RESEARCH ON THE IMPORTANCE OF NUTRITION FOR CANCER


Using cancer hallmark phenotypes and the tumor microenvironment to account for the various aspects of relevant cancer biology, interdisciplinary teams reviewed each hallmark area and nominated a wide range of high-priority targets (74 in total) that could be modified to improve patient outcomes. For these targets, corresponding low-toxicity therapeutic approaches were then suggested, many of which were phytochemicals. Proposed actions on each target and all of the approaches were further reviewed for known effects on other hallmark areas and the tumor microenvironment.


It has been estimated that 30–40 percent of all cancers can be prevented by lifestyle and dietary measures alone. Obesity, nutrient sparse foods such as concentrated sugars and refined flour products that contribute to impaired glucose metabolism (which leads to diabetes), low fiber intake, consumption of red meat, and imbalance of omega 3 and omega 6 fats all contribute to excess cancer risk. Intake of flax seed, especially its lignan fraction, and abundant portions of fruits and vegetables will lower cancer risk. Allium and cruciferous vegetables are especially beneficial, with broccoli sprouts being the densest source of sulforophane. Protective elements in a cancer prevention diet include selenium, folic acid, vitamin B-12, vitamin D, chlorophyll, and antioxidants such as the carotenoids (α-carotene, β-carotene, lycopene, lutein, cryptoxanthin).


As each person is a unique metabolic entity, personalization of metabolic therapy as a broad-based cancer treatment strategy will require fine-tuning based on an understanding of individual human physiology. Also, personalized molecular therapies developed through the genome projects could be useful in targeting and killing those tumor cells that might survive the non-toxic whole body metabolic therapy. The number of molecular targets should be less in a few survivor cells of a small tumor than in a heterogeneous cell population of a large tumor. We would therefore consider personalized molecular therapy as a final strategy rather than as an initial strategy for cancer management. Non-toxic metabolic therapy should become the future of cancer treatment if the goal is to manage the disease without harming the patient.