Sirs,

Causes of rheumatoid arthritis (RA) are still largely unknown, but it is now well established that genetic, epigenetic and environmental factors are important in the pathogenesis of the disease. Among the epigenetic regulatory mechanisms, micro RNA (miRNA) activity may be crucial. Increased levels of miR-146 and -155 have been found in RA synovial fibroblasts (1, 2) and we have recently demonstrated that miR-223 is dramatically up-regulated in peripheral blood and synovial CD4+ T-lymphocytes from RA patients compared to healthy controls (3), suggesting that this aberrant over-expression of miR-223 could contribute to the RA pathogenesis.

In the present study we wanted to address the question whether miR-223 is also over expressed in the early stage of the disease. We analysed miR-223 expression in peripheral blood T-lymphocytes from 12 early RA patients (7 females, 5 males) aged between 33 and 81 years (median 59 years) with disease duration between 6 and 12 months (median 7 months). In addition, to verify whether a specific sub-population of T-lymphocytes is responsible for miR-223 over-expression, we sorted CD4+ and CD8+ T-lymphocytes from three different early RA patients. All patients fulfilled the 1987 ACR criteria for RA classification (4), early RA patients. All patients fulfilled the 1987 ACR criteria for RA classification (4), characterised (6,7), little is known about its role in the differentiation of the myeloid lineage has been well characterised (6,7), little is known about its function in T-lymphocytes. In this regard, it has been recently demonstrated that a potential target of miR-223 could be E2F1 protein, as shown in acute myeloid leukaemia (8). E2F1 protein belongs to the E2F transcription factor family which controls the initiation of DNA synthesis and subsequent transition of cells from G0-G1 to S phase of the cell cycle. Several studies demonstrated that a mutation of the E2F1 gene in mice causes enhanced T-lymphocyte proliferation, leading to systemic and organ specific autoimmunity. Recently Salam et al. showed that E2F1 may have a functional effect to induce the development of type 1 diabetes mellitus and Sjögren’s syndrome in NOD mice (9). In RA patients over-expression of miR-223 could decrease the expression level of E2F1 protein, thus leading to dysregulation of T lymphocytes and to autoimmunity. In conclusion, our study suggests that miR-223 may have a role in the early stage of RA and that a better characterization of the function of this miRNA in T-lymphocytes may provide further information on the RA pathogenesis.

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G.D. SEBASTIANI, MD, PhD
V. FULCIV, PhD
S. NICCOLI, PhD
C. GIANNITTI, MD, PhD
G. MINISOLA, MD, Professor
V. BARNABA, MD, Professor
G. SCAPPUCVI, PhD
G. MACCIO, Professor
M. GALEAZZI, MD, Professor

1Rheumatology Unit, Azienda Ospedaliera San Camillo-Forlanini, Rome, Italy;
2Department of Cellular Biotechnologies and Hematology, Division of Molecular Genetics, Sapienza University, Rome, Italy;
3Department of Clinical Medicine and Immunology, University of Rome "La Sapienza", Rome, Italy;
logical Sciences, Rheumatology Unit, University of Siena, Policlinico Le Scotte, Siena; ¹Rheumatology Unit, Policlinico S. Matteo, University of Pavia, Italy; ²Department of Internal Medicine, Sapienza University, Rome, Italy.

Address correspondence to: Dr Gian Domenico Sebastiani, U.O.C. Reumatologia, Azienda Ospedaliera S. Camillo-Forlanini, Circovallazione Gianicolense 87, 00152 Roma, Italy.
E-mail: gsebastiani@scamilloforlanini.rm.it

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