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Supplementary Table 1: List of Independent Ethics Committees or Institutional Review Boards (MEASURE 5 study)

| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name | Department / Organization | City, Country |
|---------------|-----------------------------------------------|-------------------|---------------------------|---------------|
| 1001          | Ethics Committee of Chinese PLA General Hospital | Prof. Feng Huang | Chinese PLA General Hospital | Beijing 100853, China |
| 1002          | Ethics Committee of Peking Union Medical College Hospital | Dr. Mengtao Li | Peking Union Medical College Hospital | Beijing 100005, China |
| 1003          | Ethics Committee of China-Japan Friendship Hospital | Dr. Xin Lu | China-Japan Friendship Hospital | Beijing, 100029, China |
| 1005          | Ethics Committee of Shanghai Guanghua Integrated traditional Chinese and Western Medicine Hospital | Prof. Dongyi He | Shanghai Guanghua Integrated traditional Chinese and Western Medicine Hospital | Shanghai 200052, China |
| 1006          | Ethics Committee of Guangdong General Hospital | Prof. Xiao Zhang | Guangdong General Hospital | Guangzhou, Guangdong, 510080, China |
| 1007          | Human research EC of The Second Affiliated Hospital of Zhejiang University School of Medicine | Prof. Huaxiang Wu | The Second Affiliated Hospital of Zhejiang University School of Medicine | Hangzhou, Zhejiang, 310009, China |
| 1008          | Ethics Committee of Jiangsu Province Hospital | Prof. Dr. Miaojia Zhang | Jiangsu Province Hospital | Nanjing, Jiangsu, 210029, China |
| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name | Department / Organization | City, Country |
|---------------|-----------------------------------------------|-------------------|---------------------------|--------------|
| 1009          | Ethics Committee of West China Hospital, Sichuan University | Dr. Yi Liu        | West China Hospital, Sichuan University | Chengdu, Sichuan, 610041, China |
| 1010          | Ethics Committee of Xiangya Hospital Central South University | Prof. Xiaoxia Zuo | Xiangya Hospital Central South University | Changsha, Hunan, 410008, China |
| 1011          | Ethics Committee of the 2nd Xiangya Hospital of Central South University | Prof. Jinwei Chen | The Second Xiangya Hospital of Central South University | Changsha, Hunan, 410011, China |
| 1012          | Ethics Committee of The 1st Affiliated Hospital of Xian Jiaotong University | Prof. Lan He      | The First Affiliated Hospital of The Xi'an JiaoTong University | Xian, Shaanxi, 710061, China |
| 1013          | Ethics Committee of People's Hospital of Xinjiang Uygur Autonomous Region | Prof. Lijun Wu    | People's Hospital of Xinjiang Uygur Autonomous Region | Urumqi, Xinjiang, 830002, China |
| 1014          | Ethics Committee of Ningbo First Hospital | Dr. Xiafei Xin    | Ningbo First Hospital | Ningbo, Zhejiang, 315010, China |
| 1015          | Ethics Committee of Tianjin Medical University General Hospital | Dr. Wei Wei       | Tianjin Medical University, General Hospital | Tianjin, Tianjin, 300052, China |
| 1016          | Ethics Committee of Sun yat-sen Memorial Hospital, Sun yat-sen | Dr. Lie Dai       | SUN YAT-SEN Memorial Hospital, Sun YAT-SEN | Guangzhou, Guangdong, 510120, China |
| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name       | Department / Organization                                      | City, Country                  |
|---------------|-----------------------------------------------|-------------------------|----------------------------------------------------------------|-----------------------------|
| 1017          | Ethics Committee of The Second Affiliated Hospital of Shanxi Medical University | Dr. Xiaoxia Wang       | The Second Affiliated Hospital of Shanxi Medical University     | Taiyuan, Shanxi, 030001, China |
| 1018          | Ethics Committee of The First Affiliated Hospital of AnHui Medical University   | Dr. Shengqian Xu       | The First Affiliated Hospital of AnHui Medical University       | Hefei, Anhui, 230022, China  |
| 1019          | Ethics Committee of Anhui Provincial Hospital | Dr. Xiaomei Li         | Anhui Provincial Hospital                                      | Hefei, Anhui, 230001, China  |
| 1021          | Ethics Committee of Huashan Hospital Affiliated to Fudan University | Dr. Weiguo Wan         | Huashan Hospital Affiliated to Fudan University                | Shanghai, Shanghai, 200041, China |
| 1022          | Ethics Committee of Tongji Hospital, Tongji Medical College of Huazhong, University of Science and Technology | Dr. Lingli Dong | Tongji Hospital, Tongji Medical College of Huazhong, University of Science and Technology | Wuhan, Hubei, 430030, China |
| 1023          | Ethics Committee of Shanghai Changhai Hospital | Prof. Dongbao Zhao     | Shanghai Changhai Hospital                                     | Shanghai, Shanghai, 200433, China |
| 1024          | Ethics Committee of The First Affiliated Hospital of Xiamen University | Dr. Guixiu Shi        | The First Affiliated Hospital of Xiamen                         | Xiamen, Fujian, 361003, China |
| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name | Department / Organization | City, Country |
|---------------|-----------------------------------------------|-------------------|----------------------------|--------------|
|               |                                               |                   | University                 |              |
| 1025          | Ethics Committee of Renji Hospital             | Dr. Nan Shen      | Renji Hospital              | Shanghai, Shanghai, 200127, China |
