Content

Table S1. Full electronic search strategy of PubMed

#1 "arthritis, psoriatic"[MeSH Terms]
#2 "etanercept"[Title/Abstract] OR "infliximab"[Title/Abstract] OR "adalimumab"[Title/Abstract] OR "golimumab"[Title/Abstract] OR "certolizumab"[Title/Abstract] OR "ustekinumab"[Title/Abstract] OR "guselkumab"[Title/Abstract] OR "risankizumab"[Title/Abstract] OR "tildrakizumab"[Title/Abstract] OR "secukinumab"[Title/Abstract] OR "ixekizumab"[Title/Abstract] OR "brodalumab"[Title/Abstract] OR "tumor necrosis factor inhibitor"[Title/Abstract] OR "TNFi"[Title/Abstract] OR "IL-12/23i"[Title/Abstract] OR "interleukin-12/23 inhibitor"[Title/Abstract] OR "IL-17i"[Title/Abstract] OR "interleukin-17 inhibitor"[Title/Abstract] OR "biologic"[Title/Abstract]
#3 "health-related quality of life"[All Fields] OR "HRQoL"[All Fields] OR "Dermatology Life Quality Index"[All Fields] OR "DLQI"[All Fields] OR "disease activity index for psoriatic arthritis"[All Fields] OR "DAPSA"[All Fields] OR "psoriasis area and severity index"[All Fields] OR "PASI"[All Fields] OR "short form-36"[All Fields] OR "SF-36"[All Fields] OR "health assessment questionnaire"[All Fields] OR "HAQ"[All Fields] OR "Nottingham Health Profile"[All Fields] OR "NHP"[All Fields] OR "EuroQol-5D"[All Fields] OR "EQ-5D"[All Fields] OR "psoriasis disability index"[All Fields] OR "PDI"[All Fields] OR "Skindex-29"[All Fields] OR "Skindex-17"[All Fields] OR "quality of life"[All Fields] OR "PsAQoL"[All Fields]
#4 #1 AND #2 AND #3

Table S2. Characteristics of included studies

Trial name[Ref.]	Treatment arms and doses	Sample size (male, %)	Age, years	Duration of PsA, years	Duration of treatment	Presented outcomes
Genovese MC 2007 [26]	Adalimumab 40 mg SC q2w	51 (56.9)	50.4±11.0	7.5±7.0	12 weeks	①②③⑤
	Placebo	49 (51.0)	47.7±11.3	7.2±7.0		
Hong Tao 2019 [27]	Infliximab 3mg /kg IV at weeks 0,2,6,14,22,24 +MTX	33 (57.58)	35.63±6.12	3.56±1.29	24 weeks	⑩⑫
	MTX 15.36±1.69 mg q1w	33 (54.55)	35.94±6.25	3.52±1.28		
IMPACT [28]	Infliximab 5 mg/kg at weeks 0, 2, 6, 14	52 (57.7)	45.7±11.1	11.7±9.8	16 weeks	⑪
	Placebo	52 (57.7)	45.2±9.7	11.0±6.6		
Mease PJ 2000 [29]	Etanercept 25 mg SC BIW	30 (53)	46.0*	9.0*	12 weeks	①⑪
	Placebo	30 (60)	43.5*	9.5*		
NCT00051623 (IMPACT 2) [30,31,32]	Infliximab 5 mg/kg IV at weeks 0, 2, 6, 14, 22	100 (71)	47.1±12.8	8.4±7.2	24 weeks	①②③
	Placebo	100 (51)	46.5±11.3	7.5±7.8		⑨⑪⑫
NCT00195689 (ADEPT) [33,34,35]	Adalimumab 40 mg SC at weeks 0, 2, 4, then q4w	151 (56.3)	48.6±12.5	9.8±8.3	24 weeks	①②③⑤
	Placebo	162 (54.9)	49.2±11.1	9.2±8.7		⑨⑪⑫⑬
NCT00265096 (GO-REVEAL) [36,37]	Golimumab 50 mg SC q4w	146 (61)	45.7±10.7	7.2±6.8	24 weeks	①②③
	Golimumab 100 mg SC q4w	146 (59)	48.2±10.9	7.7±7.8		⑨⑪⑫
	Placebo	113 (61)	47.0±10.6	7.6±7.9		
NCT00317499 [38]	Etanercept 25 mg SC BIW	101 (57)	47.6	9	24 weeks	⑨⑪
	Placebo	104 (45)	47.3	9.2		
NCT00367237 (RESPOND) [39]	Infliximab 5 mg/kg at weeks 0, 2, 6, 14 + MTX	56 (48.2)	40.1±12.3	2.8±2.6	16 weeks	①⑪⑫
	MTX 15 mg q1w	54 (61.1)	42.3±10.5	3.7±2.7		
NCT00809614 [40]	Secukinumab 10 mg/kg SC on days 1, 22	28 (32)	46.7±11.3	6.3±6.8	24 weeks	②
	Placebo	14 (43)	47.6±8.1	5.4±3.8		

