of all fucoidans ($p < 0.05$). By scratch wound assay, we observed that TGF- β induced cell mobility to close the scratch, which was inhibited by all fucoidans. Similarly, FU and FM were also able to attenuated cell invasion after TGF stimulation. Additionally, we also detected that fucoidans showed anti-inflammatory effects in FLS as they reduced the NO production and IL-6 expression induced by IL-1.

Conclusion: Our results indicate a protective effect of fucoidans against activated pro-fibrotic pathways in fibroblast-like synoviocytes. However, we detected that these beneficial activities vary between fucoidans from different species and further studies are warranted.

Disclosure of Interests: Carlos Vaamonde García: None declared, Herminia Domínguez: None declared, Francisco J. Blanco Grant/research support from: Sanofi-Aventis, Lilly, Bristol MS, Amgen, Pfizer, Abbvie, TRB Chemedica International, Glaxo SmithKline, Archigen Biotech Limited, Novartis, Nichi-iko pharmaceutical Co, Genentech, Janssen Research & Development, UCB Biopharma, Centrexion Therapeutics, Celgene, Roche, Regeneron Pharmaceuticals Inc, Biohope, Corbus Pharmaceutical, Tedec Meiji Pharma, Kiniksa Pharmaceuticals, Ltd, Gilead Sciences Inc, Consultant of: Lilly, Bristol MS, Pfizer, Rosa Meijide Failde: None declared

DOI: 10.1136/annrheumdis-2020-eular.2777

Bone diseases, including osteoporosis and osteoimmunology: aetiology, pathology and animal models

AB0079 ANGIOPOETIN-LIKE PROTEIN TYPE 3 AS AN INDICATOR OF RHEUMATOID INFLAMMATION AND RESORPTION OF BONE TISSUE IN RHEUMATOID ARTHRITIS

V. Aleksandrov¹, A. Aleksandrov¹. ¹Federal State Budgetary Institution «Research Institute of Clinical and Experimental Rheumatology named after A.B. Zborovskiy», Volgograd, Russian Federation

Objectives: to study the role of type 3 angiotensin-like protein (ANGPTL3) in the development of osteoporotic processes associated with inflammation in rheumatoid arthritis (RA).

Methods: 88 patients with RA were examined (women - 100%, average age - 54.2 ± 12 years old, disease duration - 11.2 ± 8.7 years, positive for rheumatoid factor (RF-IgM) - 72.7%, positive for anti-citrullinated protein antibody (ACPA) - 67%, DAS28 activity: remission - 21.6%, minimal - 11.4%, medium - 59.1%, high - 7.9%), functional class: 0 - 1.1%, I - 25%, II - 65.9%, III - 8%). The study was conducted on a bone X-ray densitometer LUNAR DPX (GE, USA). Most of the patients (96.6%) were residents of cities, and 67 (76.1%) people lived in the metropolis (number of inhabitants more than 1 million people).

The concentration of ANGPTL3 in serum was determined by enzyme immunoassay using a commercial test system "Human Angiotensin-like Protein 3 ELISA" ("Bio Vendor").

Results: Osteoporosis is found in 52 (59%) people. Increased ANGPTL3 values (> 445 ng / ml) were determined in 80.7% of cases. A significant positive correlation was found between the level of ANGPTL3 and the age of patients ($r = 0.23$, $p = 0.032$), the functional class ($r = 0.214$, $p = 0.046$), the presence of osteoporosis ($r = 0.36$, $p = 0.039$), living in the metropolis ($r = 0.214$, $p = 0.046$) and smoking ($r = 0.31$, $p = 0.036$), as well as a negative relationship with the duration of walking per day ($r = -0.314$, $p = 0.003$) and weekly ($r = -0.319$, $p = 0.002$) was determined. The level of ANGPTL3 correlated with the activity of RA calculated by the DAS28-CRP index ($p = 0.037$), but not by the DAS28-ESR index ($p = 0.135$).

It is noteworthy that ANGPTL3 is closely related to changes in bone mineral density (BMD) in the femoral neck (BMD Total: $r = -0.33$, $p = 0.042$; BMD Troch: $r = -0.36$, $p = 0.038$; BMD Wards: $r = -0.44$, $p = 0.009$), but not in the spine (L1-L4) ($p > 0.05$). The lack of connection of ANGPTL3 with ACPA ($p = 0.128$) may indicate different mechanisms of influence on systemic BMD in patients with established RA.

