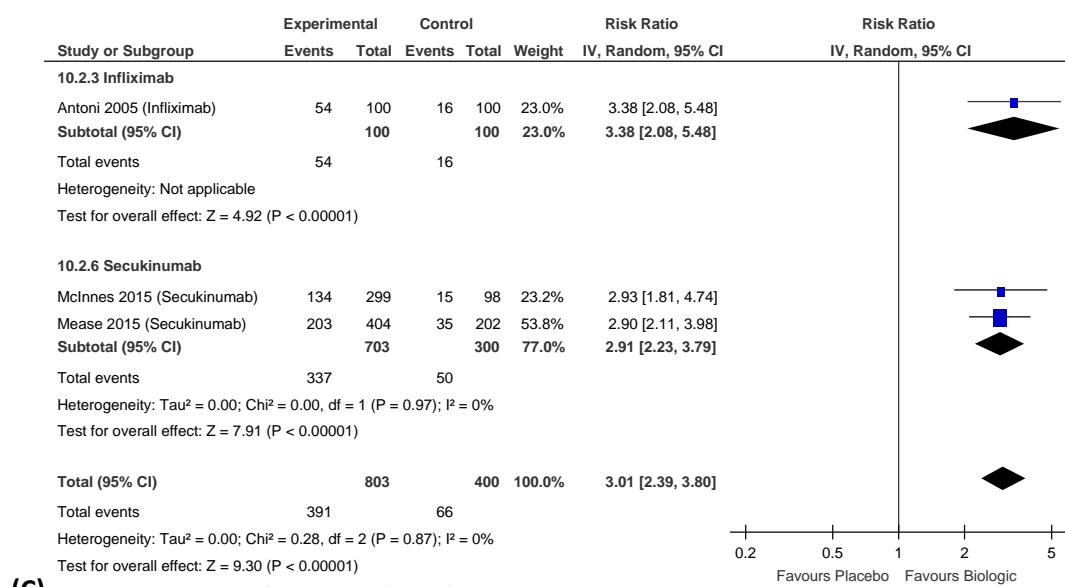
**Supplementary Figure 5:** Forest plot of change in mean HAQ-DI scores at 12-14 weeks compared to baseline for TNF- $\alpha$  inhibitors and novel biologics. The square sizes represent the statistical weight for each study. The black horizontal bars represent 95% confidence intervals. The diamond values indicate the pooled effect estimates.



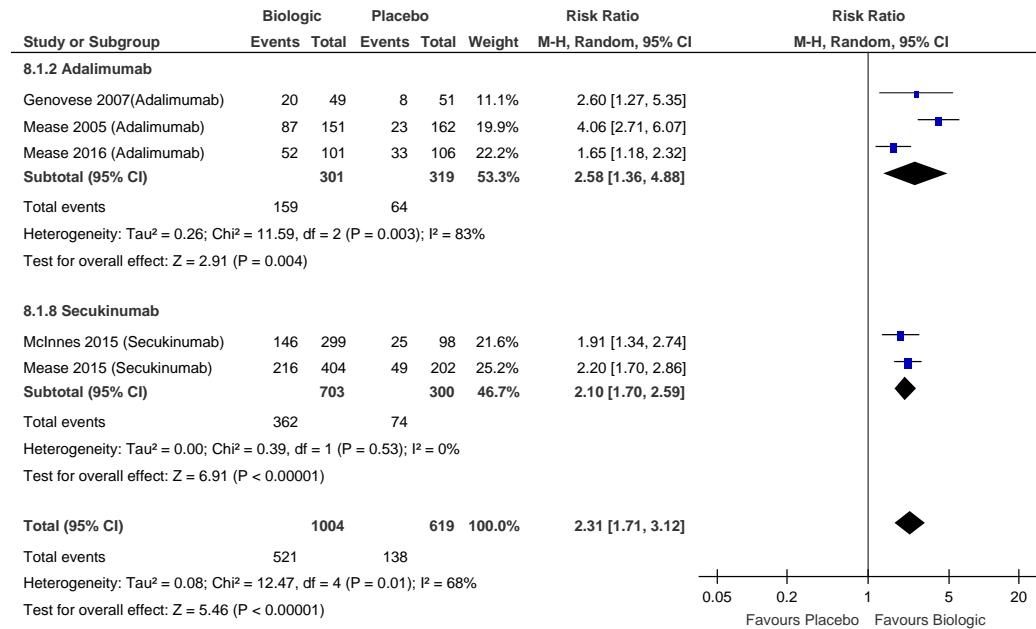
**Supplementary Figure 6:** Comparing the best in class biologics at week 24 for (A) Dactylitis Resolution, (B) Enthesitis resolution, (C) ACR20 response, and (D) change in HAQ-DI score from baseline. The square sizes represent the statistical weight for each study. The black horizontal bars represent 95% confidence intervals. The diamond values indicate the pooled effect estimates.



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**Supplementary Figure 7:** Forest plot of ACR20 responses for adalimumab vs secukinumab at (A) 12-16 weeks and (B) 24 weeks. The square sizes represent the statistical weight for each study. The black horizontal bars represent 95% confidence intervals. The diamond values indicate the pooled effect estimates.



(A)

