disease process and are likely to pave the way towards identifying disease-biomarkers for early-diagnosis of LN.

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**Background and aims** The anti-CD20 agent rituximab (RTX) is generally reserved for the treatment of refractory SLE. Whist response is variable no clear predictors of early response have been confirmed. We aimed to explore factors that predict early response to RTX in a nationwide cohort of patients receiving their first RTX course.

**Methods** The BILAG-BR has recruited patients with refractory SLE starting RTX in the UK since Sept 2010. For this analysis we included patients who received RTX up to November 2015, had active disease at baseline, and had disease activity indices reported at baseline and 6 months. Response was defined as improvement of all active BILAG 2004 systems with no worsening in other systems or SLEDAI-2K; and no increase in glucocorticoid dose at 6 months.

**Results** In 197 patients (90.36% females) 99 (50.8%) responded at 6 months. In a multivariable model with imputation for missing variables, concomitant IV cyclophosphamide and higher baseline oral glucocorticoid dose were associated with better response. A higher baseline global BILAG-2004 score was associated with lower rates of response (Table 1).

**Conclusions** Early response to RTX in refractory SLE was associated with use of concomitant cyclophosphamide, higher glucocorticoid doses and lower baseline disease activity. Serology and demographic factors did not predict response. Understanding how concomitant therapy improves longer-term responses and identifying novel biomarkers of response will improve patient selection and overall outcomes for patients receiving this therapy.

**Abstract 300 Table 1**    Multivariable imputed model after backwards stepwise regression

| Baseline factor | Odds ratio | 95% CI | p |
|---|---|---|---|
| Concomitant cyclophosphamide | 4.50 | (1.77, 11.43) | 0.002 |
| Global BILAG at baseline | 0.96 | (0.93, 0.99) | 0.007 |
| Baseline oral steroid dose | 1.03[*] | (1.00, 1.06) | 0.033 |

*per 1mg increase in daily oral steroid dose. For every 10mg daily increase, OR 1.30

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**Background and aims** The successful application of IL-17 inhibitors in a number of chronic inflammatory diseases has increased interest for the role of IL-17 in other conditions. We investigated the clinical associations for the predominant family member IL-17A in patients with Systemic Lupus Erythematosus (SLE).

**Methods** Cross-sectional study of SLE patients (n=102, age 49, 86% female) recruited from a regional registry. IL-17A levels were determined by immunoassay, disease activity by SLEDAI-2K and cumulative damage by SLICC-DI scores. Non-parametric techniques were used to examine the association between IL-17A and disease activity, autoantibody profiles and damage development in SLE patients and for comparisons with healthy controls (n=31).

**Results** SLE patients had higher IgG levels, lower T cell and B cell counts, but median IL-17A levels did not differ from controls (28.4 vs. 28.4 pg/ml, p=0.9).

In SLE patients, IL-17A levels did not correlate with SLE-DAI-2K or SDI, but were inversely related with systolic blood pressure (r=−0.31, p=0.02), years smoking (r=−0.23, p<0.001), cumulative heart (r=−0.24, p=0.03) and malignancy damage (r=−0.18, p=0.06).

Serological correlations for IL-17A existed with levels of IgG (r=0.21, p=0.05), hs-CRP levels (r=0.28, p<0.01), proteinuria (r=0.64, p=0.004) and pre-albumen (r=−0.22, p=0.03).

Longitudinal data showed only modest fluctuations in 17A levels, unrelated to SLEDAI-2K

**Conclusions** These data indicate that while IL-17A participates in the inflammatory process in SLE, it also seems to serve a protective purpose in reducing heart disease and cancer in SLE. This dual role is consistent with experimental and clinical data and raises concerns about inhibiting IL-17 in SLE patients.

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**Background and aims** IFNα, produced by plasmacytoid dendritic cells (pDCs) is a major contributor to SLE pathogenesis. IL-3 promotes pDC survival, but its role in SLE has not been well characterised. This study investigated serum IL-3 and IFNα levels, and a whole blood 'IL-3 gene signature' in human SLE.

**Methods** Serum cytokine levels were measured by ELISA in n=42 SLE donors from The Royal Melbourne Hospital and n=44 healthy donors (HD). IL-3 upregulated genes were determined by RNASeq of HD whole blood (WB) stimulated

*in vitro* with IL-3 for 6 or 24 hours. WB RNASeq analysis was also undertaken in n=31 SLE donors from the Monash Lupus Clinic and n=28 HDs.

**Results** Serum IL-3 levels correlated with serum IFNα (r=0.612, 95% CI 0.455–0.733, p<0.001). IL-3 stimulation *in vitro* altered 794 genes (−1≥logFC ≥1, FDR<0.05). Thirty-five of these genes overlapped with differentially expressed genes between SLE and HD. These 35 genes were expressed in 28/31 SLE donors, revealing the presence of an 'IL-3 gene signature'. There was strong correlation between the IL-3 signature and an IFN signature determined by heirarchical clustering of the five hundred most variable genes in SLE donors (r=0.939, 95% CI 0.898–0.964, p<0.0001).