|               | Shanghai Jiaotong University, School of Medicine |                   | Shanghai Jiaotong, University School of Medicine |              |
| 1026          | Ethics Committee of The First Affiliated Hospital of Bengbu Medical University | Dr. Zhijun Li    | The First Affiliated Hospital of Bengbu Medical University | Bengbu, Anhui, 233004, China |
| 2001          | Ethics Committee of the Institute for Clinical and Experimental Medicine and Thomayer Hospital | Dr. Eva Dokoupilova | Thomayerova nemocnice | Videnska 800, Praha, 140 59, Czech Republic |
| 2002          | Ethics Committee of the Institute for Clinical and Experimental Medicine and Thomayer Hospital | Dr. Jan Rosa      | Thomayerova nemocnice | Videnska 800, Praha, 140 59, Czech Republic |
| 2003          | Eticka komise Revmatologickeho ustavu        | Doc. MUDr. Ladislav Senolt |                     | Na Slupi 4, Praha 2, 128 50, Czech Republic |
| 2004          | Ethics Committee of the Institute for Clinical and Experimental Medicine and Thomayer Hospital | Dr. Dagmar Galatikova | Thomayerova nemocnice | Videnska 800, Praha, 140 59, Czech Republic |
| 2005          | Ethics Committee of the Institute for Clinical and Experimental Medicine and | Dr Ladislav Bortlik | Thomayerova nemocnice | Videnska 800, Praha, 140 59, Czech Republic |
| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name | Department / Organization | City, Country |
|---------------|-----------------------------------------------|-------------------|---------------------------|---------------|
| 3001          | Thomayer Hospital                              |                   |                           |               |
| 3001          | Hanyang University, Medical Center IRB         | Dr. Tae Hwan Kim  | IRB                       | 222, Wangsimni-ro, Seongdong-gu, Seoul, 04763, Korea, Republic of |
| 3003          | Seoul National University, Hospital IRB        | Prof. Eun Young Lee | IRB                       | 101, Daehak-ro, Jongnogu, Seoul, 03080, Korea, Republic of |
| 3004          | Gachon University Gil, Medical Center IRB     | Prof. Han Joo Baek | IRB                       | 21, Namdong-daero 774beon-gil, Namdong-gu, Incheon, 21565, Korea, Republic of |
| 3005          | The Catholic University of Korea Seoul St. Mary’s Hospital IRB | Prof. Ji Hyeon Ju | Bristol Research Ethics Committee Centre, Level 3. Block B | 222, Banpo-daero, Seocho-gu, Seoul, 06591, Korea, Republic of |
| 3006          | Pusan National University, Hospital IRB       | Dr. Seung Geun Lee | IRB                       | 179, Gudeok-ro, Seo-gu, Busan, 49241, Korea, Republic of |
| 3007          | Chonnam National, University Hospital IRB     | Dr. Taejong Kim   |                           | 42, Jebong-ro, Dong-gu, Gwangju, Gwangju, 61469, Korea, Republic of |
| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name                   | Department / Organization                                      | City, Country                                         |
|---------------|-----------------------------------------------|-------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------|
| 4001          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Chee Seng Yee                   | Bristol Research Ethics Committee Centre, Level 3. Block B       | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4002          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Karl Gaffney                     | Bristol Research Ethics Committee Centre, Level 3. Block B       | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4004          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Antoni Chan                     | Bristol Research Ethics Committee Centre, Level 3. Block B       | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4005          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Raj Sengupta                    | Bristol Research Ethics Committee Centre, Level 3. Block B       | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4006          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Voon Ong                        | Bristol Research Ethics Committee Centre, Level 3. Block B       | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4008          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Easwaradhas Gladston Chelliah    | Bristol Research Ethics Committee Centre, Level 3. Block B       | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| Centre Number | Ethics Committee or Institutional Review Board | Investigator Name       | Department / Organization                  | City, Country                                      |
|---------------|------------------------------------------------|-------------------------|--------------------------------------------|--------------------------------------------------|
|               | Research Ethics Committee                       |                         | Block B                                   | Kingdom                                          |
| 4009          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Philip Helliwell   | Bristol Research Ethics Committee Centre, Level 3. Block B | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4010          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Christopher Edwards | Bristol Research Ethics Committee Centre, Level 3. Block B | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
| 4011          | National Research Ethics Service Committee South Central - Hampshire B Research Ethics Committee | Dr. Yusuf Patel         | Bristol Research Ethics Committee Centre, Level 3. Block B | Whitefriars, Level 3, Block B, Lewin’s Mead, Bristol, BS1 2NT, United Kingdom |
## Supplementary Table 2: Inclusion and exclusion criteria