NCT01009086 (PSUMMIT 1) [41]	Ustekinumab 45 mg SC at weeks 0,2, then q12w	205 (51.7)	48.0 (39.0-55.0)*	3.4(1.2-9.2)*	24 weeks	①②③⑤⑪
	Ustekinumab 90 mg SC at weeks 0,2, then q12w	204 (56.9)	47.0 (38.5-54.0)*	4.9(1.7-8.3)*		
	Placebo	206 (52.4)	48.0 (39.0-57.0)*	3.6(1.0-9.7)*		
NCT01077362 (PSUMMIT 2) [42]	Ustekinumab 45 mg at weeks 0, 4, then q12w	103 (46.6)	49.0(40.0-56.0)*	5.3(2.3-12.2)*	24 weeks	①②③⑤⑪⑫
	Ustekinumab 90 mg at weeks 0, 4, then q12w	105 (46.7)	48.0(41.0-57.0)*	4.5(1.7-10.3)*		
	Placebo	104 (49.0)	48.0(38.5-56.0)*	5.5 (2.3-12.2)*		
NCT01087788 (RAPID-PsA) [43,44]	Certolizumab pegol 400 mg SC at weeks 0, 2, 4 + 200 mg q2w	138 (46.4)	48.2±12.3	9.6±8.5	24 weeks	①②③⑤⑦⑨⑪⑫
	Certolizumab pegol 400 mg SC at weeks 0, 2, 4 + 400 mg q4w	135 (45.9)	47.1±10.8	8.1±8.3		
	Placebo	136 (41.9)	47.3±11.1	7.9±7.7		
NCT01392326 (FUTURE 1) [45,46]	Secukinumab 75 mg/kg IV at weeks 2, 4, then 75 mg SC q4w	202 (41.6)	48.8±12.2	---	24 weeks	①②③⑤⑦⑪⑫
	Secukinumab 75 mg/kg IV at weeks 2, 4, then 150 mg SC q4w	202 (47.5)	49.6±11.8	---		
	Placebo	202 (47.5)	48.5±11.2	---		
NCT01695239 (SPIRIT-P1) [47,48]	Ixekizumab 80 mg SC q2w	107 (42.1)	49.1±10.1	6.2±6.4	24 weeks	①②③⑤⑥⑪⑫⑬
	Ixekizumab 80 mg SC q4w	103 (46.6)	49.8±12.6	7.2±8.0		
	Adalimumab 40 mg SC q2w	101 (50.5)	48.6±12.4	6.9±7.5		
	Placebo	106(45.3)	50.6±12.3	6.3±6.9		
NCT01752634 (FUTURE 2) [49]	Secukinumab 300 mg SC q1w to week 4 then q4w	100 (51)	46.9±12.6	---	24 weeks	①②⑪⑫
	Secukinumab 150 mg SC q1w to week 4 then q4w	100 (55)	46.5±11.7	---		
	Secukinumab 75mg SC q1w to week 4 then q4w	99 (47)	48.6±11.4	---		
	Placebo	98 (41)	49.9±12.5	---		

NCT01877668 (OPAL Broaden) [50][51]	Adalimumab 40 mg SC q2w	106 (53)	47.4±11.3	5.3±5.3	3 months	①②③⑥
	Tofacitinib 5 mg orally BID	107 (47)	49.4±12.6	7.3±8.2		⑪
	Tofacitinib 10 mg orally BID	104 (40)	46.9±12.4	5.4±5.8		
	Placebo	105 (47)	47.7±12.3	6.4±6.4		
NCT01989468 (FUTURE 3) [52]	Secukinumab 300 mg SC at weeks 1, 2, 3, 4, then q4w	139 (48.2)	49.3±12.9	8.3±9.2	24 weeks	①②⑪⑫
	Secukinumab 150 mg SC at weeks 1, 2, 3, 4, then q4w	138 (44.2)	50.1±11.7	7.7±8.5		
	Placebo	137 (43.1)	50.1±12.6	6.6±6.9		
NCT02024646 (AMVISION-2) [53]	Brodalumab 140mg SC q2w	160 (50.0)	47.4±12.8	6.5±7.4	24 weeks	⑪⑫⑬
	Brodalumab 210mg SC q2w	163 (48.5)	47.0±12.6	6.4±7.7		
	Placebo	161 (47.2)	48.3±13.0	7.1±7.5		
NCT02029495 (AMVISION-1) [53]	Brodalumab 140mg SC q2w	158 (49.4)	49.9±12.8	8.1±8.1	24 weeks	⑪⑫⑬
	Brodalumab 210mg SC q2w	159 (56.0)	49.1±12.2	9.4±9.3		
	Placebo	161 (50.3)	48.1±11.8	8.2±8.2		
NCT02065713 (GO-DACT) [54]	Golimumab 50 mg SC q4w + MTX	21 (81.0)	46.2 (15.5)*	3.8 (6.7)*	24 weeks	⑨⑩⑫
	MTX 15 mg orally q1w and increased 5 mg q4w until 25 mg q1w	22 (87.0)	44.1 (24.6)*	4.2 (6.1)*		
NCT02181673 (GO-VIBRANT) [55,56]	Golimumab 2 mg/kg IV at weeks 0, 4, then q8w	241 (50.6)	45.7±11.3	6.2±6.0	24 weeks	①②③⑤
	Placebo	239 (53.1)	46.7±12.5	5.3±5.9		⑥⑪⑫⑬
NCT02294227 (FUTURE 4) [57]	Secukinumab 150 mg SC q4w LD	114 (41.2)	48.3±12.2	5.6±7.3	16 weeks	②⑪⑫
	Secukinumab 150 mg SC q4w no-LD	113 (45.1)	50.4±11.8	5.7±7.7		
	Placebo	114 (39.5)	48.5±12.2	6.9±7.6		
NCT02319759 [58]	Guselkumab 100 mg SC at weeks 0, 4, then q8w	100 (52)	47.4±12.8	7.0±7.2	24 weeks	①②③⑨
	Placebo	49 (49)	44.2±12.4	6.9±7.2		⑪⑫⑬
NCT02349295	Ixekizumab 80 mg SC q4w	122 (52)	52.6±13.6	11.0±9.6	24 weeks	①②③

