Diagnostic Potential of Metastasis-associated-lung-adenocarcinomatranscript-1 (MALAT-1) and TNFα and hnRNPL Related Immunoregulatory Long Non-coding RNA (THRIL) in Systemic Lupus Erythematosus Patients: Relation to Disease Activity

By

Nermeen A. Fouad a,⇑, Olfat G. Shaker b, Essam A. Mohamed c, Hassan S. Elsayed c, Hoda A. Hussein d, Naglaa A. Ahmed e**, Amal A. Amin f**

a Rheumatology and Rehabilitation Department, Faculty of Medicine, Fayoum University, Fayoum, Egypt . b Medical Biochemistry and Molecular Biology Department, Faculty of Medicine, Cairo University, Cairo, Egypt. c Medical Biochemistry and Molecular Biology Department, Faculty of Medicine, Fayoum University, Fayoum, Egypt. d Internal Medicine Department, Faculty of Medicine, Fayoum University, Fayoum, Egypt. e Physiology Department, Faculty of Medicine, Zagazig University, Sharkia, Egypt. f Microbiology Department, Faculty of Medicine, Fayoum University, Fayoum, Egypt.

Type of research: Single research

Published in: The Egyptian Rheumatologist, July 2019, Volume 41, 197–201

Abstract

Aim of the work: To determine expression levels and diagnostic value of metastasis-associated-lung-adenocarcinoma-transcript-1 (MALAT-1) and TNFa and hnRNPL related immunoregulatory long non-coding RNA (THRIL) in systemic lupus erythematosus (SLE), and to assess their role in the clinical characteristics of SLE and disease activity.

Patients and Methods: Study included 40 patients with SLE and 30 matched controls. SLE Disease Activity Index (SLEDAI) score was assessed. Expression levels of MALAT-1 and THRIL were detected in the serum by using Real-time polymerase chain reaction and 2_DDCT method.

Results: Mean age of patients was 40.1 ± 9 years (25–55 years), they were 38 females and 2males and disease duration was 16.5 ± 3.9 years. Their mean SLEDAI was 5.8 ± 5.3. Expression levels of MALAT-1 and THRIL were found to be significantly upregulated in the serum of SLE patients compared with controls (set as 1). MALAT-1 fold change = 3.7 ± 3.8 (p = 0.009), and THRIL fold change = 3.6 ± 3.4 (p = 0.026). There were significant correlations between MALAT-1 with THRILL (r = 0.44, p = 0.005), proteinuria (r = 0.45, p = 0.006), erythrocyte sedimentation rate (r = 0.43, p = 0.006) and SLEDAI (r = 0.36, p = 0.024). No significant correlations were found between

THRIL and study parameters. Sensitivity and specificity of MALAT-1 and THRIL were determined (sensitivity 67.5% and 65% respectively), (specificity 100% for both, total accuracy 80% and 81.4% respectively), and the combined effect of both increased sensitivity and total accuracy to 70% and 82.9% respectively. THRIL was a significant predictor for SLE disease ($p = 0.02$).

Conclusion: MALAT-1 and THRIL may be potential diagnostic biomarkers for SLE and only MALAT-1 may be valuable in detecting disease activity.