Cr³⁺, we found that bivalent cobalt ions and trivalent chromium ions had different effects on osteoblasts. While Co²⁺ reduced the secretion of collagen type 1 in osteoblast-like cells, Cr³⁺ did not impair the collagen type 1 production. The secretion of this protein was partially attributable to a reduced gene transcription. In contrast, the mineralization was not impaired by Cr³⁺. However, Cr³⁺ at a concentration of 250 µM resulted in a decrease of mineralisation by 89% compared to controls. Even at the concentration of 50 µM a reduced mineralization by 34% was observed. The increase of the phosphate source resulted in an increased mineralization, suggesting that the capture of phosphate by Cr³⁺ (formation of CrPO₄), which is required for the mineralization could explain the inhibitory effect of chromium.

Conclusions: Our data suggest that Co²⁺ and Cr³⁺ ions affect bone formation at various stages of differentiation. While Co²⁺ ions impair the formation of the bone organic matrix, Cr³⁺ ions affect the deposition of inorganic minerals. Whether the inhibitory effect of chromium ions on the mineralization is caused by soluble Cr³⁺ ions itself or by solid CrPO₄ needs to be clarified in further studies.

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Rheumatoid arthritis – etiology, pathogenesis and animal models

AB0108
RELATIONSHIP BETWEEN PROGRANULIN AND MUSCULOSKELETAL ULTRASOUND IN RHEUMATOID ARTHRITIS
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Background: Progranulin (PGRN) is a pluripotent, secretory growth factor, mainly present in cells of the epithelium, central nervous system and immune system. PGRN is known to directly regulate regulatory T cells and recently found to be upregulated in Rheumatoid Arthritis (RA) and related to its activity. No attempts were made to explore the relationship between PGRN and RA activity measured by ultrasound and clinical ultrasound score (US).

Objectives: To explore PGRN levels in the serum of patients with RA, and its correlation with disease activity assessed clinically combined by ultrasonography (US).

Methods: RA patients: 52 RA patients were included in this study. They were consecutively recruited from the outpatient clinic of Rheumatology Department for regular follow-up at Fayoum University Hospitals. Patients were classified according to the 2010 ACR/EULAR criteria. Control group: 20 age and sex matched healthy volunteers were recruited as controls for level of serum PGRN.

Informed consent was obtained from all patients and controls for inclusion in the study.

All patients were subjected to full history taking, and clinical examination. Assessment of disease activity by modified DAS-28 score. Progranulin is measured by an ELISA Kit (Elastecience), this kit uses sandwich-ELISA as the method.

The ultrasound examination was performed with GE LOGIQ 7 PRO equipment for measurement of disease activity by modified DAS-28 score. Serum PGRN levels may be a useful biomarker in RA disease. Ultrasound positively correlated with ESR and DAS 28 in our cohort of RA patients.

Disclosure of Interest: None declared

AB0109
CHARACTERISATION AND COMPARISON OF SERUM BIOMARKERS IN PATIENTS WITH RHEUMATOID ARTHRITIS VERSUS OSTEOARTHRITIS USING MASS SPECTROMETRY
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Background: There is increasing interest in biomarkers in medicine, especially for their use as a diagnostic tool and in disease outcome prognosis. Rheumatoid arthritis (RA) is a chronic autoimmune disease with important debilitating outcomes, therefore a biomarker panel may improve early diagnosis meaning better therapeutic management and lower social costs. Recently, mass spectrometry has emerged as one of the leading methods to identify new biomarkers for different pathologies as well as being able to determine their potential interactors in their cellular pathway.

Objectives: To characterise biomarkers using mass spectrometry, from sera of patients with RA and make a comparison between RA, osteoarthritis (OA) and healthy controls.

Methods: Blood was collected from 26 subjects, 12 patients with RA, 12 patients with OA, and 2 HC, centrifuged and sera was collected in dedicated tubes. Sera were separated by SDS-PAGE electrophoresis and stained with Coomassie staining. The samples were subjected to in gel digestion followed by LC/MS analysis. The obtained spectra were searched with Proteome Discoverer v1.4 using SEQUEST algorithm.

Results: A total of 985 proteins were identified, from which 323 were specific to the RA study group and 159 were characteristic to the OA group. Prevalent peptides found in the RA group were EGF-containing fibulin-like extracellular matrix protein 2, isoform DeltaLf of lactotransferrin, BPI fold-containing family A member 1 and isoform 2 of BPI fold-containing family A member 1. In the OA study group there was a prevalence in homeobox protein TGF1, major facilitator superfamily domain-containing protein 9, methyltransferase-like protein 23, a fragment of the salivary acid proline-rich phosphophorpeptide, serine/threonine-protein phosphatase 4 regulatory subunit 1, zinc finger protein 229.

Conclusions: Our results show a prevalence of peptides linked to cell migration, proliferation and activation in the RA sera as compared to peptides related to cell turnover and tissue senescence observed in OA sera. We believe further mass spectrometry studies of biomarkers in larger cohorts to be a promising tool for diagnosis and outcome prognosis in RA.

Disclosure of Interest: None declared
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AB0110
SERUM AND SALIVARY IGA1 AND IGA2 ACDA SUBCLASSES IN ESTABLISHED RHEUMATOID ARTHRITIS AND ASSOCIATIONS TO SMOKING
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Background: A prevailing hypothesis regarding the pathogenesis of rheumatoid arthritis (RA) involves an association between mucosal immunity and the development of RA. A pathogenetic role for antibodies against citrullinated peptides (ACPA) is assumed, and there are indications of mucosal immunisation in the lungs, the oral mucosa and the intestinal mucosa preceding overt RA. IGA antibodies are produced both locally, at mucosal membranes, and systemically. Among the two IGA subtypes, IgA1 dominates in serum IgA2 in mucosal secretions.

We have previously reported the presence of ACPA of IgA isotype in both serum and saliva of RA patients, and that IgA ACPA is associated with cigarette smoking.