

SUPPLEMENTARY MATERIAL

Supplementary Table 1. Patient demographics and baseline clinical characteristics in the untrimmed population

Baseline Characteristics	TCZ mono n = 301	TNFi + MTX ≤ 10 mg n = 116	TCZ mono n = 301	TNFi + MTX > 10 mg to ≤ 15 mg n = 200	TCZ mono n = 301	TNFi + MTX > 15 mg to ≤ 20 mg n = 337	TCZ mono n = 301	TNFi + MTX > 20 mg n = 119
Female, n (%)	246 (81.7)	98 (84.5)	246 (81.7) ^a	154 (77.0)	246 (81.7) ^a	260 (77.4)	246 (81.7) ^a	90 (75.6)
Age, years, mean (SD)	59.1 (12.6)	58.6 (13.0)	59.1 (12.6)	58.5 (13.0)	59.1 (12.6) ^a	56.2 (12.4)	59.1 (12.6) ^a	53.9 (11.5)
White, n (%)	261 (86.7) ^a	88 (75.9)	261 (86.7)	169 (84.5)	261 (86.7) ^a	278 (82.7)	261 (86.7) ^a	95 (79.8)
Hispanic, n (%)	24 (8.7)	7 (7.0)	24 (8.7)	12 (6.7)	24 (8.7)	23 (7.7)	24 (8.7)	11 (10.3)
Current smoker, n (%)	45 (15.0)	15 (12.9)	45 (15.0)	33 (16.5)	45 (15.0)	60 (17.8)	45 (15.0)	22 (18.5)
BMI, mean (SD), kg/m ²	29.4 (7.1) ^a	30.8 (8.5)	29.4 (7.1) ^a	30.1 (7.1)	29.4 (7.1) ^a	31.5 (7.9)	29.4 (7.1) ^a	31 (7.7)
Work status, n (%)								
Full- or part-time	109 (36.2)	42 (36.5)	109 (36.2) ^a	84 (42.6)	109 (36.2) ^a	147 (43.8)	109 (36.2) ^a	56 (49.1)
Retired	67 (22.3) ^a	17 (14.7)	67 (22.3) ^a	34 (17.1)	67 (22.3)	68 (20.2)	67 (22.3)	26 (22.2)
Disabled	81 (26.9) ^a	42 (36.2)	81 (26.9)	49 (24.6)	81 (26.9) ^a	68 (20.2)	81 (26.9) ^a	18 (15.4)
Other	45 (15.0) ^a	13 (11.3)	45 (15.0)	32 (16.2)	45 (15.0)	53 (15.8)	45 (15.0)	15 (13.2)
Insurance, n (%)								
None	4 (1.3)	2 (1.7)	4 (1.3)	4 (2.0)	4 (1.3)	6 (1.8)	4 (1.3)	2 (1.7)
Private	225 (74.8)	82 (70.7)	225 (74.8)	154 (77.0)	225 (74.8)	257 (76.3)	225 (74.8)	89 (74.8)
Medicaid	14 (4.7)	6 (5.2)	14 (4.7)	10 (5.0)	14 (4.7)	22 (6.5)	14 (4.7)	8 (6.7)
Medicare	121 (40.2)	44 (37.9)	121 (40.2) ^a	58 (29.0)	121 (40.2) ^a	96 (28.5)	121 (40.2) ^a	27 (22.7)
Duration of RA, mean (SD), years	13.3 (9.4) ^a	11.8 (8.6)	13.3 (9.4) ^a	12.2 (10.5)	13.3 (9.4) ^a	9.7 (8.8)	13.3 (9.4) ^a	9.1 (7.5)
RF+, n (%)	105 (67.3) ^a	36 (58.1)	105 (67.3)	76 (68.5)	105 (67.3)	140 (70.0)	105 (67.3)	40 (66.7)
CCP+, n (%)	68 (61.3) ^a	24 (54.5)	68 (61.3)	59 (61.5)	68 (61.3)	94 (59.1)	68 (61.3)	34 (65.4)
History of comorbidities, n (%)								
Cardiovascular	34 (11.3)	12 (10.3)	34 (11.3) ^a	15 (7.5)	34 (11.3)	31 (9.2)	34 (11.3) ^a	8 (6.7)
Malignancy	22 (7.3) ^a	3 (2.6)	22 (7.3)	13 (6.5)	22 (7.3)	20 (5.9)	22 (7.3) ^a	4 (3.4)
Serious infection	27 (9.0) ^a	7 (6.0)	27 (9.0) ^a	12 (6.0)	27 (9.0) ^a	21 (6.2)	27 (9.0) ^a	7 (5.9)

