INFLAMMATION REVIEW

nature immunology

Nutrition, inflammation and cancer

Laurence Zitvogel[1–4], Federico Pietrocola[1,5–9] & Guido Kroemer[1,5–11]

Quantitative and qualitative aspects of nutrition have a profound effect on leukocytes and thereby affect proinflammatory carcinogenic effects or anticancer immune responses. As a result, nutrition affects the incidence, natural progression and therapeutic response of malignant diseases, both in humans and in preclinical animal models. Here we discuss the molecular mechanisms through which alimentary cues modulate metabolic, microbial and neuroendocrine circuitries and thus affect the probability of developing premalignant lesions that progress to clinically manifested disease and the response to therapeutic intervention. We examine each of the connections that compose the triangle of nutrition, immunological and inflammatory reactions and cancer while focusing on the mechanistic aspects of these relationships.