Methods Phenotypic analysis of peripheral blood B-lymphocytes was made by flow-cytometry in a cohort of SLE patients treated with belimumab. SLE-disease activity was assessed by SLEDAI-2K score. BAFF was tested by ELISA. SPSS was used for statistical analysis.

Results The relative change of BAFF levels at 6 and 12 months from baseline showed linear correlation with the percentage of naïve B-cells (Pearson correlation=0.645, $p=0.044$ and 0.639, $p=0.002$, respectively) and of transitional B-cells (Pearson correlation=0.768, $p=0.009$ and 0.623, $p=0.055$, respectively). The percentage and absolute number of naïve B-cells showed a progressive decrease during time (ANOVA, $p=0.013$ and $p=0.001$ respectively). In terms of response prediction, a significant association of SLEDAI percentage improvement at 12 months with the decrease of total number of B-cells within the first 6 months of therapy was observed (Log regression $r=0.707$, $p=0.05$).

Conclusions BAFF inhibition induces B-cell number modifications in a SLE cohort. The reduction of total number of B-cells within the first six months shows predictive value for SLEDAI response after the first year of therapy.

REFERENCES

1. Vossenkämper A, Lutalo PM, Spencer J. Translational mini-review series on B cell subsets in disease. Transitional B cells in systemic lupus erythematosus and Sjögren's syndrome: clinical implications and effects of B cell-targeted therapies. *Clin Exp Immunol* 2011;**167**(1):7–14.
2. Boneparth A, Davidson A. B-cell activating factor targeted therapy and lupus. *Arthritis Res Ther* 2012;**14** (Suppl 4):S2.
3. Jacobi AM, Huang W, Wang T, Freimuth W, Sanz I, Furie R, et al. Effect of long-term belimumab treatment on B cells in systemic lupus erythematosus. *Arthritis Rheum* 2010;**62**:201–210.

Acknowledgements The authors are grateful to Carla Bosio and Alessandra Paletti, laboratory technicians at the Laboratory of Rheumatology and Clinical Immunology in Brescia, for their valuable collaboration. The authors wish to thank the nurses of the Rheumatology and Clinical Immunology Unit in Brescia for their support in blood collection.

Disclosure of Interest None declared.

P037

ANTI-CARBAMYLATED PROTEIN ANTIBODIES : ARE THEY USEFUL FOR THE DIAGNOSIS OF RHEUMATOID ARTHRITIS?

¹F Ponchel*, ¹L Hunt, ²M van Delft, ¹P Emery, ²L Trouw. ¹LIRMM, University of Leeds, Leeds, UK; ²Rheumatology, LUMC, Leiden, Netherlands

10.1136/annrheumdis-2018-EWRR2019.29

Career situation of first and presenting author Resident.

Introduction The current EULAR-2010 diagnostic criteria for Rheumatoid Arthritis (RA) relies heavily on the presence of auto-antibodies. So far only anti-citrullinated peptide antibody (ACPA) or rheumatoid factor (RF) are accounted for however, novel auto-reactivities have been described notably anti-carbamylated protein (anti-CarP) and anti-oxylized peptide antibodies.

Objectives To investigate the potential of anti-CarP antibodies for the diagnosis of RA.

Methods 402 patients were recruited from an early arthritis register (ethically approved) with a diagnosis recorded over 24 months. 95 healthy controls were included. All participants provided written informed consent. An anti-CarP antibody ELISA was performed using carbamylated FCS as target antigen.¹ Results were expressed as aU/mL. Statistical analysis used ROC and AUC analysis established using SPSS V22.

Results We first determined the 95% CI of the distribution of ELISA results in HCs to define a negative/positive cut-off for the test, established at >250 aU/mL.

195/402 patient were classified as RA at inclusion; 28 developed RA over time while 56 remained undifferentiated arthritis; 83 had non persistent symptoms and 40 other inflammatory joint diseases.

Anti-CarP ELISA results were clearly much higher in RA (median 250 [IQR 25–762], $p<0.0001$) with 49% of patients being positive as well as in the group that progressed to RA (25% positive, 82 [13–235], $p=0.001$), compared to all other EAC patients together (8% positive, 26 [5–80]) or HC (5% positive, 41 [1–106]).

In this particular cohort, anti-CarP had an odd ratio OR=5.55 for predicting RA with a sensitivity SEN=91.5% and positive predictive value PPV=87%, compared to ACPA which had an OR=8.78 (SPE=92%, PPV=92%) and RF with an OR=4.18 (SPE=85%, PPV 84%).

Titres were not associated with other variables (age, gender, JC, CRP or DAS). A ROC analysis determined that linear data (aU/mL) for anti-CarP were not better than a positive/negative status at predicting RA.

A score counting the number of auto-antibodies (0–1–2–3) had a high predictive value (AUC=0.840, $p<0.0001$ SEN/SPE of 65%/95% and PPV/NPV of 94%/68%).

We then established that a combination of ACPA+antiCarP was superior at predicting RA (OR=25.1 SEN/SPE=43%/98.5%, PPV/NPV=97%/58%) than the ACPA+RF combination (OR=11.9, SEN/SPE=54%/95%, PPV/NPV=94%/62%), although less sensitive.

Conclusions Although RF is more frequently observed than anti-CarP, it is also less specific for RA. A combination of ACPA+anti CarP may prove more useful at classifying early arthritis patients for RA than an ACPA+RF combination. Future work needs to establish a standardised assay for anti-CarP and replicate this data.

Disclosure of Interest None declared.

P038

IN VIVO DEMONSTRATION OF TMTNF REVERSE SIGNALING: SIGNIFICANCE IN THE THERAPEUTIC RESPONSE TO ANTI-TNF AGENTS DURING MURINE ARTHRITIS

¹B Rauwel*, ²N Simons, ¹K Diallo, ¹M Baron, ^{1,2}Y Degboe, ³A Kruglov, ⁴S Nedospasov, ^{1,2}A Constantin, ^{1,2}A Cantagrel, ¹J-L Davignon. ¹Inserm UMR 1043 CPTP, ²CHU Purpan service Rhumatologie, Toulouse, France; ³German Rheumatism Research Centre, Berlin, Germany; ⁴Engelhardt Institute of Molecular Biology, Moscow, Russian Federation

10.1136/annrheumdis-2018-EWRR2019.30

Career situation of first and presenting author Post-doctoral fellow.

Introduction Anti-TNF agents are widely used in rheumatoid arthritis (RA). Their effect on inflammation results from the neutralization of soluble TNF (sTNF), but also supposedly from the induction of reverse signaling through their binding to membrane TNF (tmTNF). Despite possible clinical relevance, reverse signaling has been described only *in vitro* but has not been proven *in vivo*.

Objectives In this study we aim to demonstrate for the first time the existence of tmTNF reverse signaling *in vivo* and its importance in anti-TNF response during arthritis.

Methods Triple transgenic mouse model (3TG), KO for TNFR1/TNFR2 and KI for tmTNF, thus secreting no sTNF was developed. To analyze reverse signaling, mice were injected