| Inclusion criteria                                                                                     | Exclusion criteria                                                                                     |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1. Patients able to understand and communicate with the investigator and comply with the requirements of the study and give a written, signed, and dated informed consent before any study assessment was performed | 1. Chest x-ray or Magnetic Resonance Imaging with evidence of ongoing infectious or malignant process obtained within 3 months of screening and evaluated by a qualified physician |
| 2. Male or non-pregnant, non-lactating female patients at least 18 years of age                       | 2. Patients with total ankylosis of the spine                                                          |
| 3. Diagnosis of moderate to severe ankylosing spondylitis (AS) with prior documented radiologic evidence (x-ray or radiologist’s report) fulfilling the Modified New York criteria for AS | 3. Patients taking high potency opioid analgesics (e.g., methadone, hydromorphone, morphine)           |
| 4. Active AS assessed by Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) ≥4 (0-10) at baseline | 4. Previous exposure to secukinumab or any other biologic drug directly targeting interleukin (IL)-17 or the IL-17 receptor |
| 5. Spinal pain as measured by BASDAI question #2 ≥4 cm (0-10 cm) at baseline                        | 5. Use of any investigational drug and/or devices within 4 weeks of randomization or a period of 5 half-lives of the investigational drug, whichever was longer |
| 6. Total back pain as measured by visual analog score ≥40 mm (0-100 mm) at baseline                  | 6. History of hypersensitivity to the study drug or its excipients or to drugs of similar chemical classes |
| 7. Patients should have had inadequate response or failure to respond to at least 2 non-steroidal anti-inflammatory drugs (NSAIDs) at an approved dose for a minimum of 4 weeks in total and a minimum of 2 weeks for each NSAID prior to randomization, or less than 4 weeks if therapy had to be withdrawn due to intolerance, toxicity or contraindications | 7. Any therapy by intra-articular injections (e.g., corticosteroid) within 4 weeks before randomization |
| 8. Patients who were regularly taking NSAIDs (including cyclooxygenase (COX-1 or COX-2) inhibitors) as part of their AS therapy were required to be on a stable dose | 8. Any intramuscular corticosteroid injection within 2 weeks before randomization                        |
| 9. Patients previously treated with any biological immuno-modulating agents except for those targeting tumor necrosis factor α (TNFα) | 9. Patients previously treated with any biological immuno-modulating agents except for those targeting tumor necrosis factor α (TNFα) |
| 10. Patients who had taken more than one anti-TNFα agent                                              | 10. Patients who had taken more than one anti-TNFα agent                                                |
| 11. Previous treatment with any cell-depleting therapies, including but not limited to anti-CD20, investigational agents (e.g., CAMPATH, anti-CD4, anti-CD5, anti-CD3, anti-CD19) | 11. Previous treatment with any cell-depleting therapies, including but not limited to anti-CD20, investigational agents (e.g., CAMPATH, anti-CD4, anti-CD5, anti-CD3, anti-CD19) |
| 12. Traditional Chinese medicine treatment for a specific disease                                    | 12. Traditional Chinese medicine treatment for a specific disease                                       |
10. Patients who had been on a TNFα inhibitor (not more than one) must have had experienced an inadequate response to previous or current treatment given at an approved dose for at least 3 months prior to randomization or had been intolerant to at least one administration of an anti-TNFα agent

