Appendix SI

SUPPLEMENTARY MATERIALS AND METHODS

This study retrospectively evaluated the electronic medical records and skin biopsy specimens of patients diagnosed with psoriasis who visited Ajou University Hospital between January 2010 and June 2017. The diagnosis was confirmed using representative characteristic clinical findings and key histopathological features of psoriasis. Paediatric patients who were enrolled in this study were not more than 20 years old when the skin biopsy was conducted. After reviewing the clinical information in the electronic medical records and photographic documentation, clinical types of psoriasis were classified as plaque, guttate, or pustular type. In addition, clinical psoriasis type-matched adult psoriatic patients who underwent skin biopsy between January 2010 and June 2017 were enrolled in this study.

All skin biopsy specimens were independently examined by 2 dermatologists using conventional haematoxylin and eosin (H&E) staining for general histopathological changes. Immunohistochemical staining was performed using anti-CD3 (Thermo Fisher Scientific, CA, USA), anti-CD4 (Leica Biosystems, Nussloch, Germany), anti-CD8 (Thermo Fisher Scientific, CA, USA), anti-CD45 (Thermo Fisher Scientific, CA, USA), anti-IL-13a (Abnova, Taipei, Taiwan), anti-IL-17a (Abcam, Cambridge, UK), anti-IL-22 (Abcam, Cambridge, UK), anti-TNF-α (Thermo Fisher Scientific, CA, USA), anti-IFN-γ (Abnova, Taipei, Taiwan), and anti-FOXP3 (Abcam, Cambridge, UK) antibodies. Both qualitative and quantitative analyses were performed on a representative area of each specimen, and the amount of positive Ab area was measured under the same magnification ($\times 100$). Qualitative analysis was performed manually, and the staining intensity was recorded as negative (0+), weakly (1+ or 1.5+), moderately (2+ or 2.5+), or strongly (3+) positive for CD3, CD4, CD8, CD45, tumour necrosis factor (TNF)-α, FOXP3, interleukin (IL)-13a, IL-17a, IL-22, and interferon (IFN)-γ. Quantitative analysis was performed by image analysis using Image Pro Plus Version 4.5 (Media Cybernetics Co., Silver Spring, MD, USA) for TNF-α, IL-13a, IL-17a, IL-22, and IFN-γ.

Descriptive analyses, including χ^2 test or Fisher's exact test for categorical data and 2 sample t test or Mann–Whitney U test for numerical data, were used to evaluate statistical significance. The result was considered statistically significant when a 2-tailed p-value was < 0.05. Statistical analyses were performed using SPSS Statistics 20.0 for Windows (SPSS Inc., Chicago, IL, USA).

This study protocol was approved by the Ajou Institutional Review Board (IRB No.: AJIRB-BMR-MDB-15-341) prior to study commencement.