alters hippocampal structure leading to behavioral disorders. However, the dysfunctional impact of Ob and PS synergy on emotionl reactivity requires further investigations using different tests. In order to minimize the limitatons due to single test, we have compared results obtained by elevated plus maze (EPM) and dark/light box (DLB), two different gold standard anxiety tests, in obese stressed mice. **METHODS:** Hippocampal remodeling was induced in male wild-type C57BL6/J mice (n=8; 10 weeks old) fed with high-fat diet (HFD) for eighteen weeks and exposed to resident-intruder test (RIT) during the last two weeks of diet to spark off PS. Age-matched male mice fed with a standard diet (SD) served as controls (n=4). Mouse emotional reactivity was assessed through both EPM and DLB test. To assess hippocampal morphological alterations, laminae volume (Hoechst), neurogenesis (BrdU-positive cells), synaptic plasticity (PV-positive interneurons) and astrogliosis (GFAP expression) were analysed on perfused brain slices. Hippocampal Brain-Derived Neurotrophic Factor (BDNF) expression, whose lower levels are an index of anxiety vulnerability, was measured by Western blot. **RESULTS AND DISCUSSION:** In the same obese stressed mice with hippocampal remodeling and lower BDNF levels, EPM and DLB have revealed different magnitude of anxiety-related behavior. In particular, EPM showed zeroing of percentage of entries and time spent in the open-arms of the maze in obese stressed mice compared to SD animals. Conversely, DLB showed no significant difference in number of transition between the two zones in Ob+PS group compared to SD one; although, time spent in light side, number of rears, latency were significantly reduced by 76.3±1, 89.4±1 and 94.4±1 respectively, in Ob+PS mice compared to SD rodents. In conclusions, integration of EPM and DLB provides a more complete and reliable picture of emotional reactivity of stressed obese mice. Our data will be helpful to design further experimental protocol. **RESEARCH SUPPORT:** Internal funds of Sant'Anna School of Advanced Studies, Pisa, Italy.

MOLECULAR ALTERATIONS IN BRAIN, BONE MARROW, TESTIS AND ADRENAL GLANDS OF STRESSED MICE. MP Petrova, TS Glinin, VA Mamontova, V Shcherbinina, AB Volnova, PA Starshova, EV Daev, PE Khaitovich, CAS-MPG Partner Institute for Computational Biology, Shanghai Institutes for Biological Sciences CAS, Shanghai, China. **INTRODUCTION:** There absolutely clear now that psychogenic stress can have a variety of adverse effects throughout the body, but the most vulnerable systems are nervous and immune. Acute psychogenic stress induces DNA damage and chromosomal aberrations in dividing germline and somatic cells of the house mouse, leading to a decrease in the reproductive success and immunosuppression. High-throughput ‘omics’ approaches have made it possible to study in detail the changes that occur during stress in the nervous, endocrine, and immune systems at the cellular level. **METHODS:** Our study was designed to assess concordance between transcriptional responses induced by 2-h stress pheromone 2,5-dimethylpyrazine exposure and commonly used immobilization stress paradigm in mouse bone marrow and testis tissues of CBA mice using RNA sequencing. The lipidomic profile of the prefrontal cortex of the same CBA mice was evaluated by liquid chromatography and mass spectrometry. The same lipidome analysis approach was used for profiling large-scale differences in the lipid composition of the prefrontal cortex and adrenal glands of CBA and C57BL/6 mice subjected to 21 days of ultrasound stress. **RESULTS AND DISCUSSION:** RNA sequencing analysis identified genes showing statistically significant changes in response to immobilization in the bone marrow of CBA mice. Most of these genes demonstrated similar trends of expression changes across pheromonal and immobilization stress, with the strongest positive correlation for genes involved in unfolded protein response. LC-MS data analysis showed that chronic ultrasound stress affects primarily on the lipid profile of the adrenal glands of C57BL/6 mice and that adrenal lipid abundance alters in opposite directions in CBA and C57BL/6 strains. Meanwhile, prefrontal cortex lipidome responses correlated positively between these two mouse strains. The study provides preliminary evidence that psychogenic stress of different duration induces transcriptome and lipidome changes in neuroendocrine and immune tissues that may explain adverse physiological and cytogenetic effects previously shown by our group.

ACUTE PAIN AS A POSSIBLE CAUSE OF A NEGATIVE STRESS REACTION THAT PROVOKES TACHYARRHYTHMIA IN ELDERLY PEOPLE. VP Nesterov, AI Burdygin, KB Ivanov, SA Filenko, SV Nesterov, Sechenov Institute of Evolutionary Physiology and Biochemistry RAS, St. Petersburg, Russia. **INTRODUCTION:** Previously it was suggested that a sudden action of a stressor on an elderly people can trigger negative stress-reactions in their cardiovascular system (CVS). Later this suggestion was confirmed in practice - in one of our elderly patients, whom we have been examining for over 18 years, twelfth left rib (*costa fluctuantes*) was broken in the fall, and the acute accompanying pain provoked the emergence of persistent paroxysmal atrial tachyarrhythmia. The report will present evidence confirming this fact and characterizing the functional state of his CVS for more than 15 years before the injury and for several months after it. This work is part of a comprehensive comparative study aimed at studying the features of the formation of peripheral mechanisms of autonomous (neuroendocrine) regulation of CVS muscular effectors in patients on the late stages of ontogenesis and subject to various stressful conditions. Individual differential diagnosis of patients is currently recognized as very relevant. **METHOD:** The main method of CVS diagnostics was piezopulsometry with a corresponding spectral analysis of the variability of parameters of arterial blood pressure pulse waves (APP; [mm Hg]). As the