(SPIRIT-P2) [59]	Ixekizumab 80 mg SC q2w	123 (41)	51.7±11.9	9.9±7.4		⑪⑫⑬
	Placebo	118 (47)	51.5±10.4	9.2±7.3		
NCT02349451 [60]	Adalimumab 40 mg SC q1w	72 (54.2)	50.5±12.0	8.4±9.2	12 weeks	⑪⑫
	Placebo	24 (50.0)	50.5±12.0	7.6±7.2		
NCT02376790	Etanercept 50 mg SC q1w	284 (53.2)	48.5±13.5	3.1±6.0	24 weeks	①②③④
(SEAM-PsA) [61,62]	Etanercept 50 mg SC + MTX orally q1w	283 (50.9)	48.1±12.7	3.0±6.0		⑧
	MTX 20 mg orally q1w	284 (43.7)	48.7±13.1	3.6±6.8		
NCT02404350	Secukinumab 300 mg SC q4w LD	222 (48.6)	48.9±12.8	6.7±8.3	16 weeks	⑪⑫
(FUTURE 5) [63]	Secukinumab 150 mg SC q4w LD	220 (50.5)	48.4±12.9	6.7±7.1		
	Secukinumab 150 mg SC q4w no-LD	222 (54.1)	48.8±11.8	6.2±6.1		
	Placebo	332 (48.5)	49.0±12.1	6.6±7.6		
NCT02721966	Secukinumab 300 mg SC at weeks 1, 2, 3, 4, then q4w	167 (46.1)	46.2±12.3	---	12 weeks	①
(MAXIMISE) [64]	Secukinumab 150 mg SC at weeks 1, 2, 3, 4, then q4w	165 (49.1)	46.9±11.5	---		
	Placebo	166 (53.0)	46.6±11.5	---		
NCT02980692 [65]	Tildrakizumab 200 mg SC q4w	78 (41.0)	50.1±13.3	7.5±8.5	24 weeks	①⑧
	Tildrakizumab 200 mg SC q12w	79 (53.2)	49.3±11.2	6.2±7.2		⑪⑫⑬
	Tildrakizumab 100 mg SC q12w	77 (39.0)	49.2±11.9	7.0±6.6		
	Tildrakizumab 20 mg SC q12w	78 (47.4)	47.2±13.4	6.6±6.7		
	Placebo	79 (44.3)	48.1±13.3	6.3±6.1		
NCT03104400	Adalimumab 40 mg SC q2w	429 (48.3)	51.4±12.0	5.9±7.1	24 weeks	①②③
(SELECT-PsA 1) [66]	Placebo	423 (50.1)	50.4±12.2	6.2±7.0		
NCT03158285	Guselkumab 100mg SC at weeks 0,4, then q4w	245 (58)	45.9±11.5	5.5±5.9	24 weeks	①②③
(DISCOVER-2) [67]	Guselkumab 100mg SC at weeks 0,4, then q8w	248 (52)	44.9±11.9	5.1±5.5		⑪⑫⑬
	Placebo	246 (48)	46.3±11.7	5.8±5.6		

NCT03162796 (DISCOVER-1) [68]	Guselkumab 100 mg SC q4w	128 (52)	47.4±11.6	6.6±6.3	24 weeks	①②③
	Guselkumab 100 mg SC at weeks 0, 4, then q8w	127 (54)	48.9±11.5	6.4±5.9		⑪⑫⑬
	Placebo	126 (48)	49.0±11.1	7.2±7.6		
NCT03671148 (KEEPsAKE 2) [69]	Risankizumab 150mg SC at weeks 0, 4, 16	224 (44.6)	53 (23–84)	8.2±8.2	24 weeks	①②⑫
	Placebo	219 (45.2)	52 (24-83)	8.2±8.3		
NCT03675308 (KEEPsAKE 1) [71]	Risankizumab 150mg SC at weeks 0, 4, 16	483 (52.2)	52 (20–85)	7.1±7.0	24 weeks	①②⑫
	Placebo	481 (48.6)	52 (22–79)	7.1±7.7		
NCT03796858 (COSMOS)	Guselkumab 100 mg SC at weeks 0, 4, then q8w	189 (46)	49±12	8.3±7.8	24 weeks	③⑪⑫
	Placebo	96 (54)	49±12	8.7±7.2		
Yufei Lin 2016 [72]	Infliximab 5mg /kg IV at weeks 0,2,6,12 + MTX	42 (61.90)	44.01±10.33	3.62±2.11	24 weeks	⑭
	MTX 7.5-15 mg orally q1w and increased to 15-25 mg q1w	42 (66.67)	43.59±10.29	3.31±2.12		

MTX: methotrexate; IV: intravenous; SC: subcutaneous; qXw: once every X weeks; BID: twice daily; BIW: twice weekly; LD: loading dose; ---: not reported; ① HAQ-DI, Health Assessment Questionnaire Disability Index; ②SF-36 PCS, physical component summary of the Short Form 36; ③SF-36 MCS, mental component summary of the Short Form 36; ④SF-36 score, the Short Form 36 score; ⑤DLQI, Dermatology Life Quality Index; ⑥EQ-VAS, EuroQol Visual Analogue Scale; ⑦PsAQoL, Psoriasis Arthritis Quality of Life; ⑧DAPSA, Disease Activity for Psoriatic Arthritis; ⑨PASI 50, the proportion of participants achieving 50% improvement from baseline in Psoriasis Area Severity Index; ⑩PASI 70, the proportion of participants achieving 70% improvement from baseline in Psoriasis Area Severity Index; ⑪PASI 75, the proportion of participants achieving 75% improvement from baseline in Psoriasis Area Severity Index; ⑫PASI 90, the proportion of participants achieving 90% improvement from baseline in Psoriasis Area Severity Index; ⑬PASI 100, the proportion of participants achieving 100% improvement from baseline in Psoriasis Area Severity Index; ⑭PASI score, Psoriasis Area Severity Index score.

* Data are reported as median (IQR);

