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Title of the dissertation: Assessment of the relationship between melatonin, vitamin D, selected adipocytokines and inflammatory factors and the level of metabolic compensation of type 2 diabetes.

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In recent decades, type 2 diabetes and its complications have grown into a global problem of the modern world, placing the disease among the most common causes of death worldwide. Obesity, metabolic syndrome and chronic inflammation, among other things, are considered important factors in the pathogenesis of type 2 diabetes. The biochemical parameters studied in the present study, i.e. melatonin, vitamin D, leptin, adiponectin, visfatin, interleukin-6, callistatin, irisin and resistin, are of interest as factors involved in the course of type 2 diabetes and potential biomarkers of metabolic compensation of this disease. 133 people were included in the study. The group with type 2 diabetes included 46 subjects, and the control group (normal weight subjects without type 2 diabetes) included 34 subjects. In addition, two groups with an increased risk of developing type 2 diabetes (obese and overweight subjects) were distinguished, respectively: 30 and 23 subjects. Serum parameters were determined using off-the-shelf immunoenzymatic assays, statistical analysis was performed, and the results were compared with literature data. The present study demonstrated a number of abnormalities in plasma levels of selected adipokines, inflammation-related parameters, as well as vitamin D and melatonin in both obese and type 2 diabetic patients. The study further investigated potential relationships between these parameters and such DM2 complications as hyperlipidemia, nephropathy, neuropathy and retinopathy. The results may indicate promising avenues for further research on how to

support the treatment of obesity and type 2 diabetes, the metabolic compensation of the disease, and the prevention of complications.

Keywords: adipocytokines, inflammatory state, melatonin, metabolic control of diabetes, obesity, type 2 diabetes, vitamin D