

Supplementary Table 1. Regression model summary.

Term	Coefficient (95%CI)	P
(Intercept)	4.03 (1.49 to 6.57)	0.002
IMID vs. Controls	-1.53 (-2.14 to -0.93)	<0.001
Age	-0.05 (-0.07 to -0.04)	<0.001
Male vs. female	0.63 (0.12 to 1.14)	0.016
Time-spline-1	0.25 (0.17 to 0.33)	<0.001
Time-spline-2	-0.25 (-0.35 to -0.16)	<0.001

Supplementary Table 2. Pairwise group/subgroup comparisons.

Comparison	Marginal mean difference* (95%CI)	P
Healthy controls - IMIDs	1.58 (0.98 to 2.19)	<0.001
(b/tsDMARD) - (csDMARD)	0.23 (-0.83 to 1.30)	0.974
(b/tsDMARD) - Controls	-1.58 (-2.37 to -0.79)	<0.001
(b/tsDMARD) - Untreated	-0.22 (-1.28 to 0.83)	0.976
(csDMARD) - Controls	-1.81 (-2.73 to -0.89)	<0.001
(csDMARD) - Untreated	-0.46 (-1.61 to 0.70)	0.866
Healthy controls - Untreated	1.35 (0.43 to 2.28)	0.022

*Adjusted for age, sex, time elapsed from first vaccination date to sampling date. CI, confidence intervals; IMIDs, immune-mediated inflammatory diseases, b/tsDMARDs, biologic or targeted synthetic disease modifying anti-rheumatic drugs; csDMARDs, conventional synthetic disease modifying anti-rheumatic drugs.

Supplementary Table 3. Empirical mean ODs by type of treatment.

Treatment Group	OD Mean (SD)
IMIDs-csDMARD	6.26 (3.00)
IMIDs-IL-23i	7.89 (1.42)
IMIDs-IL-17i	4.75 (2.61)

IMIDs-IL-6i	7.15 (1.08)
IMIDs-JAKi	4.88 (3.31)
IMIDs-Other Treatments	4.42 (5.22)
IMIDs-TNFi	8.04 (2.51)
IMIDs-Untreated	6.64 (3.70)
Controls	9.36 (1.85)

csDMARDs, conventional synthetic disease modifying anti-rheumatic drugs; IMIDs, immune-mediated inflammatory diseases, IL, interleukin; JAK, Janus kinase, TNF, tumor necrosis factor.

Supplementary Table 4. Safety in IMID patients and controls after first and second vaccination

N	IMIDs		Controls	
	70*		164 ⁺	
	First Vaccination	Second Vaccination	First Vaccination	Second Vaccination
Injection side pain, N (%)	32 (45.7)	32 (45.7)	129 (78.7)	106 (78.7)
Local reddening, N (%)	3 (4.3)	3 (4.3)	6 (3.7)	8 (4.9)
Local swelling, N (%)	5 (7.1)	3 (4.3)	20 (12.2)	24 (14.6)
Fatigue, N (%)	14 (20.0)	21 (30.0)	48 (29.3)	81 (49.4)
Headache, N (%)	7 (10.0)	19 (27.1)	37 (22.6)	56 (34.2)
Fever >38°C, N (%)	1 (1.4)	7 (10.0)	2 (1.2)	16 (9.8)
Lymphadenopathy, N (%)	2 (2.9)	3 (4.3)	4 (2.4)	13 (7.9)
Chills, N (%)	2 (2.9)	5 (7.1)	7 (7.9)	31 (18.9)
Arthralgia, N (%)	5 (7.1)	11 (11.4)	8 (4.9)	33 (20.1)
Myalgia, N (%)	6 (8.6)	10 (14.3)	17 (10.4)	42 (25.6)
Nausea/vomiting, N (%)	0	4 (5.7)	4 (2.4)	6 (3.7)
Diarrhea, N (%)	0	2 (2.9)	0	3 (1.8)
Neurologic, N (%)	2 (2.9)	1 (1.4)	0	2 (1.2)
Other side effects, N (%)	8 (11.4)	9 (12.9)	5 (3.1)	11 (6.7)

IMIDs, immune-mediated inflammatory diseases. *safety data were from 70 out of 84 IMID patients, ⁺ safety data were from 164 out of 182 controls