Table S2. Subgroup analysis of RCTs that examined the effect of bDMARDs on QoL

Groups	Outcomes	K	Effect size	95% CI	I^2 (%)	P-value
bDMARDs	**HAQ-DI**					
vs. Placebo	Total	40	-0.21	-0.23, -0.18	99	< 0.00001
	Category of bDMARD					
	TNFi	11	-0.25	-0.31, -0.18	98	< 0.00001
	IL-12/23i	9	-0.23	-0.27, -0.19	99	< 0.00001
	IL-17i	11	-0.17	-0.21, -0.14	99	< 0.00001
	Variety of bDMARD					
	Etanercept	1	-1.10	-1.22, -0.98	---	< 0.00001
	Infliximab	1	-0.40	-0.58, -0.22	---	< 0.0001
	Adalimumab	5	-0.20*	-0.20, -0.20	0	< 0.00001
	Golimumab	3	0.08	-0.53, 0.69	99	0.79
	Certolizumab pegol	2	-0.30*	-0.39, -0.21	1	< 0.00001
	Ustekinumab	4	-0.21*	-0.25, -0.17	0	< 0.00001
	Guselkumab	5	-0.27	-0.31, -0.24	98	< 0.00001
	Tildrakizumab	4	-0.07	-0.12, -0.03	97	0.003
	Risankizumab	2	-0.19	-0.21, -0.16	98	< 0.00001
	Secukinumab	9	-0.17	-0.22, -0.12	99	< 0.00001
	Ixekizumab	4	-0.32	-0.46, -0.18	98	< 0.00001
	Duration of PsA					
	< 6 years	8	-0.22	-0.25, -0.20	98	< 0.00001
	6-9 years	20	-0.16	-0.20, -0.13	99	< 0.00001
	≥ 9 years	5	-0.46	-0.65, -0.28	99	< 0.00001
	Unclear	7	-0.17	-0.23, -0.12	99	< 0.00001
	Duration of treatment					
	< 24 weeks	5	-0.32	-0.40, -0.24	99	< 0.00001
	≥ 24 weeks	35	-0.19	-0.22, -0.17	99	< 0.00001
	SF-36 PCS					
	Total	36	4.04	3.75, 4.32	99	< 0.00001
	Category of bDMARD					
	TNFi	11	4.96	4.37, 5.56	88	< 0.00001
	IL-12/23i	11	3.93	3.58, 4.28	98	< 0.00001
	IL-17i	14	3.78	3.05, 4.50	99	< 0.00001
	Variety of bDMARD					
	Infliximab	1	6.40	3.90, 8.90	---	< 0.00001
	Adalimumab	5	3.62	3.26, 3.98	73	< 0.00001
	Golimumab	3	7.06*	6.06, 8.05	0	< 0.00001
	Certolizumab pegol	2	5.85*	4.48, 7.22	0	< 0.00001
	Ustekinumab	4	3.47*	2.74, 4.22	6	< 0.00001
	Guselkumab	5	4.22	3.77, 4.67	98	< 0.00001
	Risankizumab	2	3.60	3.01, 4.19	99	< 0.00001
	Secukinumab	10	3.30	2.50, 4.11	99	< 0.00001
	Ixekizumab	4	5.22	4.67, 5.78	64	< 0.00001

Duration of PsA					
< 6 years	10	3.39	3.09, 3.68	97	< 0.00001
6-9 years	17	4.44	3.81, 5.08	99	< 0.00001
≥ 9 years	4	5.58	4.84, 6.31	79	< 0.00001
Unclear	5	3.97	3.27, 4.67	99	< 0.00001
Duration of treatment					
< 24 weeks	4	3.04	2.62, 3.46	92	< 0.00001
≥ 24 weeks	32	4.19	3.88, 4.50	99	< 0.00001
SF-36 MCS					
Total	27	2.11	1.76, 2.46	97	< 0.00001
Category of bDMARD					
TNFi	11	2.60	1.59, 3.60	95	< 0.00001
IL-12/23i	9	1.75	1.28, 2.22	96	< 0.00001
IL-17i	7	2.37	1.51, 3.23	99	< 0.00001
Variety of bDMARD					
Infliximab	1	3.50	0.24, 6.76	---	0.04
Adalimumab	5	1.24	-0.11, 2.59	98	0.07
Golimumab	3	4.47*	3.22, 5.72	0	< 0.00001
Certolizumab pegol	2	3.78*	2.11, 5.44	28	0.0002
Ustekinumab	4	2.21*	1.27, 3.15	0	< 0.00001
Guselkumab	6	1.66	1.22, 2.10	98	< 0.00001
Secukinumab	2	2.30	0.34, 4.26	100	0.02
Ixekizumab	4	2.89*	2.67, 3.11	32	< 0.00001
Duration of PsA					
< 6 years	8	1.57	1.13, 2.01	98	< 0.00001
6-9 years	13	2.00	1.49, 2.52	84	< 0.00001
≥ 9 years	4	2.90	2.40, 3.40	61	< 0.00001
Unclear	2	2.30	0.34, 4.26	100	0.02
Duration of treatment					
< 24 weeks	2	-0.13*	-0.39, 0.13	27	0.86
≥ 24 weeks	25	2.24	1.91, 2.57	97	< 0.00001
EQ-VAS					
Total	5	8.76	5.32, 12.20	71	< 0.00001
Category of bDMARD					
TNFi	3	9.05	3.75, 14.35	85	0.0008
IL-17i	2	8.31*	3.85, 12.77	0	0.0003
Variety of bDMARD					
Adalimumab	2	6.72*	6.13, 7.31	0	< 0.00001
Golimumab	1	14.70	10.44, 18.96	---	< 0.00001
Ixekizumab	2	8.31*	3.85, 12.77	0	0.0003
Duration of PsA					
< 6 years	1	6.73	6.14, 7.32	---	< 0.00001
6-9 years	4	9.66	5.34, 13.98	58	< 0.0001
Duration of treatment					

< 24 weeks	1	6.73	6.14, 7.32	---	< 0.00001
≥ 24 weeks	4	9.66	5.34, 13.98	58	< 0.0001
DLQI					
Total	14	-4.36	-5.76, -2.96	99	< 0.00001
Category of bDMARD					
TNFi	6	-3.38	-5.53, -1.23	92	0.002
IL-12/23i	4	-5.39*	-6.15, -4.63	0	< 0.00001
IL-17i	4	-4.79	-6.81, -2.77	99	< 0.00001
Variety of bDMARD					
Adalimumab	3	-2.31	-5.60, 0.98	89	0.17
Golimumab	1	-6.20	-7.56, -4.84	---	< 0.00001
Certolizumab pegol	2	-3.46	-6.40, -0.53	90	0.02
Ustekinumab	4	-5.39*	-6.15, -4.63	0	< 0.00001
Secukinumab	2	-9.05	-9.93, -8.17	98	< 0.00001
Ixekizumab	2	-0.17*	-0.99, 0.65	0	0.69
Duration of PsA					
< 6 years	4	-5.39*	-6.15, -4.63	0	< 0.00001
6-9 years	6	-1.70	-3.59, 0.19	92	0.08
≥ 9 years	2	-5.12*	-6.35, -3.89	0	< 0.00001
Unclear	2	-9.05	-9.93, -8.17	98	< 0.00001
Duration of treatment					
< 24 weeks	1	-1.70	-4.21, 0.81	---	0.18
≥ 24 weeks	13	-4.53	-5.97, -3.10	99	< 0.00001
PASI 50					
Total	8	4.54	2.98, 6.91	81	< 0.00001
Category of bDMARD					
TNFi	7	4.92	3.00, 8.07	83	< 0.00001
IL-12/23i	1	2.97	1.90, 4.65	---	< 0.00001
Variety of bDMARD					
Etanercept	1	2.69	1.68, 4.30	---	< 0.0001
Infliximab	1	9.83	5.06, 19.09	---	< 0.00001
Adalimumab	1	6.50	3.34, 12.64	---	< 0.00001
Golimumab	2	9.59	5.55, 16.56	0	< 0.00001
Certolizumab pegol	2	2.63	2.03, 3.40	0	< 0.00001
Guselkumab	1	2.97	1.90, 4.65	---	< 0.00001
Duration of PsA					
6-9 years	4	6.93	3.33, 14.42	80	< 0.00001
≥ 9 years	4	3.06	2.20, 4.25	54	< 0.00001
PASI 75					
Total	47	5.29*	4.85, 5.76	45	< 0.00001
Category of bDMARD					
TNFi	13	7.19	4.26, 12.16	74	< 0.00001
IL-12/23i	13	4.95*	4.30, 5.69	49	< 0.00001
IL-17i	21	4.94*	4.36, 5.60	5	< 0.00001