Conclusion: ANGPTL3 can be used as an indicator of pathological processes associated with rheumatoid inflammation and the development of osteoporosis. Living in a metropolis, smoking and low physical exertion has an additional negative effect on resorptive processes in bone tissue in women with active RA.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2020-eular.2174

AB0080 A SYSTEM-LEVEL APPROACH IDENTIFIES A CRITICAL REGULATOR OF CHONDROSARCOMA PROGRESSION

H. Kim¹, Y. Cho¹, J. H. Kim¹. ¹Seoul National University, Department of Biological Sciences, College of Natural Sciences, Seoul, Korea, Rep. of (South Korea)

Background: Chondrosarcomas are cartilaginous tumors that constitute one-third of skeletal system cancers. Chondrosarcomas are capable of transitioning to highly metastatic and treatment-refractory states, resulting in significant patient mortality. However, the molecular events accompanying this behavior remain unknown.

Objectives: We aimed to uncover the molecular pathway underlying such tumor progression that confers a higher malignancy to chondrosarcoma.

Methods: We conducted unsupervised gene co-expression network analyses using transcriptomes of patients with chondrosarcoma and extracted a characteristic transcription network underlying chondrosarcoma malignancy. By implementing a system-level upstream analysis of this gene network, we identified the transcriptional factor as a key regulator governing chondrosarcoma progression. We unraveled the functional roles of the identified factor in promoting tumor growth and metastasis of chondrosarcomas in the context of their unique microenvironments.

Results: By conducting system-level upstream analysis, we identified a factor as a transcriptional regulator that governs the malignancy gene module. The identified factor was upregulated in chondrosarcoma biopsies associated with a high histological grade and conferred chondrosarcoma cells invasiveness and tumor-initiating capacity. In an orthotopic xenograft mouse model, the identified factor modulated local outgrowth and pulmonary metastasis of chondrosarcoma. Pharmacological inhibition of the identified factor in conjunction with the chemotherapy agents such as cisplatin or doxorubicin synergistically enhanced chondrosarcoma cell apoptosis and abolished malignant phenotypes of chondrosarcoma in mice.

Conclusion: Our study provides a proof of concept evidence that inhibiting the identified factor suppresses progression of chondrosarcoma and improves the efficacy of chemotherapy in cellular and pre-clinical levels. Taken together, we believe that our findings provide novel molecular insights for the development of new anti-cancer therapies to target chondrosarcomas.

References:

[1] Gelderblom H, et al. The clinical approach towards chondrosarcoma. *Oncologist* 13, 320-329 (2008)

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2020-eular.5305

AB0081 THE ROLE OF LOCAL BISPHOSPHONATES IN THE PRESERVATION OF THE BMD IN THE ZONE OF SURGICAL BONE DEFECT (ANIMAL STUDIES)

A. Torgashin¹, S. Rodionova¹, A. Torgashina². ¹National Medical Research Center of Traumatology and Orthopedics named after N. N. Priorov, Moscow, Russian Federation; ²Research Institute of Rheumatology named after V.A. Nasonova, Moscow, Russian Federation

Background: One of the reasons for failures in Arthroplasty is the preservation in the postoperative period in the bone adjacent to the implant of the prevalence of resorption over bone formation. The possibility of inhibition of resorption by bisphosphonates, including their local use in the composition of the biocomposite material, aggravates the situation due to the simultaneous oppression of bone formation. A low level of remodeling in these cases leads to a further loss of bone mass in the intervention zone.

Objectives: To evaluate in the experiment the effect of bisphosphonates in the biocomposite material on the bone mass both in the surgical intervention zone and in the segment as a whole.

Methods: The study was conducted as a comparison with the control. 60 females of white non-linear rats, body weight 130-150g. were divided into 6 groups. In 3 groups, the defect of the tibia was filled with a biocomposite material in the form of a gel (patent No. 2325170) connected to various bisphosphonates Ibandronic acid (Bonviva), zoledronic acid (Aklasta), alendronate sodium (Fosamax) was used in conjunction with a non-demineralized lyophilized bone implant. Groups, the defect was filled with a non-demineralized lyophilized bone implant with biocomposite material without bisphosphonate, in the second control group, non-demineralized lyophilized bone implants without biocomposite material in trolley- defect is not filled.

Assessment of bone mineral density (BMD) in the intervention area and in the segment as a whole was performed using X-ray densitometry (Hologic, Small Animals Program Performing and Analyzing Small Animal Studies). Results Comparison (simple dispersion analysis) of the MIC of all groups using