Dietary Inorganic Phosphate; Hidden Signal?

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Inorganic phosphate (Pi) is being added to a large number of processed foods because the addition of Pi increases the quality of food through improved water retention and texture. Surveys conducted in various countries indicate that intake of Pi has increased steadily as Pi-containing foods increased. These surveys also suggest that the use of Pi as a food additive may continue to increase. Pi plays a key role in diverse physiological functions. Several studies indicate that Pi may affect lung cell development through Na/Pi co-transporter (NPT). Some NPT subtypes have been identified in mammalian lung and considerable progress has been made in our understanding of their function and regulation. Therefore, we have been tried to elucidate the potential effects of high dietary Pi. Our results clearly demonstrate that high dietary Pi may affect the lung development. Also, we show that high dietary Pi promotes lung tumorigenesis through Akt-related cap-dependent protein translation, cell cycle regulation, and angiogenesis. Our results support the hypothesis that Pi works as a stimulus capable of increasing or decreasing several pivotal genes for lung cancer growth and suggest that regulation of Pi consumption may be important in maintaining a high quality of life.