Variety of bDMARD					
Etanercept	2	8.34*	2.83, 24.62	0	0.0001
Infliximab	2	65.64*	13.30, 322.82	0	< 0.00001
Adalimumab	4	4.58	1.72, 12.22	74	0.002
Golimumab	3	18.30	2.23, 149.96	84	0.007
Certolizumab pegol	2	4.06*	2.79, 5.91	0	< 0.00001
Ustekinumab	4	6.50*	4.79, 8.83	2	< 0.00001
Guselkumab	6	4.23*	3.56, 5.02	43	< 0.00001
Tildrakizumab	4	3.70*	2.59, 5.28	0	< 0.00001
Secukinumab	12	5.10*	4.41, 5.89	21	< 0.00001
Ixekizumab	4	5.03*	3.51, 7.22	2	< 0.00001
Brodalumab	4	6.16*	4.32, 8.80	0	< 0.00001
Duration of PsA					
< 6 years	9	4.68	3.57, 6.13	57	< 0.00001
6-9 years	26	5.68*	5.06, 6.38	26	< 0.00001
≥ 9 years	7	5.92	3.33, 10.51	57	< 0.00001
Unclear	5	4.23	2.43, 7.36	68	< 0.00001
Duration of treatment					
< 24 weeks	9	5.13*	4.37, 6.02	37	< 0.00001
≥ 24 weeks	38	5.34*	4.83, 5.91	48	< 0.00001
PASI 90					
Total	43	6.38*	5.68, 7.16	30	< 0.00001
Category of bDMARD					
TNFi	9	9.45*	6.62, 13.50	49	< 0.00001
IL-12/23i	11	7.47*	5.97, 9.35	0	< 0.00001
IL-17i	23	5.39*	4.66, 6.24	23	< 0.00001
Variety of bDMARD					
Infliximab	1	82.76	5.17, 1325.04	---	0.002
Adalimumab	3	7.64	1.43, 40.80	65	0.02
Golimumab	3	16.48	2.33, 116.59	65	0.005
Certolizumab pegol	2	7.11*	3.78, 13.36	0	< 0.00001
Ustekinumab	2	9.93*	4.42, 22.34	0	< 0.00001
Guselkumab	6	6.36*	4.96, 8.16	0	< 0.00001
Tildrakizumab	4	6.09*	3.44, 10.76	0	< 0.00001
Risankizumab	2	5.36*	3.87, 7.42	0	< 0.00001
Secukinumab	12	5.12	3.72, 7.03	51	< 0.00001
Ixekizumab	4	5.75*	3.70, 8.93	39	< 0.00001
Brodalumab	4	12.05*	6.80, 21.36	0	< 0.00001
Duration of PsA					
< 6 years	6	7.52*	5.62, 10.07	0	< 0.00001
6-9 years	28	6.10*	5.31, 7.00	23	< 0.00001
≥ 9 years	4	5.52	2.83, 10.78	51	< 0.00001
Unclear	5	5.44	2.40, 12.31	69	< 0.0001
Duration of treatment					

	< 24 weeks	6	4.60*	3.73, 5.67	44	< 0.00001
	≥ 24 weeks	37	7.04*	6.14, 8.08	14	< 0.00001
bDMARDs+ MTX vs. MTX	HAQ-DI	2	-0.22	-0.58, 0.14	86	0.23
	SF-36 PCS	1	2.00	1.90, 2.10	---	< 0.00001
	SF-36 MCS	1	0.00	-0.10, 0.10	---	1.00
	PASI 50	1	1.76	1.06, 2.92	---	0.03
	PASI 75	1	1.79	1.31, 2.44	---	0.0002
	PASI 90	2	1.97	1.45, 2.70	0	< 0.0001
bDMARDs vs. Tofacitinib	HAQ-DI	2	-0.01	-0.05, 0.04	96	0.84
	SF-36 PCS	2	0.63*	0.49, 0.77	36	< 0.00001
	SF-36 MCS	2	-1.15*	-1.32, -0.97	0	< 0.00001
	EQ-VAS	2	-1.81	-3.61, -0.02	95	0.05
	PASI 75	2	0.90*	0.69, 1.17	0	0.43
bDMARDs vs. MTX	HAQ-DI	1	-0.03	-0.04, -0.02	---	< 0.00001
	SF-36 PCS	1	1.80	1.70, 1.90	---	< 0.00001
	SF-36 MCS	1	-0.50	-0.60, -0.40	---	< 0.00001

bDMARDs, the biological disease-modifying anti-rheumatic drugs; TNFi, the tumor necrosis factor inhibitor; IL-17i, interleukin-17 inhibitor; IL-12/23i, interleukin-12/23 inhibitor; HAQ-DI, Health Assessment Questionnaire Disability Index; SF-36 PCS, physical component summary of the Short Form 36; SF-36 MCS, mental component summary of the Short Form 36, DLQI, Dermatology Life Quality Index; EQ-VAS, EuroQol Visual Analogue Scale; PASI 50/75/90, the proportion of participants achieving 50%/75%/90% improvement from baseline in Psoriasis Area Severity Index; K: Number of data reported in included studies;

* fixed effect

Figure S1 Forest plot of HAQ-DI. HAQ-DI, Health Assessment Questionnaire Disability Index.