10. Patients who had previously been on a TNFα inhibitor were allowed to entry into study after an appropriate wash-out period prior to randomization:
   a. Four weeks for Enbrel® or “Yi Sai Pu”® (etanercept) – with a terminal half-life of 102 ± 30 hours (s.c. route)
   b. Eight weeks for Remicade® (infliximab) – with a terminal half-life of 8.0-9.5 days (s.c. route)
   c. Ten weeks for Humira® (adalimumab) – with a terminal half-life of 10-20 days (average 2 weeks) (s.c. route)
   d. Ten weeks for Simponi® (golimumab) – with a terminal half-life of 11-14 days
   e. Ten weeks for Cimzia® (certolizumab) – with a terminal half-life of 14 days

11. Patients taking MTX (≤25 mg/week) or sulfasalazine (≤3 g/day) were allowed to continue their medication and must have taken it for at least 3 months and have been on a stable dose for at least 4 weeks prior to randomization.

12. Patients on methotrexate (MTX) had to be on stable folic acid supplementation before randomization.

13. Patients who were on a disease-modifying anti-rheumatic drug (DMARD) other than MTX or sulfasalazine must have

13. Pregnant or nursing (lactating) women, where pregnancy was defined as the state of a female after conception and until the termination of gestation, confirmed by a positive human chorionic gonadotropin (hCG) laboratory test

14. Women of child-bearing potential, defined as all women physiologically capable of becoming pregnant, unless they were using effective methods of contraception during the entire study or longer if required by locally approved prescribing information (e.g., 20 weeks in EU)

15. Active ongoing inflammatory diseases other than AS that might confound the evaluation of the benefits of secukinumab therapy, including inflammatory bowel disease or uveitis

16. Underlying metabolic, hematologic, renal, hepatic, pulmonary, neurologic, endocrine, cardiac, infectious or gastrointestinal conditions which in the opinion of the investigator immunocompromised the subject and/or places the subject at unacceptable risk in case of use of immuno-modulatory therapy

17. Significant medical problems or diseases, including but not limited to the following: uncontrolled hypertension (≥160/95 mmHg), congestive heart failure (New York Heart Association status of class III or IV), uncontrolled diabetes or very poor functional status precluding ability to perform self-care

18. History of clinically significant liver disease or liver injury indicated by abnormal liver function tests, such as SGOT (AST), SGPT (ALT), alkaline phosphatase, and serum bilirubin. The investigator was to be guided by the following criteria:
   a. Any single parameter may not exceed 2 x the upper limit of normal (ULN). A single parameter elevated up to and including 2 x
discontinued the DMARD 4 weeks prior to randomization, except for leflunomide, which had to be discontinued for 8 weeks prior to randomization unless a cholestyramine washout had been performed.

14. Patients taking systemic glucocorticoids had to be on a stable dose of $\leq 10$ mg/day prednisone or equivalent for at least 2 weeks before randomization.

ULN should be re-checked once more as soon as possible, and in all cases, at least prior to enrollment/randomization, to rule out laboratory error.

b. If the total bilirubin concentration is increased above 2 x ULN, total bilirubin should be differentiated into direct and indirect reacting bilirubin.

19. History of renal trauma, glomerulonephritis, or patients with one kidney only, or a serum creatinine level exceeding 1.5 mg/dl (132.6 μmol/L).

20. Screening total WBC count $< 3,000/μl$, or platelets $< 100,000/μl$ or neutrophils $< 1,500/μl$ or hemoglobin $< 8.5$ g/dl (85 g/L).

