

S13. Angiopreventive properties of diet derivatives

A. Albini^{1*}, N. Vannini^{1,2}, G. Lorusso^{1,2}, I. Sogno¹, R. Cammarota¹, D.N. Noonan²

¹Multimedica IRCCS, Milan, Italy, ²University of Insubria, School of Medicine, Department of Clinical and Biological Sciences, Varese, Italy

Epidemiological studies have revealed that risk of developing chronic diseases, in particular cancer and cardiovascular disease, can be lowered by regular consumption of specific food components containing active micronutrients. The use of drugs or dietary products to prevent, inhibit or reverse the process of carcinogenesis is termed "chemoprevention". Cancer is a multi-factorial disease that requires modulation of multiple pathways and multiple targets, a frequent target appears to be angiogenesis inhibition. Experimental studies have also revealed that active food constituents can regulate cell signal transduction pathways including NF- κ B, Akt, MAPK, p53, AP1. In particular in our studies we focus on promising molecules such as EGCG, Xanthohumol, Resveratrol, Curcumin. We have demonstrated that several of these compounds acting as chemopreventive are strong inhibitors of tumor Angiogenesis inhibiting molecular pathways that trig-

ger tumor vascularisation. The green tea flavonoid epigallocatechin-3-gallate (EGCG), the chalcone Xanthohumol prevent angiogenesis in the Matrigel sponge angiogenic assay in vivo and inhibit the growth of the highly angiogenic Kaposi's sarcoma tumor cells (KS-Imm) in nude mice. Some of these flavonoids can suppress the I κ B/NF- κ B signalling pathway even in the presence of NF- κ B stimulation by TNF, and showed reduced expression of many NF- κ B target genes that are involved in tumor angiogenesis. Further we have shown that the chemopreventive flavonoid curcumin derived from curry has an anti-metastatic effect on breast cancer cells line MDA-MB-231 inhibiting the pro-survival NF- κ B pathway and decreasing the expression of the major metalloproteases (MMPs). From these data it's clear that natural compounds still have hidden properties that deserve deeper investigation in the field to improve cancer prevention and therapy.