**Proceedings Paper:**
Mohamed, AAA, El-Sherbiny, Y orcid.org/0000-0003-4791-3475, Hensor, EM orcid.org/0000-0002-5245-4755 et al. (6 more authors) (2016) Type I Interferon Activity Is Associated with Mucocutaneous but Not Musculoskeletal Disease Activity in Systemic Lupus Erythematosus:. In: Annals of the Rheumatic Diseases. Annual European Congress of Rheumatology: EULAR 2016, 08-11 Jun 2016, London, UK. BMJ Publishing Group , p. 547.

https://doi.org/10.1136/annrheumdis-2016-eular.5570

# Medical or Research Professionals/Clinicians

***Topic area: Basic and translational research***

***Topic: 8. SLE, Sjögren's and APS - etiology, pathogenesis and animal models***

**EULAR16-5488**

**TYPE I INTERFERON ACTIVITY IS ASSOCIATED WITH MUCOCUTANEOUS BUT NOT MUSCULOSKELETAL DISEASE ACTIVITY IN SYSTEMIC LUPUS ERYTHEMATOSUS**

A. A. A. Mohamed[*1,2], Y. El-Sherbiny[2], E. M. A. Hensor[2], M. Y. Md Yusof[2], S. H. Goma[1], E. A. Abda[1], F. M. Abd-Allah[1], P. Emery[2], E. M. Vital[2]

[1]Rheumatology and Rehabilitation, Assiut University, Assiut, Egypt, [2]Leeds Institute of Rheumatic and Musculoskeletal Medicine, Leeds University, Leeds, United Kingdom

**My abstract has been or will be presented at a scientific meeting during a 12 months period prior to EULAR 2016:** No

**Is the first author applying for a travel bursary and/or an award for undergraduate medical students?:** Yes

**Is the first author of this abstract an undergraduate medical student?:** No

**Please confirm that you will apply for the travel bursary on the EULAR website www.congress.eular.org:** Yes

**Background:** SLE is clinically and immunologically heterogeneous(1). Type I interferons (IFN-I) are pathogenic but expression of IFN-I stimulated genes varies. Many existing reports on clinical phenotype and IFN-I were limited by using categorical measures of IFN-I and disease activity scores that were not organ-specific. IFN-I targeted therapies are in development (2,3).

**Objectives:** To define the clinical phenotype of IFN-I mediated SLE.

**Methods:** 108 SLE patients and 20 age and sex matched healthy controls were studied. Activity was measured using BILAG-2004. PBMCs were collected for gene expression analysis using TaqMan. Relative expression of 7 interferon stimulated genes was ln-transformed, normalized to healthy control and summed to derive a 7-gene IFN-I score.

**Results:** The most common activity was mucocutaneous and musculoskeletal, which were analysed in detail (Table 1). The relationship between activity and IFN-I score differed between these domains. Overall, IFN-I scores were higher in active mucocutaneous disease. Scores were more variable for BILAG B: this was explained by subtype of BILAG B disease. IFN-I score was increased in subacute and discoid forms (25.3(16.8-32.9), n=7) compared to acute forms (18.4(4.9-31), n=15). Score was also higher in patients with anti-Ro60. In contrast, there was no relationship between musculoskeletal disease activity and IFN-I score.

Numbers of patients with renal, haematological and neuropsychiatric activity were limited but there was a trend to higher IFN-I scores with disease activity.

| BILAG Domain Score (n) | IFN Score Median (IQR) | P value vs. D+E | P Value vs. E |
|---|---|---|---|
| **Mucocutaneous** | | | |
| A (6) | 27.2 (26.3-31.5) | 0.027 | 0.005 |
| B (22) | 20.5 (9.1-32) | 0.255 | 0.181 |
| C (18) | 30.7 (11.7-38.2) | 0.025 | 0.042 |
| D (46) | 19.3 (3.7-28.1) | NA | 0.469 |
| E (16) | 14 (4.2-22.6) | NA | NA |
| D+E (62) | 17.6 (3.7-27.6) | NA | NA |
| **Musculoskeletal** | | | |
| A (6) | 24.9 (5-31) | 0.846 | 0.662 |
| B (15) | 19.8 (6.5-28.4) | 0.652 | 0.925 |
| C (37) | 17.2 (3.5-30.7) | 0.445 | 0.965 |
| D (42) | 24.2 (6.2-31.8) | NA | 0.746 |
| E (8) | 19.4 (10.8-26.3) | NA | NA |
| D+E (50) | 23.5(6.2-31.4) | NA | NA |

**Conclusions:** We identify a relationship between clinical presentation of SLE and IFN-I. High IFN-I activity is linked to anti-Ro60 and non-acute forms of skin disease. We previously reported a worse response to rituximab in this subgroup, whilst response in musculoskeletal disease was consistently good. Measurement of B cell and interferon biomarkers may therefore be important in the selection of the most appropriate targeted therapy for SLE.

**References:** 1. Merola, J.F.,et al (2013). J Am Acad Dermatol.
2. Rose, T., et al (2013). Ann Rheum Dis .
3. Kennedy, W.P., et al (2015). Lupus Sci Med .

**Disclosure of Interest**: None declared