21. Active systemic infections during the last 2 weeks (exception: common cold) prior to randomization.

22. History of ongoing, chronic or recurrent infectious disease or evidence of tuberculosis infection as defined by either a positive purified protein derivative (PPD) skin test (the size of induration was measured after 48-72 hours, and a positive result was defined as an induration of $\geq 5$ mm or according to local practice/guidelines) or a positive QuantiFERON TB-Gold test. Patients with a positive test were allowed to participate in the study if further work up (according to local practice/guidelines) established conclusively that the patient had no evidence of active tuberculosis. If presence of latent tuberculosis was established, then treatment according to local country guidelines had to be initiated.

23. Known infection with HIV, hepatitis B, or hepatitis C at screening or randomization.

24. History of lymphoproliferative disease or any known malignancy or history of malignancy of any organ system within the past 5 years (except for basal cell carcinoma or actinic keratosis that
had been treated with no evidence of recurrence in the past 3 months, in situ carcinoma of the cervix or non-invasive malignant colon polyps that had been removed)

25. Current severe progressive or uncontrolled disease which in the judgment of the clinical investigator rendered the subject unsuitable for the trial

26. Inability or unwillingness to undergo repeated venipuncture (e.g., because of poor tolerability or lack of access to veins)

27. Any medical or psychiatric condition which, in the investigator’s opinion, would preclude the participant from adhering to the protocol or completing the study per protocol

28. Blood donation or loss of 400 mL or more blood within 8 weeks before dosing

29. History or evidence of ongoing alcohol or drug abuse within the last 6 months before randomization

30. Plans for administration of live vaccines during the study period or 6 weeks prior to randomization
Supplementary Figure 1: Hypothesis testing strategy

Testing strategy to control type I error

The following hypotheses were included in the testing strategy, and type-I-errors were set such that a family-wise type-I-error of 5% was kept:

Primary objectives:

- $H_1$: secukinumab 150 mg regimen is not different to placebo regimen with respect to signs and symptoms (ASAS20 response) at Week 16

Secondary objectives:

- $H_2$: secukinumab 150 mg regimen is not different to placebo regimen with respect to signs and symptoms (ASAS40 response) at Week 16
- $H_3$: secukinumab 150 mg regimen is not different to placebo regimen with respect to change from baseline in hsCRP at Week 16
- $H_4$: secukinumab 150 mg regimen is not different to placebo regimen with respect to ASAS 5/6 response at Week 16
- $H_5$: secukinumab 150 mg regimen is not different to placebo regimen with respect to change from baseline in total BASDAI at Week 16
- $H_6$: secukinumab 150 mg regimen is not different to placebo regimen with respect to change from baseline in SF-36 PCS at Week 16
- $H_7$: secukinumab 150 mg regimen is not different to placebo regimen with respect to change from baseline in ASQoL at Week 16
- $H_8$: secukinumab 150 mg regimen is not different to placebo regimen with respect to ASAS partial remission criteria at Week 16
Supplementary Figure 2: ASDAS-CRP inactive disease response through Week 52

*P < 0.001; †P < 0.01; ‡P < 0.05 versus placebo. Missing values were imputed as non-response (NRI) through Week 16 and observed data from Week 20 to 52 (gray area).

ASDAS: Ankylosing Spondylitis Disease Activity Score; CRP: C-reactive protein; N: Total number of randomized patients; n: Number of evaluable patients; NRI: Non-responders imputation.
Supplementary Figure 3: MASES score through Week 52

*P < 0.05 versus placebo. MMRM data through Week 16 and observed data from Week 20 to 52 (gray area).

MASES, Maastricht Ankylosing Spondylitis Enthesitis Score; MMRM, mixed-effects repeated measures model; N, total number of randomized patients; n, number of evaluable patients
Supplementary Table 3: Summary of results in efficacy endpoints at Week 52 (observed data)