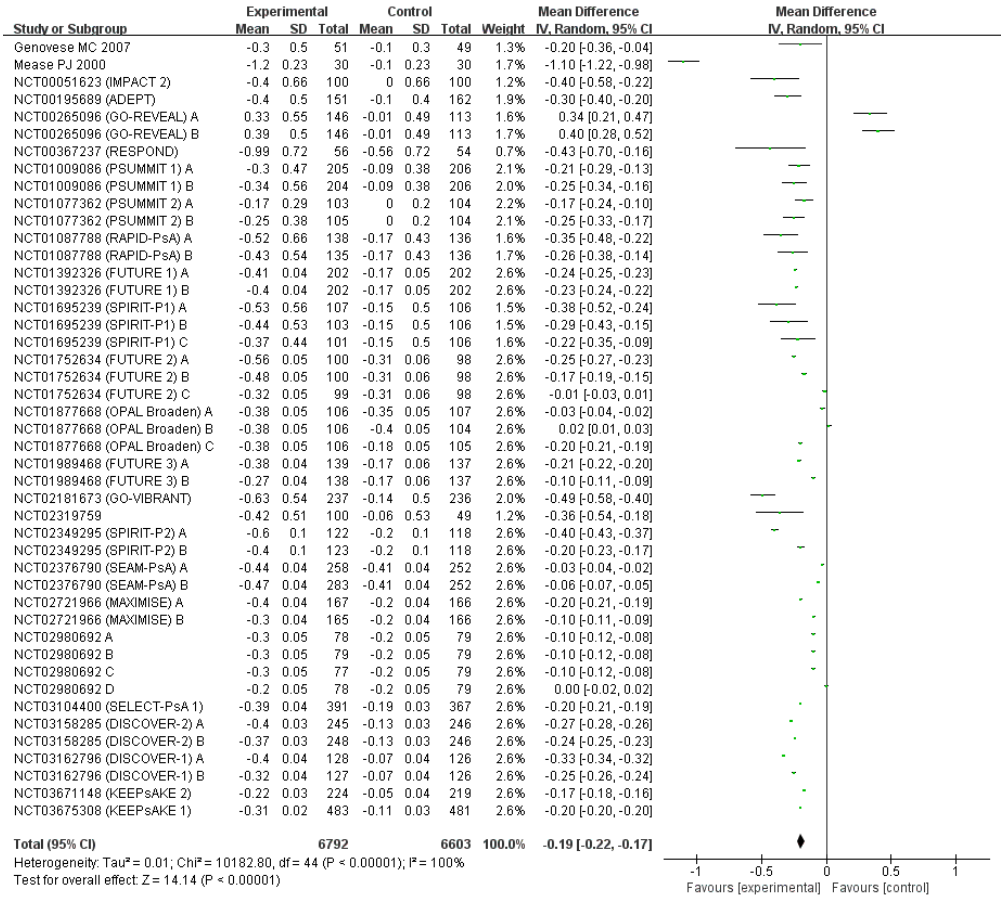

Figure S2. Forest plot of SF-36 PCS. SF-36 PCS, physical component summary of the Short Form 36.

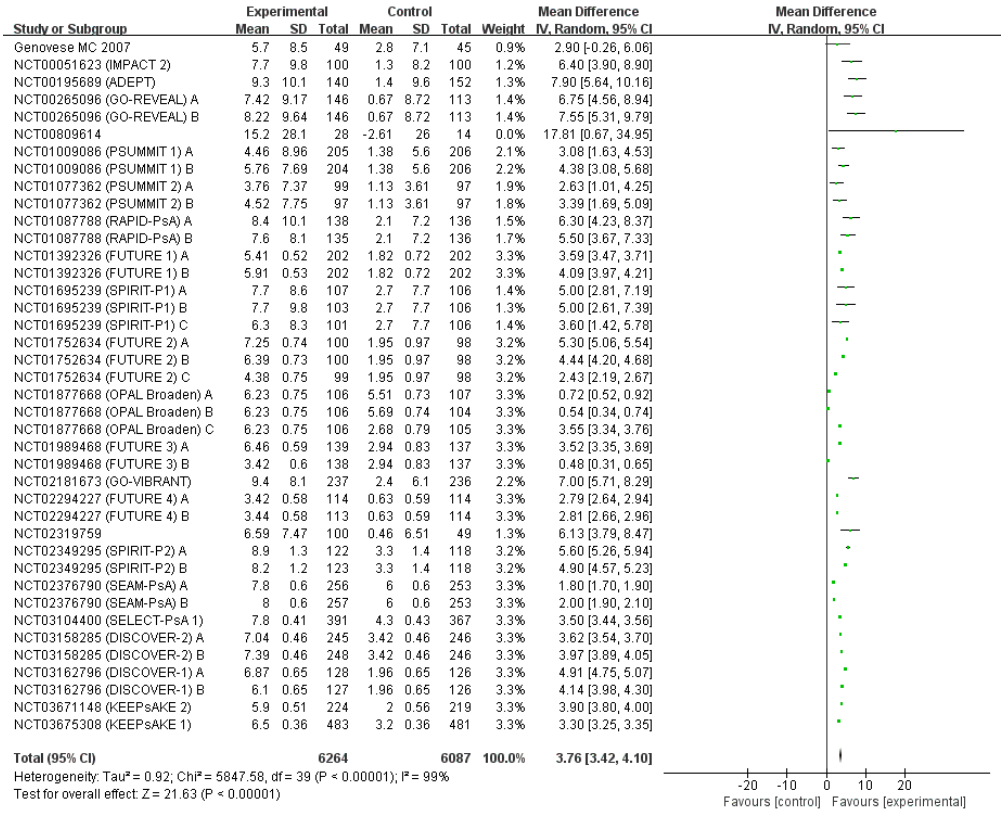

Figure S3. Forest plot of SF-36 MCS. SF-36 MCS, mental component summary of the Short Form 36.