Effectiveness of tocilizumab monotherapy vs TNFi with methotrexate

Diabetes	25 (8.3)	10 (8.6)	25 (8.3)	13 (6.5)	25 (8.3)	36 (10.7)	25 (8.3)	12 (10.1)
Depression	75 (24.9)	28 (24.1)	75 (24.9)	44 (22.0)	75 (24.9)	74 (22.0)	75 (24.9)	32 (26.9)
mHAQ, mean (SD)	0.7 (0.6) ^a	0.6 (0.5)	0.7 (0.6) ^a	0.6 (0.5)	0.7 (0.6) ^a	0.6 (0.5)	0.7 (0.6) ^a	0.6 (0.5)
CDAI, mean (SD)	28.3 (11.9) ^a	24.9 (12.9)	28.3 (11.9) ^a	26.2 (13.0)	28.3 (11.9) ^a	25.6 (12.6)	28.3 (11.9)	27.5 (11.8)
Patient pain, mean (SD), VAS (0-100)	60.4 (25.1) ^a	52.9 (25.7)	60.4 (25.1) ^a	52.7 (26.3)	60.4 (25.1) ^a	54.9 (26.6)	60.4 (25.1) ^a	55.9 (24.4)
Prednisone use, n (%)								
None	204 (67.8)	80 (69.0)	204 (67.8) ^a	146 (73.0)	204 (67.8)	223 (66.2)	204 (67.8)	81 (68.1)
< 10 mg	81 (26.9)	36 (31.0)	81 (26.9)	49 (24.5)	81 (26.9) ^a	107 (31.8)	81 (26.9)	33 (27.7)
≥ 10 mg	16 (5.3) ^a	0	16 (5.3) ^a	5 (2.5)	16 (5.3) ^a	7 (2.1)	16 (5.3)	5 (4.2)
Prior biologics, n (%)								
1	60 (19.9) ^a	55 (47.4)	60 (19.9) ^a	110 (55.0)	60 (19.9) ^a	200 (59.3)	60 (19.9) ^a	67 (56.3)
2	84 (27.9) ^a	25 (21.6)	84 (27.9)	60 (30.0)	84 (27.9)	87 (25.8)	84 (27.9) ^a	21 (17.6)
≥ 3	157 (52.2) ^a	36 (31.0)	157 (52.2) ^a	30 (15.0)	157 (52.2) ^a	50 (14.8)	157 (52.2) ^a	31 (26.1)
Prior TNFis, n (%)								
1	118 (39.2) ^a	68 (58.6)	118 (39.2) ^a	130 (65.0)	118 (39.2) ^a	235 (69.7)	118 (39.2) ^a	82 (68.9)
≥ 2	183 (60.8) ^a	48 (41.4)	183 (60.8) ^a	70 (35.0)	183 (60.8) ^a	102 (30.3)	183 (60.8) ^a	37 (31.1)

^aStandardized difference > 0.1. A standardized difference < 0.1 has been taken to indicate a negligible difference in the mean or prevalence of a covariate between treatment groups.

BMI, body mass index; *CCP*, cyclic citrullinated peptide antibody; *CDAI*, Clinical Disease Activity Index; *mHAQ*, modified Health Assessment Questionnaire; *mono*, monotherapy; *MTX*, methotrexate; *RA*, rheumatoid arthritis; *RF*, rheumatoid factor; *TCZ*, tocilizumab; *TNFi*, tumor necrosis factor inhibitor; *VAS*, visual analogue scale.

Supplementary Table 2. Patient demographics and baseline clinical characteristics in the stratified-matched population

