Prader-Willi syndrome (PWS) is a rare genetic disorder with dysmorphic features previously identified with monstrous obesity resulting from excessive appetite. It constitutes the best known example of condition caused by uniparental disomy. Loss of paternal genetic material underlies the development of PWS and may occur in two distinct mechanisms: deletion (75%) or maternal uniparental disomy (mUPD-20%). The growing awareness of clinicians and parents of children with PWS, result in taking preventive actions to ensure the maintenance of normal body weight in patients affected by the syndrome. This meant that mental disorders, widely presented by the patients, have gained particular attention in the scientific world. The prevalence of psychotic disorders in patients with PWS is much more frequent than in the general population and, depending on the etiology of the syndrome, it can reach up to 60%, making this rare genetic syndrome a good neurodevelopmental model for studying the etiology of psychotic disorders including schizophrenia.

Many studies have focused on broadening knowledge about the etiology of schizophrenia, severe mental illness with chronic, relapsing course accompanied by psychotic symptoms. One concept involves immuno-inflammatory substrate of the disease, indicating chronic inflammation with accompanying increased level of cytokines and other markers as a factor in the development of described disorders. Our group plans to approach PWS as a neurodevelopmental model for the study of immuno-inflammatory concept of psychotic disorders. Our aim is to characterize and identify the role of inflammatory factors in the etiology of psychotic disorders in patients with PWS, taking into account the etiological mechanisms of the syndrome, that is, deletion or maternal uniparental disomy. In our opinion, the described project will contribute to a deeper knowledge of rare genetic syndrome that is PWS and allow to identify common etiological basis of psychotic disorders in PWS and schizophrenia as well as appoint the possibility of identifying the factors of inflammation which might be predictors of the development of psychotic disorders. In addition, in our study, we would like to make a comparison of cognitive functioning in patients with PWS with mUPD etiology and deletion etiology with the offspring of schizophrenia patients and healthy subjects, showing the impact of subclinical inflammation on cognition in patients with psychotic disorders or at risk of psychosis.

Described research is a further step towards exploring the etiology of psychotic disorders, including schizophrenia. It will develop, so far unexplored, role of immuno-inflammatory factors in the development of psychiatric disorders in patients with PWS, and contribute to characterization of the syndrome serving as a model for further research in this field. Extension of the described project with evaluation of cognitive functioning in patients with PWS, taking into account the etiology of the syndrome and accompanying mental disorders, will further extend the knowledge of the disorder and indicate the influence of elevated inflammatory markers on cognitive performance.