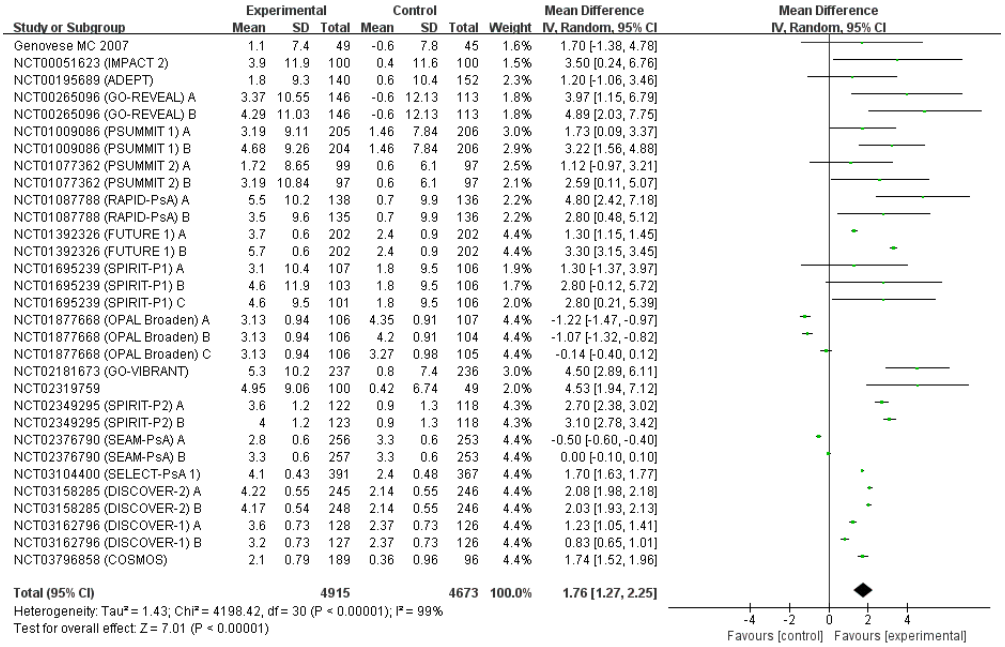

Figure S4. Forest plot of EQ-VAS. EQ-VAS, EuroQol Visual Analogue Scale.

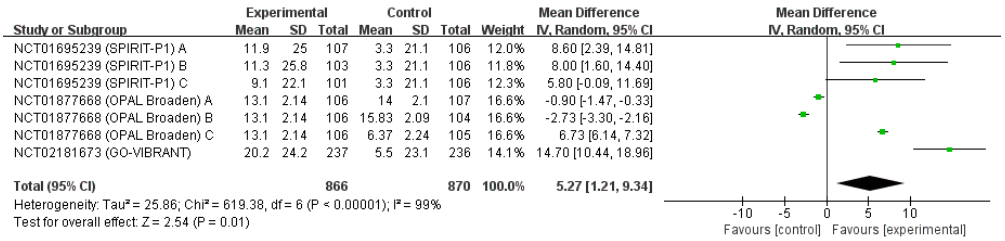

Figure S5. Forest plot of DLQI. DLQI, Dermatology Life Quality Index.

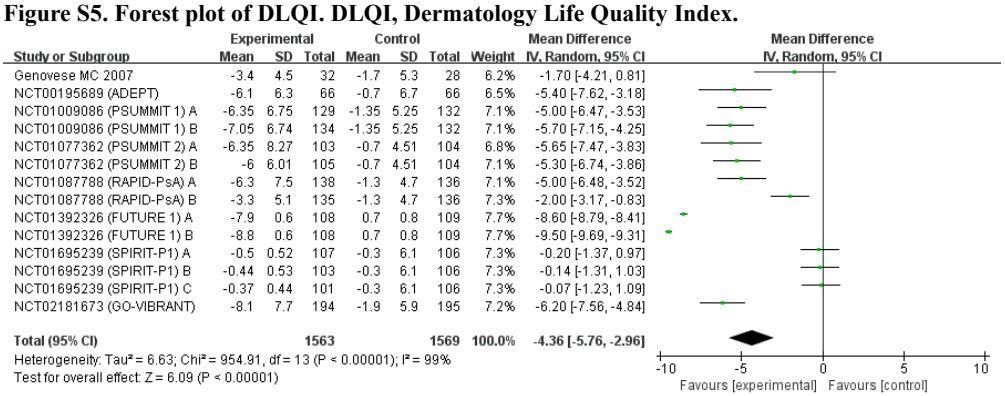

Figure S6. Forest plot of PASI 50. PASI 50, the proportion of participants achieving 50% improvement from baseline in Psoriasis Area Severity Index.

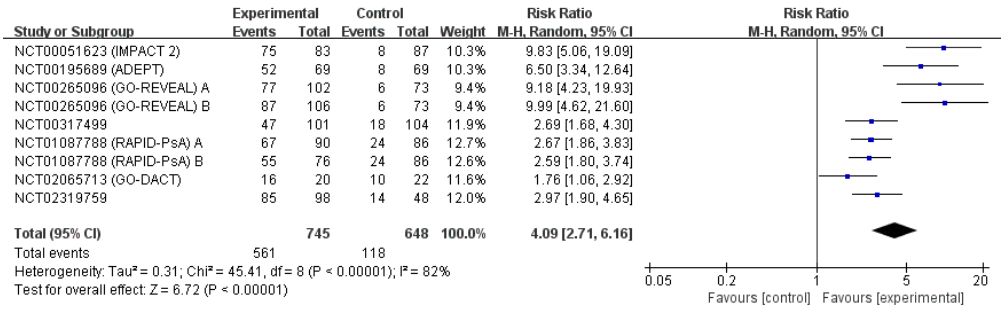

Figure S7. Forest plot of PASI 75. PASI 75, the proportion of participants achieving 75% improvement from baseline in Psoriasis Area Severity Index.