Baseline Characteristics	TCZ mono n = 61	TNFi + MTX ≤ 10 mg n = 61	TCZ mono n = 71	TNFi + MTX > 10 mg to ≤ 15 mg n = 71	TCZ mono n = 95	TNFi + MTX > 15 mg to ≤ 20 mg n = 95	TCZ mono n = 53	TNFi + MTX > 20 mg n = 53
Female, n (%)	52 (85.2)	51 (83.6)	57 (80.3) ^a	52 (73.2)	74 (77.9)	73 (76.8)	41 (77.4) ^a	44 (83.0)
Age, years, mean (SD)	57.4 (14.1)	57.4 (14.0)	58.9 (11.5)	59.2 (12.9)	58.6 (12.8)	59.1 (12.4)	54.5 (13.6)	53.6 (12.3)
White, n (%)	52 (85.2)	50 (82.0)	59 (83.1) ^a	63 (88.7)	78 (82.1)	77 (81.1)	42 (79.2) ^a	47 (88.7)
Hispanic, n (%)	5 (8.6)	5 (8.8)	8 (11.9) ^a	5 (7.6)	13 (14.3) ^a	5 (6.0)	7 (14.6) ^a	3 (6.4)
Current smoker, n (%)	9 (14.8)	9 (14.8)	11 (15.5)	10 (14.1)	18 (18.9)	18 (18.9)	9 (17.0)	8 (15.1)
BMI, mean (SD), kg/m ²	28.8 (6.2)	29.3 (8.7)	29.8 (5.8) ^a	28.9 (6.8)	29.8 (7.2)	29.2 (6.3)	30.4 (7.6)	30.7 (6.9)
Work status, n (%)								
Full- or part-time	25 (41.0)	22 (36.7)	22 (31.0) ^a	28 (39.4)	31 (32.6)	31 (32.6)	19 (35.8) ^a	23 (43.4)
Retired	8 (13.1)	8 (13.1)	15 (21.1)	14 (19.7)	23 (24.2)	25 (26.3)	12 (22.6) ^a	17 (32.1)
Disabled	19 (31.1) ^a	24 (39.3)	18 (25.4)	19 (26.8)	22 (23.2)	19 (20.0)	9 (17.0) ^a	5 (9.4)
Other	9 (14.8) ^a	6 (10.0)	16 (22.5) ^a	10 (14.1)	19 (20.0)	20 (21.1)	13 (24.5) ^a	8 (15.1)
Insurance, n (%)								
None	0 ^a	1 (1.6)	2 (2.8)	1 (1.4)	3 (3.2)	3 (3.2)	0 ^a	2 (3.8)
Private	43 (70.5)	44 (72.1)	53 (74.6)	50 (70.4)	69 (72.6)	66 (69.5)	43 (81.1) ^a	37 (69.8)
Medicaid	4 (6.6) ^a	2 (3.3)	1 (1.4) ^a	4 (5.6)	3 (3.2) ^a	6 (6.3)	2 (3.8)	3 (5.7)
Medicare	26 (42.6)	23 (37.7)	23 (32.4)	24 (33.8)	37 (38.9)	37 (38.9)	17 (32.1)	16 (30.2)
Duration of RA, mean (SD), years	10.8 (7.7) ^a	11.8 (8.2)	12.5 (9.3)	13 (10.5)	11.7 (7.9)	11.9 (8.8)	9.9 (6.1)	10.6 (8.8)
RF+, n (%)	20 (66.7)	20 (69.0)	24 (63.2)	22 (61.1)	33 (71.7) ^a	43 (79.6)	16 (59.3)	15 (60.0)
CCP+, n (%)	13 (56.5)	12 (60.0)	15 (57.7)	17 (53.1)	25 (64.1) ^a	20 (55.6)	8 (53.3) ^a	13 (59.1)
History of comorbidities, n (%)								
Cardiovascular	8 (13.1)	8 (13.1)	5 (7.0)	6 (8.5)	11 (11.6)	10 (10.5)	3 (5.7)	4 (7.5)
Malignancy	6 (9.8) ^a	1 (1.6)	2 (2.8)	2 (2.8)	5 (5.3)	4 (4.2)	1 (1.9)	1 (1.9)
Serious infection	2 (3.3) ^a	5 (8.2)	5 (7.0) ^a	1 (1.4)	7 (7.4)	7 (7.4)	5 (9.4) ^a	2 (3.8)
Diabetes	3 (4.9) ^a	5 (8.2)	8 (11.3) ^a	5 (7.0)	15 (15.8) ^a	7 (7.4)	4 (7.5) ^a	9 (17.0)
Depression	14 (23.0)	13 (21.3)	17 (23.9)	20 (28.2)	22 (23.2)	20 (21.1)	12 (22.6) ^a	16 (30.2)

