



# CANCER CACHEXIA POLYMORPHISMS IN THE MAPPING OUT OF PRECISION ARTIFICIAL NUTRITION

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## Background and aims

Cancer malnutrition has been reported among 25% to 70% cancer patients in Europe. In cancer patients, malnutrition presents severe implications and pathogenesis: progressive loss of lean mass, inflammation and impairment of intermediate metabolism. It is rather called "cancer cachexia" instead of simple caloric-protein malnutrition. Cancer cachexia severity is tumor-specific and significantly depends on the genotype of the patient, in other words altered expression of a series of polymorphisms. However, genotype-phenotype correlation is not well understood yet. In this study, we propose to exploit genetic polymorphisms to dampen and prevent the development of cancer cachexia throughout nutrition.

## Methods

Our study involved 1) characterization of genetic polymorphisms involved in the susceptibility to cancer cachexia 2) collection of phenotypic characteristics of the patients 3) application of Precision Medicine and Artificial Nutrition in a novel methodology hereafter proposed as "Precision Artificial Nutrition".

## Results

The study involved cancer patients, aged between 18 and 89 y.o., enrolled to the Centro di Nutrizione Artificiale Domiciliare of ASL Avellino. We collected demographic and clinical characteristics of the patients. We further identified polymorphisms significantly associated with loss of weight and lean mass, impairment of lipid and glucose metabolism.

## Conclusions

In conclusion, we speculate on the need to identify markers to act promptly and prevent the worsening of the nutritional, inflammatory and health status of the cancer patients. Unfortunately, nowadays cancer cachexia is recognized too late, affecting its therapy and prognosis. The use of "Cancer cachexia markers" will allow to identify predisposed subjects and tackle cachexia during the cancer preclinical phases, significantly improving the course and prognosis of cancer patients.

