**Conclusion:** We found that classification of arthritis phenotype was study site-specific in our statistical models. After excluding site, age, cancer type, TJC, maximum steroid dose, and hand arthritis were associated with phenotypic classification. The influence of study site illustrates current heterogeneity in ICI-IA phenotyping among experts and the need for formalized classification for enrollment in clinical trials. These results identify variables that could be explored by the ACR/EULAR ICI-IA classification criteria working group.

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## AB1480 EXPRESSION OF JAK-STAT SIGNALING PATHWAY IN HIDRADENITIS SUPPURATIVA PATHOLOGICAL BIOPSY SPECIMENS

**Keywords:** Cytokines and chemokines, Skin, Cell biology

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**Background:** Hidradenitis suppurativa (HS) is inflammatory skin disease with an unknown etiology. JAK-STAT pathway may be implicated in its pathogenesis. Considering the unmet need in the treatment of inflammatory skin diseases, assessment of the JAK/STAT pathway could provide new understanding in the pathogenesis of these disorders. Therefore, in this study we primarily intended to investigate this pathway in patients with HS.

**Objectives:** Herein we aimed to investigate the JAK/STAT signaling pathway in the skin biopsies of HS patients and compared with psoriasis (PSO) and healthy subject.

**Methods:** This study used human tissues of healthy (n=26) and diseased skin samples obtained from the psoriatic (n=35) and HS (n=25) patients. Immunohistochemical methods were used to evaluate the expression of JAK1, JAK2, JAK3, Tyrosine Kinase 2 (TYK2), STAT1, STAT3, STAT4, STAT5, and STAT6. In the dermis, the staining intensity was recorded as 'positive' or 'negative. The epidermal part is divided into cytoplasmatic and nuclear parts and strong staining intensity recorded by staining in ≥50% of the cells.

**Results:** A total of 86 biopsies obtained from 25 HS (40.8 ±21.8 years, 60% male (M)), 35 PSO (46.5 ± 18.4 years, 57% M) and 26 control subjects (60.3 ± 18.3 years, 46% M) were analyzed. All JAK-STAT and TYK2 are overexpressed in dermal part of HS skin. TYK2, JAK3,STAT3 and STAT4 are strongly expressed in cytoplasmic part of epidermis in HS skin.TYK2, JAK3 and STAT1 is strongly expressed in nuclear part of epidermis in HS skin. JAK-STAT pathway is overexpressed in dermal part of psoriatic skin especially STAT2 and STAT6 but JAK1 is not expressed dermal part of psoriatic skin. All STATs and JAK1, JAK3 and TYK2 are strongly expressed in cytoplasmic part of epidermis in psoriatic skin. TYK2, JAK3 and STAT1 are strongly expressed in nuclear part of epidermis in psoriatic skin. The summary of the findings is given in Table 1. When look at the correlation analysis for TYK2 had strong correlation with HS according to control subjects in the dermal and nuclear staining. The summary of findings and the correlation analysis for HS, healty control (HC) and PSO is given in Table 1.

**Conclusion:** In this study, we demonstrated an increased activity in the skin biopsies of HS. When considering the unmet need in the treatment of this disease current data is significant for guiding the possible future therapies.

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**Table-1. Summary of the findings and the correlation between inflammatory skin diseases and JAK/STAT pathway staining in the skin**

| | Hidradenitis Suppurativa (n=25) | Psoriasis (n=35) | Healthy skin (n=26) | HS vs. HC* | PSO vs. HS* |
|---|---|---|---|---|---|
| ***Dermal staining*** | | | | | |
| TYK2 | 23, (92) | 34, (97.1) | 0 | **0.92** | |
| JAK1 | 3, (8.6) | 0 | 0 | | |
| JAK2 | 14, (56) | 21, (60) | 2, (7.7) | **0.52** | |
| JAK3 | 23, (92) | 31, (88.6) | 0 | **0.92** | |
| STAT1 | 16, (64) | 27, (77.1) | 0 | **0.69** | |
| STAT2 | 25, (100) | 35, (100) | 14, (53.8) | **0.42** | |
| STAT3 | 23, (92) | 34, (97.1) | 0 | **0.92** | |
| STAT4 | 4, (16) | 11, (31.4) | 0 | **0.29** | |
| STAT5 | 17, (68) | 27, (77.1) | 0 | **0.72** | |
| STAT6 | 14, (56) | 33, (94.3) | 0 | **0.62** | **-0.45** |
| ***Epidermal cytoplasmic staining in ≥50% of the cells*** | | | | | |
| TYK2 | 2, (8) | 21, (60) | 8, (30.8) | **-0.69** | **-0.58** |
| JAK1 | 8, (32) | 11, (31.4) | 0 | | |
| JAK3 | 25, (100) | 35, (100) | 26, (100) | **0.44** | |
| STAT3 | 22, (88) | 34, (97.1) | 14, (53.8) | **0.37** | |
| STAT4 | 15, (60) | 29, (82.9) | 14, (53.8) | | **-0.25** |
| ***Epidermal nuclear cells with strong staining*** | | | | | |
| *TYK2* | 5, (20) | 27, (77.1) | 0 | **0.76** | **-0.56** |
| *JAK3* | 25, (100) | 35, (100) | 26, (100) | | |
| *STAT1* | 19, (76) | 31, (88.6) | 19, (73.1) | | |

* Note that "r" correlation coefficients were given in the cells which indicated significant correlations between the variables (p<0.05). Empty cells indicated no correlation (p>0.05) therefore "r" values were not provided.

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**Disclosure of Interests: None Declared.**

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## AB1481 EMERALD STUDY DESIGN: A TWO-COHORT, OPEN-LABEL, SINGLE-ARM STUDY OF EMAPALUMAB, AN ANTI–INTERFERON-Γ (IFNΓ) MONOCLONAL ANTIBODY, IN PATIENTS WITH MACROPHAGE ACTIVATION SYNDROME (MAS) IN RHEUMATIC DISEASES

**Keywords:** Systemic lupus erythematosus, Cytokines and chemokines, Inflammatory arthritides

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**Background:** MAS is a severe, life-threatening form of secondary hemophagocytic lymphohistiocytosis associated with rheumatic diseases such as Still's disease (systemic juvenile idiopathic arthritis or adult-onset Still's disease) and systemic lupus erythematosus (SLE). IFNγ has been implicated in the underlying pathology of both conditions. High-dose glucocorticoids (GCs) are the standard first-line treatment for MAS; however, there is no standardized approach to treating patients who are refractory to high-dose GCs. In a pilot study of 9 patients with an inadequate response to high-dose GCs, IFNγ was rapidly neutralized, and MAS controlled, following emapalumab administration (NCT03311854). Emapalumab also had a favorable safety profile.

**Objectives:** To present the design of a study enrolling patients with MAS in Still's disease and SLE with the aim of evaluating the efficacy and safety of emapalumab.

**Methods:** EMERALD (NCT05001737) is an open-label, single-arm, multicenter, phase 2/3 interventional study enrolling pediatric and adult patients with MAS and an inadequate response to high-dose GCs into two cohorts: MAS in Still's disease (n=25) and MAS in SLE (n=16). Key eligibility criteria vary by cohort and phase (Table 1). Each cohort is a single-arm study comprising two phases: an optional run-in phase and an interventional phase. Patients are treated with high-dose GCs during the run-in phase and followed until MAS remission, inadequate response, or 12 weeks (whichever occurs first). Eligible patients enrolled in the interventional phase are treated with

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