Effectiveness of tocilizumab monotherapy vs TNFi with methotrexate

mHAQ, mean (SD)	0.7 (0.6) ^a	0.5 (0.4)	0.7 (0.6) ^a	0.7 (0.5)	0.8 (0.5)	0.7 (0.6)	0.7 (0.5)	0.7 (0.5)
CDAI, mean (SD)	26.0 (11.0) ^a	27.2 (13.5)	27.8 (10.8)	26.9 (13.3)	27.6 (12.7)	27.1 (13.8)	26.2 (11.8) ^a	28.4 (11.3)
Patient pain, mean (SD), VAS (0-100)	55.8 (27.9)	55 (24.5)	61.2 (25.2) ^a	57.5 (26.0)	60.3 (26.5) ^a	57.5 (27.1)	53.8 (27.7) ^a	56.7 (22.8)
Prednisone use, n (%)								
None	44 (72.1) ^a	37 (60.7)	48 (67.6)	51 (71.8)	64 (67.4)	64 (67.4)	39 (73.6)	37 (69.8)
< 10 mg	17 (27.9) ^a	24 (39.3)	17 (23.9)	17 (23.9)	29 (30.5)	29 (30.5)	12 (22.6)	12 (22.6)
≥ 10 mg	0	0	6 (8.5) ^a	3 (4.2)	2 (2.1)	2 (2.1)	2 (3.8) ^a	4 (7.5)
Prior biologics, n (%)								
1	15 (24.6)	15 (24.6)	25 (35.2)	25 (35.2)	26 (27.4)	26 (27.4)	15 (28.3)	15 (28.3)
2	17 (27.9)	18 (29.5)	21 (29.6)	21 (29.6)	37 (38.9)	37 (38.9)	18 (34.0)	17 (32.1)
≥ 3	29 (47.5)	28 (45.9)	25 (35.2)	25 (35.2)	32 (33.7)	32 (33.7)	20 (37.7)	21 (39.6)
Prior TNFis, n (%)								
1	26 (42.6)	23 (37.7)	35 (49.3)	36 (50.7)	46 (48.4)	46 (48.4)	27 (50.9) ^a	24 (45.3)
≥ 2	35 (57.4)	38 (62.3)	36 (50.7)	35 (49.3)	49 (51.6)	49 (51.6)	26 (49.1) ^a	29 (54.7)

^aStandardized difference > 0.1. A standardized difference < 0.1 has been taken to indicate a negligible difference in the mean or prevalence of a covariate between treatment groups.

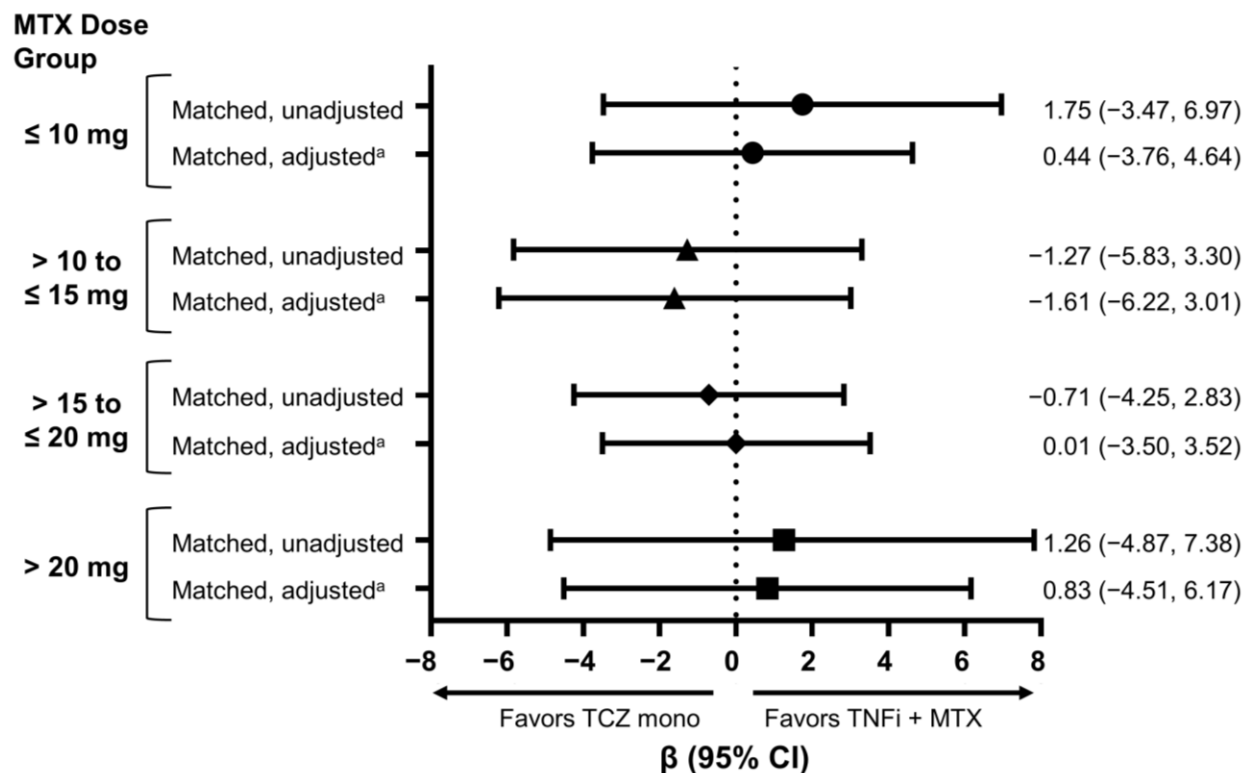
BMI, body mass index; *CCP*, cyclic citrullinated peptide antibody; *CDAI*, Clinical Disease Activity Index; *mHAQ*, modified Health Assessment Questionnaire; *mono*, monotherapy; *MTX*, methotrexate; *RA*, rheumatoid arthritis; *RF*, rheumatoid factor; *TCZ*, tocilizumab; *TNFi*, tumor necrosis factor inhibitor; *VAS*, visual analogue scale.