| Items          | Overall population | Chinese population |
|----------------|--------------------|--------------------|
|                | Secukinumab 150 mg | Placebo-secukinumab 150 mg | Secukinumab 150 mg | Placebo-secukinumab 150 mg |
|                | (N = 305)         | (N = 149)          | (N = 218)         | (N = 106)         |
| ASAS20*        | 206/267 (77.2)    | 86/124 (69.4)      | 148/190 (77.9)   | 64/94 (68.1)      |
| ASAS40*        | 168/267 (62.9)    | 67/124 (54.0)      | 118/190 (62.1)   | 49/94 (52.1)      |
| hsCRP†         | –12.98 (25.02)    | –14.72 (22.61)     | –15.79 (26.64)   | –15.30 (22.93)    |
|                | (n = 269)         | (n = 125)          | (n = 190)        | (n = 94)          |
| ASAS5/6*       | 174/268 (64.9)    | 69/136 (50.7)      | 124/190 (65.3)   | 54/ 94 (57.4)     |
| BASDAI†        | –3.66 (2.31)      | –3.19 (2.16)       | –3.69 (2.28)     | –3.11 (2.17)      |
|                | (n = 268)         | (n = 125)          | (n = 190)        | (n = 94)          |
| SF-36 PCS†     | 9.54 (7.71)       | 9.42 (6.83)        | 9.69 (7.68)      | 9.61 (6.63)       |
|                | (n = 271)         | (n = 126)          | (n = 194)        | (n = 95)          |
| ASQoL†         | –6.0 (4.97)       | –5.5 (4.94)        | –6.2 (5.04)      | –5.5 (5.15)       |
|                | (n = 270)         | (n = 126)          | (n = 193)        | (n = 95)          |
| ASAS PR*       | 83/267 (31.1)     | 27/124 (21.8)      | 61/190 (32.1)    | 20/ 94 (21.3)     |
*n/M (%) responders; †Mean change (SD). ASAS: Assessment of SpondyloArthritis international Society; ASQoL: ankylosing spondylitis quality of life; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; hsCRP: high sensitivity C-reactive protein; M: number of evaluable patients for binary variables; N: total number of randomized patients; n: number of responders for binary variables and evaluable patients for continuous variables; PR: partial remission; SF 36 PCS: short form 36 physical component summary.
Supplementary Table 4: Summary of results by baseline TNFi therapy status at Week 16

|                    | Overall population | Chinese population | Overall population | Chinese population |
|--------------------|--------------------|--------------------|--------------------|--------------------|
|                    | TNFi-naïve         | TNFi-IR            | TNFi-naïve         | TNFi-IR            |
|                    | Secukinumab        | Placebo            | Secukinumab        | Placebo            |
|                    | b 150 mg           | (N = 240)          | 150 mg             | (N = 164)          |
|                    | (N = 122)          |                    | (N = 86)           |                    |
|                    | Secukinumab        | Placebo            | Secukinumab        | Placebo            |
|                    | 150 mg             | (N = 31)           | 150 mg             | (N = 54)           |
|                    | (N = 65)           |                    | (N = 86)           |                    |
|                    | Secukinumab        | Placebo            | Secukinumab        | Placebo            |
|                    | 150 mg             | (N = 23)           | 150 mg             | (N = 54)           |
|                    | (N = 86)           |                    | (N = 65)           |                    |
| ASAS20             | 58.3 †             | 36.9               | 54.3 †             | 37.2               |
|                    |                    |                    |                    |                    |
| ASAS40             | 42.5 †             | 18.0               | 37.8 †             | 16.3               |
|                    |                    |                    |                    |                    |
| hsCRP              | 0.39 (1.06) *      | 1.01 (1.08)        | 0.34 (1.07) *      | 0.95 (1.1)         |
|                    |                    |                    |                    |                    |
| ASAS5/6            | 46.3 †             | 19.7               | 43.3 †             | 18.6               |
|                    |                    |                    |                    |                    |
| BASDAI             | -2.69 (0.15) *     | -1.47 (0.21)       | -2.45 (0.16) *     | -1.30 (0.23)       |
|                    |                    |                    |                    |                    |
| SF-36 PCS          | 7.36 (0.43) †      | 4.90 (0.60)        | 6.91 (0.46) †      | 4.18 (0.64)        |
|                    |                    |                    |                    |                    |
| ASQoL              | -4.67 (0.31) †     | -3.07 (0.43)       | -4.19 (0.36) †     | -2.55 (0.50)       |
|                    |                    |                    |                    |                    |
| ASAS PR            | 15.0 †             | 6.5                | 11.6               | 7.0                |
|                    |                    |                    |                    |                    |

