

# **DIPLOMA THESIS**

## **Nutrigenetic and nutrigenomic aspects at selected pathological states.**

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### ***Abstract***

The effect of nutrition to human health is undisputable. Certain dietary compounds can influence each of us in different ways. Although people have almost identical genome, there are imperceptible differences that make us unique. This uniqueness is shown in different responses to specific nutrients.

The matter of diet, genes and gen-diet interactions are solved by two developing scientific disciplines – nutrigenomics and nutrigenetics. Nutrigenomics aims to determine the influence of common dietary ingredients on the genome, and attempts to relate the resulting different phenotypes to differences in the cellular and genetic response of the biological system. Nutrigenetics identifies and characterizes gene variants associated with differential responses to nutrients, and relates these variants to disease states.

Scientific research is focused primarily on chronic diseases including obesity, cardiovascular diseases, diabetes mellitus type 2 and cancer. The onset of the diseases is caused by environmental factors on the one hand, and by individual's genotype on the other hand. Nutrigenetics searches for candidates' genes whose polymorphisms lead to disease onset. Nutrigenomics attempts to unravel the interaction between these genes and dietary compounds.

The common goal of both disciplines is to make personalized recommendations for a patient to ameliorate health and to prevent diseases with an appropriate diet.