Supplementary Table 3. Unadjusted responses at 6 months in the trimmed and stratified-matched patient populations

	TCZ mono	TNFi + MTX ≤ 10 mg	TCZ mono	TNFi + MTX > 10 mg to ≤ 15 mg	TCZ mono	TNFi + MTX > 15 mg to ≤ 20 mg	TCZ mono	TNFi + MTX > 20 mg
Trimmed population								
Patients, n	283	108	300	186	292	273	285	107
Change in CDAI, mean (SD)	-9.7 (14.6)	-7.8 (13.6)	-9.6 (14.5)	-9.0 (14.2)	-9.6 (14.7)	-6.9 (12.8)	-9.7 (14.7)	-8.4 (15.0)
LDA (CDAI < 10), n (%)	82 (29.0)	33 (30.6)	88 (29.3)	70 (38.0)	85 (29.1)	73 (26.8)	85 (29.8)	32 (30.2)
mACR20, n (%)	100 (36.0)	32 (29.6)	105 (35.7)	68 (37.6)	102 (35.7)	66 (24.3)	101 (36.2)	36 (34.0)
mACR50, n (%)	56 (20.1)	17 (15.7)	59 (20.1)	37 (20.4)	57 (19.9)	36 (13.2)	58 (20.8)	15 (14.2)
Change in mHAQ, mean (SD)	-0.1 (0.5)	-0.1 (0.4)	-0.1 (0.5)	-0.1 (0.4)	-0.1 (0.5)	-0.1 (0.4)	-0.1 (0.5)	-0.1 (0.4)
Stratified-matched population								
Patients, n	61	61	71	71	95	95	53	53
Change in CDAI, mean (SD)	-7.3 (15.0)	-9.0 (14.1)	-9.9 (12.7)	-8.7 (14.8)	-8.0 (13.5)	-7.3 (11.1)	-6.1 (15.0)	-7.4 (16.8)
LDA (CDAI < 10), n (%)	17 (27.9)	18 (29.5)	27 (38.0)	23 (32.4)	29 (30.5)	24 (25.3)	17 (32.1)	11 (20.8)
mACR20, n (%)	21 (35.0)	18 (29.5)	21 (29.6)	26 (37.1)	28 (29.5)	21 (22.1)	12 (24.0)	18 (34.0)
mACR50, n (%)	11 (18.3)	8 (13.1)	14 (19.7)	13 (18.6)	15 (15.8)	11 (11.6)	9 (18.0)	8 (15.1)
Change in mHAQ, mean (SD)	-0.1 (0.5)	-0.1 (0.3)	-0.2 (0.5)	-0.1 (0.4)	-0.1 (0.5)	-0.1 (0.4)	0 (0.4)	-0.1 (0.3)