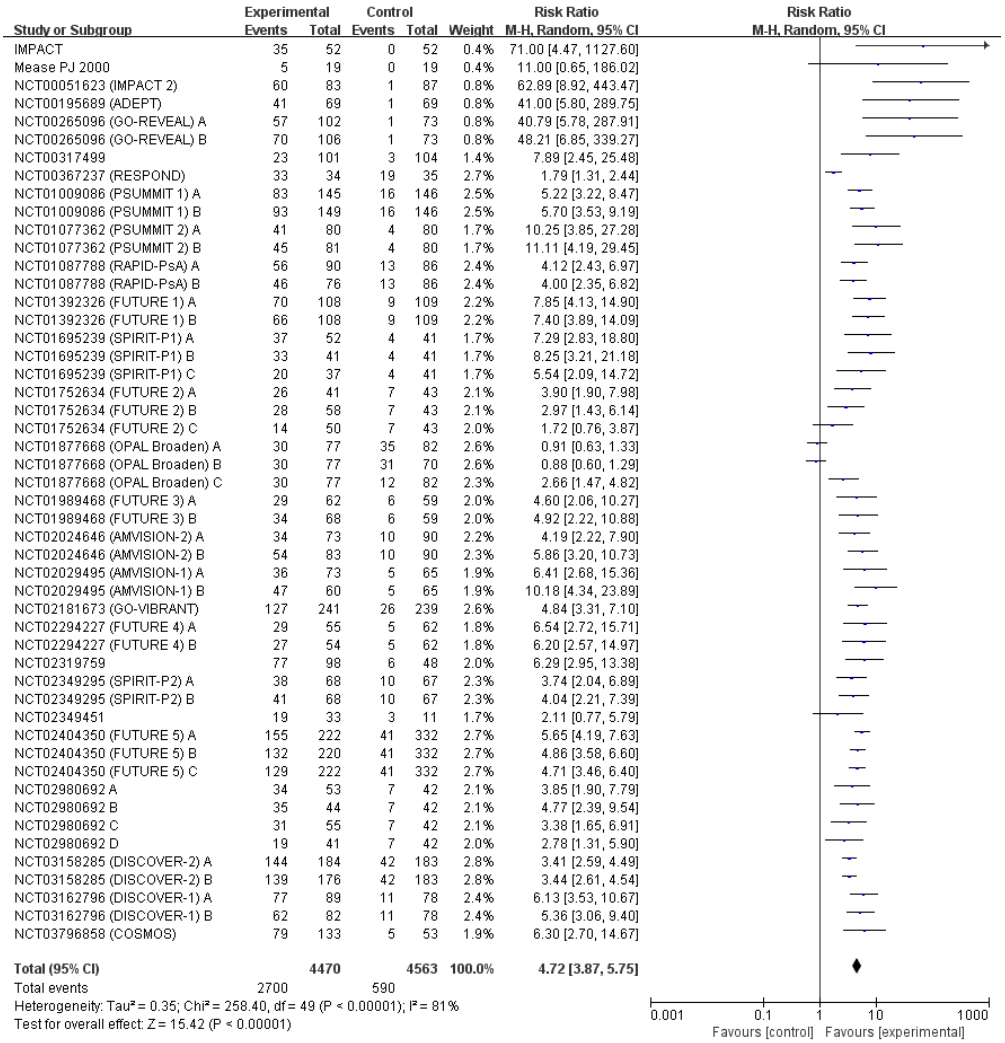

Figure S8. Forest plot of PASI 90. PASI 90, the proportion of participants achieving 90% improvement from baseline in Psoriasis Area Severity Index.

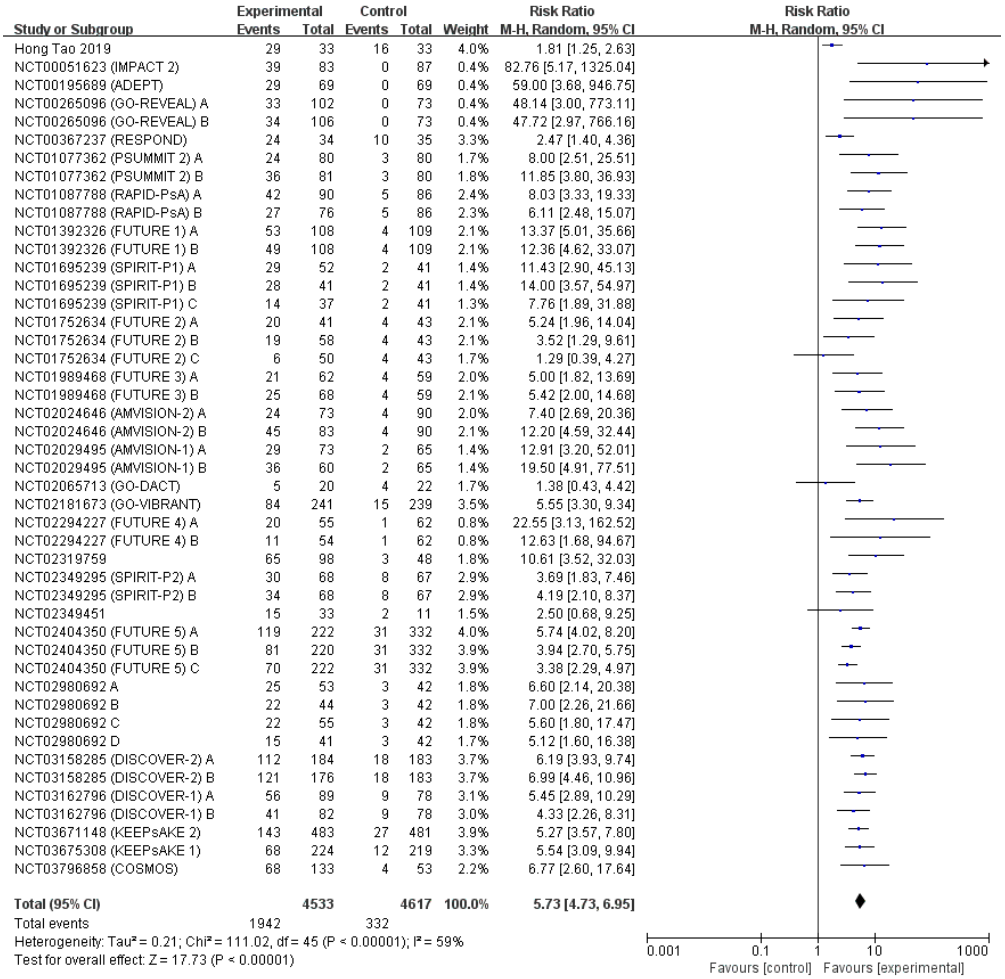

Figure S9. Forest plot of PASI 100. PASI 100, the proportion of participants achieving 100% improvement from baseline in Psoriasis Area Severity Index.