**Conclusions** We have previously reported a novel anti-IL-3Rα mAb (CSL362/JNJ-473), which depletes pDCs and reduces IFNα production, as well as neutralising IL-3 signalling (Oon S, JCI Insight, 2016). An association between IL-3 and IFNα was found in this study, raising the possibility that CSL362 may be especially useful for lupus patients with a dual IL-3/IFN gene signature.

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**303** | **URINARY VCAM 1 AS A DISEASE ACTIVITY INDICATOR IN LUPUS NEPHRITIS**

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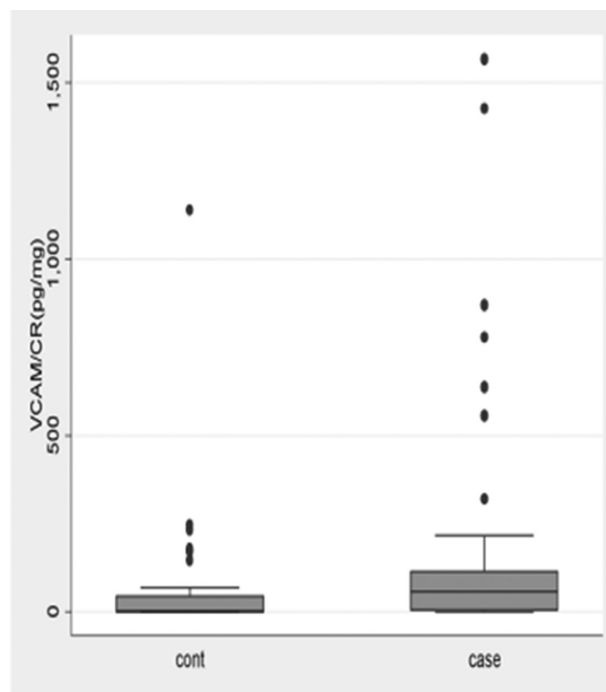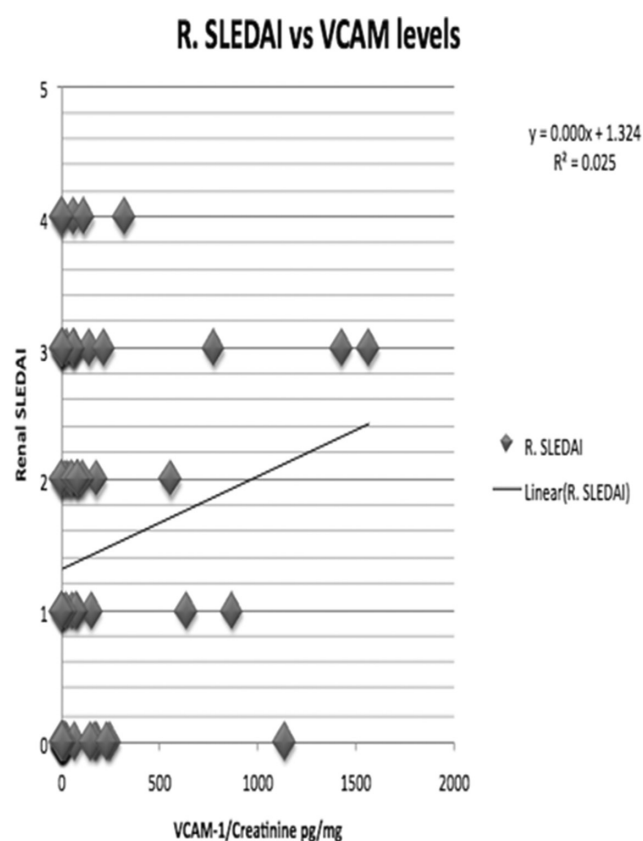
Scatter plot showing VCAM values in cases (with active nephritis)
And controls (without nephritis)

**Abstract 303 Figure 2**



**Abstract 303 Figure 1**

**Background and aims** Currently we do not have a biomarker that can closely reflect the renal disease activity. So the aim of this study is to study the utility of urinary VCAM 1(Vascular cell adhesion molecule 1) in lupus nephritis.

**Methods** It was a diagnostic case control study. The patients presenting to Rheumatology outpatient department were recruited. Patients were divided into 2 groups, SLE without active nephritis and SLE with active nephritis based on the renal SLEDAI. Urinary VCAM1 was tested in all patients using an early morning spot urine sample using ELISA. Renal biopsy was done in patients with active nephritis. VCAM1 levels were compared with the renal SLEDAI, renal biopsy disease activity (ISNRPS) and standard of care markers. The results were analysd using SPSS software version 16.The validity and predictive value statistics was presented with 95 percent confidence interval.

**Results** Urinary VCAM 1 levels had significant correlation (p=0.01) with disease activity based on renal SLEDAI. However, the correlation between the biopsy findings and VCAM levels was not statistically significant. Class 4 and 5 lupus nephritis had higher VCAM level than the lower classes. A positive correlation (r=0.38) was found between VCAM 1 and double stranded DNA. There was a negative correlation between C3 value and VCAM (r=−0.19). The sensitivity and specificity of urinary VCAM 1 is 65.22% and 75% respectively. The cut off value of VCAM is 23.8 pg/mg of creatinine.

**Conclusions** Urinary VCAM 1 may not independently, but combined with other markers may be a promising biomarker for disease activity in lupus nephritis.