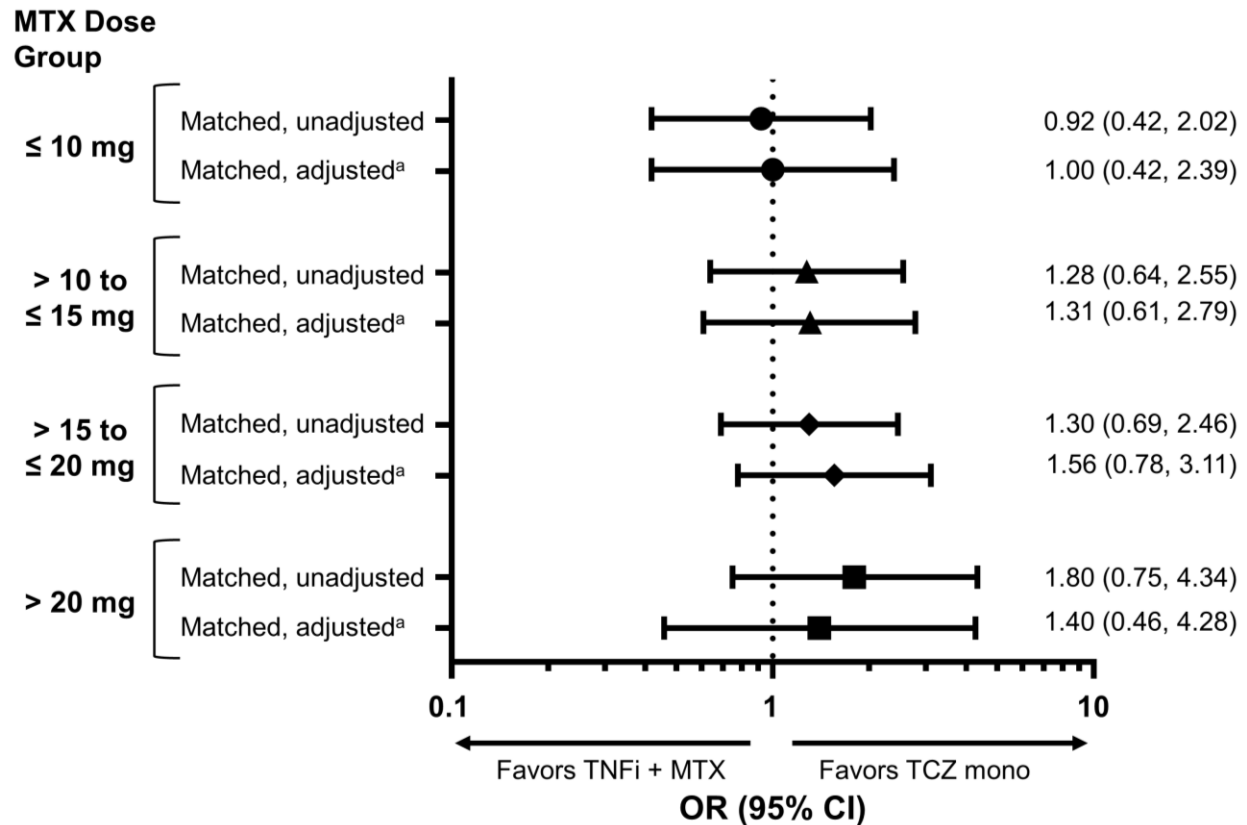
CDAI, Clinical Disease Activity Index; LDA, low disease activity; mACR, modified American College of Rheumatology response; mHAQ, modified Health Assessment Questionnaire; mono, monotherapy; MTX, methotrexate; TCZ, tocilizumab; TNFi, tumor necrosis factor inhibitor.

Supplementary Figure 1. Differences in the mean change from baseline in CDAI at 6 months in the stratified-matched population, TCZ monotherapy vs TNFi + MTX



^aAdjusted for age, sex, race (white vs nonwhite), disabled, retired, baseline CDAI, baseline modified Health Assessment Questionnaire, baseline patient pain, baseline prednisone use/dose, baseline body mass index, prior biologic use, prior TNF use, and American College of Rheumatology functional class. *CDAI*, Clinical Disease Activity Index; *mono*, monotherapy; *MTX*, methotrexate; *TCZ*, tocilizumab; *TNFi*, tumor necrosis factor inhibitor.

