MICRORNA (MIRNA) MOLECULES AS CANDIDATE REGULATORS OF RO/SSA AND LA/SSB mRNA EXPRESSION IN SJÖGREN’S SYNDROME

Vasiliki C Gourzi, Efstathia K Kapsogeorgou, Nikolaos C Kyriakidis, Ahsen Morva, Menelaos N Manoussakis, Haralampos M Moutsopoulos, Athanasios G Tzioufas
Laboratory of Immunology, Department of Pathophysiology, School of Medicine, National University of Athens, Athens, Greece

Background-objectives Elevated in-situ mRNA expression of Ro/SSA and La/SSB autoantigens has been observed in the affected salivary glands (SG) of patients with Sjögren’s syndrome (SS); however, the regulatory mechanisms implicated in their expression are not defined. MicroRNAs (miRNAs) might be implicated in deregulated Ro/SSA and La/SSB in SS. Herein, the authors sought to investigate the expression of miRNAs that may target Ro/SSA and La/SSB ribonucleoproteins in SS. Therefore, the authors studied the expression of miRNAs, which are predicted to target Ro/SSA and La/SSB mRNAs, in salivary gland epithelial cells (SGEC), peripheral blood mononuclear cells (PBMC) and SG-tissues of SS patients and controls, as well as their association with respective mRNA expression.

Materials-methods The prediction of miRNAs that target the Ro (Ro52/TRIM21 and Ro60/TROVE2) and La mRNAs was performed by miRecords database (http://mirecords.biolead.org). miRNAs and mRNAs expression was analysed in parallel by real-time PCR in total RNA from SGECs, PBMCs and SG-tissues obtained from 11 SS patients and 11 non-SS controls. Significant differences between SS patients and controls, and associations between miRNAs and mRNAs expression, were evaluated by non-parametric Mann–Whitney and Spearman’s rank correlation tests, respectively.

Results The miRecords-computational analysis identified several miRNAs that target Ro52/TRIM21 (n=430), Ro60/TROVE2 (n=1258) and La/SSB (n=377) mRNAs. To narrow the number, the analysis was restricted to miRNAs that targeted both Ro/SSA (Ro52/TRIM21 and/or Ro60/TROVE2) and La/SSB mRNAs, and were identified by at least four databases. This approach identified 11 miRNAs (let-7b, miR-16, miR-129-5p, miR-183a, miR-153, miR-200b, miR-200b*, miR-223, miR-483-5p, miR-573, miR-583). Among them, miRs 129-5p, 183a, 573 and 583 were not expressed in any of the samples studied and miR-200b* was not detected in PBMCs. The remainder were expressed in SGECs, PBMCs and SG-tissues. Compared to specimens derived from controls, those derived from SS patients manifested significant upregulation of miR-181a in SG tissues (p=0.02), miR-200b in SGECs (p=0.03) and miR-223 in PBMCs (p=0.02). miR-200b levels were negatively associated with Ro52/TRIM21 (r=−0.445, p=0.04), Ro60/TROVE2 (r=−0.454, p=0.04) and La/SSB mRNA expression only in SGECs (r=−0.495, p=0.02).

Conclusions Our findings implicate miR-181a, miR-200b and miR-223 in SS, as well as miR-200b* in the regulation of Ro/SSA and La/SSB mRNAs. Further functional studies are needed to clarify the significance of the deregulated miRNAs in disease pathogenesis and autoantigen expression.
MicroRNA (miRNA) molecules as candidate regulators of Ro/SSA and La/SSB mRNA expression in Sjögren's syndrome

Vasiliki C Gourzi, Efstathia K Kapsogeorgou, Nikolaos C Kyriakidis, Ahsen Morva, Menelaos N Manoussakis, Haralampos M Moutsopoulos and Athanasios G Tzioufas

Ann Rheum Dis 2012 71: A87
doi: 10.1136/annrheumdis-2011-201239.5

Updated information and services can be found at:
http://ard.bmj.com/content/71/Suppl_1/A87.2

These include:

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/