6th World Congress and Expo on **Applied Microbiology**

&

8th Edition of International Conference on **Antibiotics, Antimicrobials & Resistance**

&

12th International Conference on **Allergy & Immunology**

October 21-22, 2019   Rome, Italy

Investigation of long non-coding RNAs in asthma and COPD

Zsófia Gál
Semmelweis University, Hungary

Statement of the Problem: It is now well-known that both asthma and COPD are heterogeneous diseases with several pathomechanisms in the background, which presently can hardly be separated, although the exact endotyping of the diseases would have a significant effect in a successful therapy. Moreover, the separation of the two underlying diseases is often complicated because both can be present at the same time. Currently there is no biomarker that can easily and reliably separate individual endotypes from each other. In the light of all these the aim of our research group is to find long non-coding RNA (lncRNA) biomarkers that can separate individual endotypes from each other.

Methodology & Theoretical Orientation: We examined 24 samples: 6 severe asthma, 6 mild asthma, 6 COPD and 6 control samples. Expression of lncRNAs was measured by qPCR using a prefabricated panel. The panel had 84 SYBR® Green-optimized primers for 84 specific lncRNA involved in inflammatory responses or autoimmunity.

Findings: In the comparisons between the mean lncRNA expression of the groups, we found nominally significant differences in 30 lncRNA ($p < 0.05$). Most of the differences were found between mild and severe groups of asthma. 15 lncRNA showed expression differences between COPD and severe asthma, 14 between severe asthma and control, 4 between COPD and control, 2 between mild asthma and control and 1 between allergic and non-allergic asthma. With the help of the scientific literature, databases and based on our results, 6 lncRNAs were chosen for validation on a larger population.

Conclusion & Significance: The lncRNA research is still in its early stages, so a few, often confusing information was found in most of the databases. If we find lncRNAs in the progress of validation which can distinguish subtypes of asthma or COPD from each other, they can be new potential diagnostic markers.
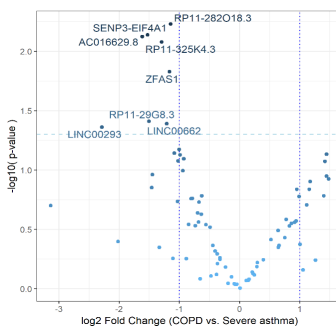

Figure 1. The volcano plot represents the comparison of lncRNA levels between COPD and severe asthma. The name of the non-coding RNAs are visible which show significant correlation in this comparison

Recent Publications

1. hang H (2018) Long non-coding RNA expression patterns in lung tissues of chronic cigarette smoke induced COPD mouse model. Sci Rep. 8(1):7609.

2. Zhu YJ (2018) Peripheral whole blood lncRNA expression analysis in patients with eosinophilic asthma. Medicine (Baltimore).;97(8):e9817.

Journal of Infectious Diseases and Treatment
ISSN: 2472-1093

Applied Microbiology-2019 & Antibiotics 2019
Immunology 2019
October 21-22, 2019

Volume 05

Page 42

3. Salviano-Silva A (2018) Besides Pathology: Long Non-Coding RNA in Cell and Tissue Homeostasis. Noncoding RNA.;4(1).

4. Santoro M (2016) Expression Profile of Long Non-Coding RNAs in Serum of Patients with Multiple Sclerosis. J Mol Neurosci.;59(1):18-23.

Biography

Zsofia Gal as a member of the Medical Genomics Research Group in Semmelweis University, Hungary investigates the genomic and pharmacogenomic background and pathomechanism of asthma and allergy. She contributes to the maintenance and expansion of the asthma data- and biobank of the research group, through the collection of patient data, plasma and DNA samples. Our aim is to find biomarkers that can be used in the differential diagnosis of asthma, its endo- and phenotypes, and COPD. In addition, we would like to explore new therapeutic targets by examining the pathomechanisms in asthma and COPD.

Notes:

Journal of Infectious Diseases and Treatment
ISSN: 2472-1093

Applied Microbiology-2019 & Antibiotics 2019
Immunology 2019
October 21-22, 2019

Volume 05

Page 43