* P < 0.0001; † P < 0.001; ‡ P < 0.01; § P < 0.05 versus placebo. Missing values were imputed as non-response (NRI) for binary and MMRM for continuous variables. ‖ % responders; ‡ Exponentially transformed LSM (SE), the geometric mean ratio of post-baseline/baseline, a value <1 indicates a reduced CRP;
“LS mean change (SE) from baseline; ASAS: Assessment of SpondyloArthritis international Society; ASQoL: ankylosing spondylitis quality of life; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; hsCRP: high sensitivity C-reactive protein; IR: inadequate response; LS: least squares; LSM: least squares mean; N: total number of randomized patients; NRI: non-responders imputation; PR: partial remission; SE: standard error; SF 36 PCS: short form 36 physical component summary; TNF: tumor necrosis factor
Supplementary Table 5: Summary of results by baseline TNFi therapy status at Week 52 (observed data)

| Items  | TNFi-naïve |  | TNFi-IR |  |
|--------|-------------|-----------------|--------|-----------------|
|        | Overall population | Chinese population | Overall population | Chinese population |
|        | Secukinumab 150 mg | Placebo-secukinumab 150 mg | Secukinumab 150 mg | Placebo-secukinumab 150 mg |
|        | (N = 239) | (N = 119) | (N = 66) | (N = 30) |
|        | Secukinumab 150 mg | Placebo-secukinumab 150 mg | Secukinumab 150 mg | Placebo-secukinumab 150 mg |
|        | (N = 163) | (N = 84) | (N = 55) | (N = 22) |
| ASAS20 | 160/209 | 71/100 | 109/141 | 53/75 | 46/58 | 15/24 | 39/49 | 11/19 |
| (76.6) | (71.0) | (77.3) | (70.7) | (79.3) | (62.5) | (79.6) | (57.9) |
| ASAS40 | 131/209 | 56/100 | 87/141 | 41/75 | 37/58 | 11/24 | 31/49 | 8/19 |
| (62.7) | (56.0) | (61.7) | (54.7) | (63.8) | (45.8) | (63.3) | (42.1) |
| hsCRP  | –11.08 | –13.98 | –13.14 | –14.24 | –19.88 | –17.88 | –23.42 | –19.49 |
| (22.17) | (21.80) | (22.90) | (21.50) | (32.73) | (26.02) | (34.41) | (28.15) |
|        | (n = 211) | (n = 101) | (n = 141) | (n = 75) | (n = 58) | (n = 23) | (n = 49) | (n = 19) |
| ASAS5/6 | 137/210 | 60/101 | 92/141 | 45/75 | 37/58 | 11/24 | 32/49 | 9/19 |
| (65.2) | (59.4) | (65.2) | (60.0) | (63.8) | (45.8) | (65.3) | (47.4) |
|                  |      |      |      |      |      |      |
|------------------|------|------|------|------|------|------|
| **BASDAI**†      | -3.56 (2.30) | -3.30 (2.18) | -3.58 (2.29) | -3.26 (2.19) | -4.00 (2.34) | -2.76 (2.06) |
|                  | (n = 210) | (n = 101) | (n = 141) | (n = 75) | (n = 58) | (n = 24) |
| **SF-36 PCS**†   | 9.18 (7.66) | 9.78 (7.01) | 9.26 (7.49) | 10.15 (6.70) | 10.81 (7.85) | 7.92 (5.87) |
|                  | (n = 212) | (n = 102) | (n = 143) | (n = 76) | (n = 59) | (n = 24) |
| **ASQoL**†       | -5.9 (4.96) | -5.6 (5.15) | -6.0 (5.00) | -5.6 (5.34) | -6.4 (5.06) | -5.3 (3.99) |
|                  | (n = 212) | (n = 102) | (n = 143) | (n = 76) | (n = 58) | (n = 24) |
| **ASAS PR***     | 61/209 | 25/100 | 40/141 | 19/75 | 22/58 | 21/49 |
|                  | (29.2) | (25.0) | (28.4) | (25.3) | (37.9) | (42.9) |

*n/M (%) responders; †Mean change (SD). ASAS: Assessment of SpondyloArthritis international Society; ASQoL: ankylosing spondylitis quality of life; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; hsCRP: high sensitivity C-reactive protein; M: number of evaluable patients for binary variables; M: number of evaluable patients for binary variables; N: total number of randomized patients; n: number of responders for binary variables and evaluable patients for continuous variables; TNF: tumor necrosis factor; PR: partial remission; SF 36 PCS: short form 36 physical component summary