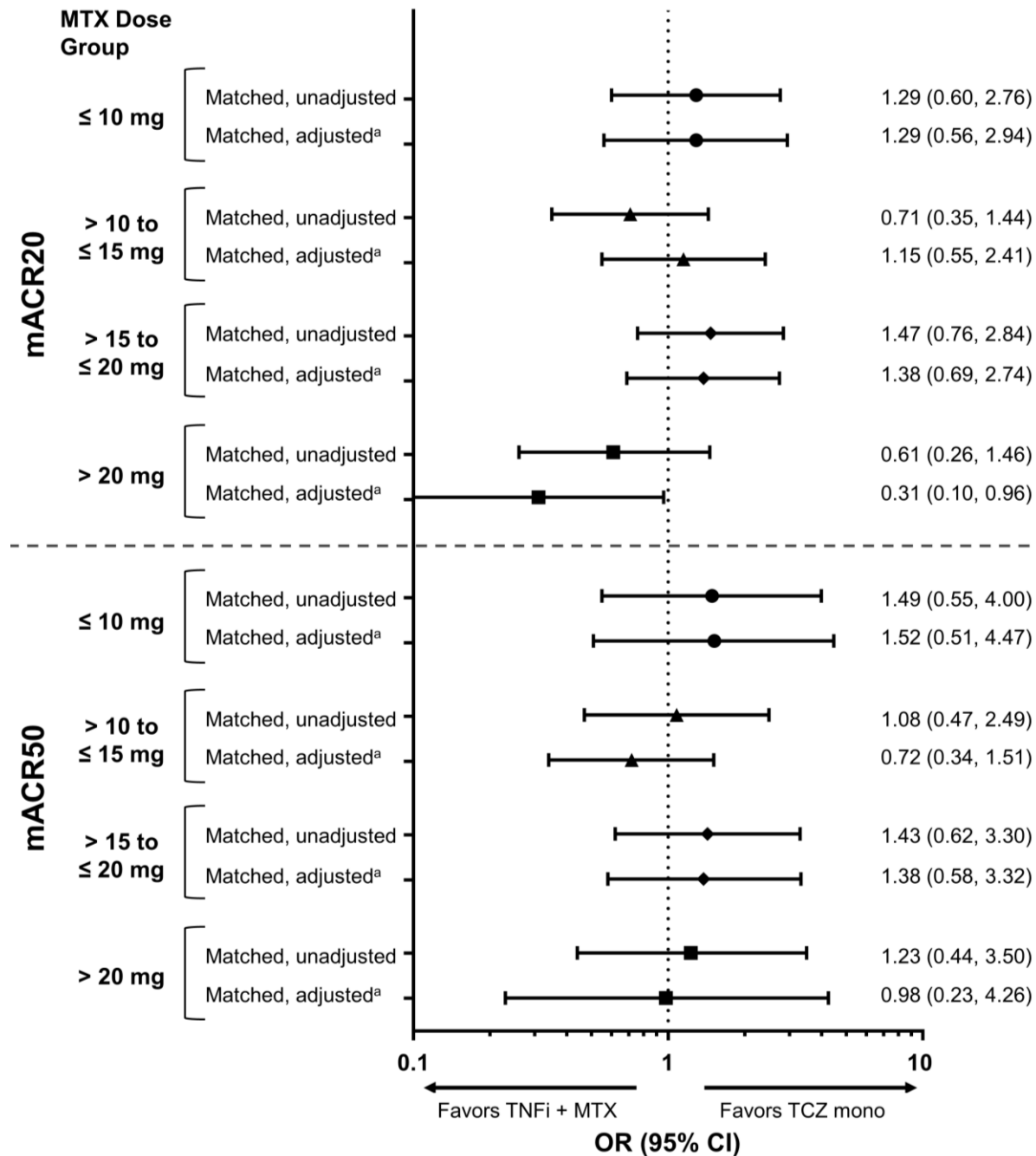
Supplementary Figure 2. ORs for achievement of LDA (CDAI ≤ 10) at 6 months in the stratified-matched population, TCZ monotherapy vs TNFi + MTX



^a Adjusted for age, sex, race (white vs nonwhite), disabled, retired, baseline CDAI, baseline modified Health Assessment Questionnaire, baseline patient pain, baseline prednisone use/dose, baseline body mass index, prior biologic use, prior TNF use, and American College of Rheumatology functional class.

CDAI, Clinical Disease Activity Index; LDA, low disease activity; *mono*, monotherapy; MTX, methotrexate; OR, odds ratio; TCZ, tocilizumab; TNFi, tumor necrosis factor inhibitor.

