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Modified atmosphere packaging (MAP) for drug and food in cancer nutrition

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Cancer, as one of the most common chronic metabolic diseases with its high death rate, seems not to have any particular diet or nutrition strategy, currently. Owing to its huge complexity in progress which involves many different reactions, pathways and proteins, in addition to a great number of bioactive compounds with their unique effects on these biochemical reactions, pathways and proteins, the necessity to clarify the interactions of the functional bioactive nutrient compounds in foods with the pathways and special proteins, has become more crucial than ever. Though we have an important number of chemotherapeutic drugs in the current status of cancer medicine, the drugs namely; sunitinib, sorafenib, 17-AAg, thapsigargin, eeyarestatin, bortezomib, metformin, tunicamycin, versipelostatin, brefeldin A, honokiol, paclitaxel, fulvestrant, doxorubicin, DBeQ, MKC-3946, MAL3-101, tamoxifen, nafoxidine, C1628, MG-132, reolysin (and many others…) with their well-defined effect mechanisms and involvements in cancer pathways, their interactions with the bio-active nutrient compounds, like; I3C, lycopene, amygdalin, arginine, EGCG, vitamin D, kaempferol, genistein, tocopherol, lycopene, beta carotene, quercetin, apigenin and resveratrol have not been properly reviewed. However, the design of an anti-cancer diet for a cancer patient during the treatment can only be made according to the interactions between the anti-cancer drug and the bioactive compounds in the food. Each drug and each bioactive compound has different effects on the cancer triggering signaling; GRP78/BIP, beta catenin, Nrf2-keap1, ERK, Hedgehog, Rb/E2F, notch, and PI3K/AKT/mTOR; the cancer triggering or inhibiting proteins; TNF, p38, p23, Bcl, GRP78, NF-kB, CDK, STAT3, Bax, MMP, Fas, erbB2, Foxo3, G6DP, STEAP, SOX2, galectine 3, CDC25, COX2, caspase, E2F3, AR, PRDX3, ER alpha, iNOS, PRDX3, IGF-1, HO-1, VEGF, GATA3, IL-1B, the enzyme systems; H2O2 fenton, phase II and CYP1A1. Therefore, first the bioactive nutrient compounds which have the same effect with anti-cancer drug on these proteins, enzyme systems or signaling should have been determined and then their food sources should form the anti-cancer diet for the given anti-cancer drug.

Biography

Ugur Gogus is working as Assistant Professor at the Middle East Technical University, turkey. He has extended his valuable service for many years and has been a recipient of many awards and grants. His experience includes various programs, contributions and participation in different events for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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