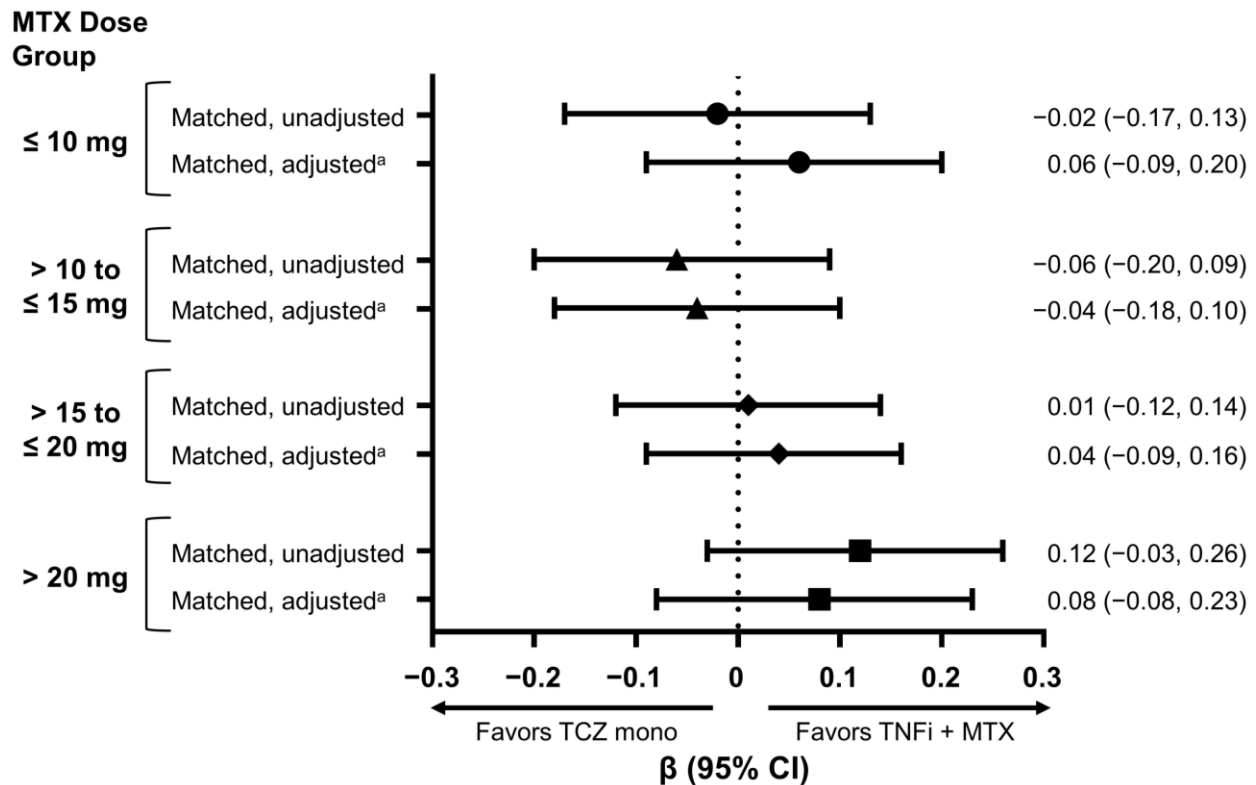
Supplementary Figure 3. ORs for achievement of mACR20 and mACR50 responses at 6 months in the stratified-matched population, TCZ monotherapy vs TNFi + MTX



^aAdjusted for age, sex, race (white vs nonwhite), disabled, retired, baseline Clinical Disease Activity Index, baseline modified Health Assessment Questionnaire, baseline patient pain, baseline prednisone use/dose, baseline body mass index, prior biologic use, prior TNF use, and ACR functional class.

mACR, modified American College of Rheumatology response; *mono*, monotherapy; MTX, methotrexate; OR, odds ratio; TCZ, tocilizumab; TNFi, tumor necrosis factor inhibitor.

Supplementary Figure 4. Differences in mean change from baseline in mHAQ at 6 months in the stratified-matched population, TCZ monotherapy vs TNFi + MTX



^aAdjusted for age, sex, race (white vs nonwhite), disabled, retired, baseline Clinical Disease Activity Index, baseline mHAQ, baseline patient pain, baseline prednisone use/dose, baseline body mass index, prior biologic use, prior TNF use, and American College of Rheumatology functional class.

mHAQ, modified Health Assessment Questionnaire; *mono*, monotherapy; MTX, methotrexate; TCZ, tocilizumab; TNFi, tumor necrosis factor inhibitor.