

## Anticarcinogenic effect of common carotenoids.

Gerster H.

Vitamin Research Department, VFEH, F. Hoffmann-La Roche, Basel, Switzerland.

Of the common carotenoids present in food, beta carotene, alpha carotene, lycopene, lutein, zeaxanthin as well as canthaxanthin can be considered potential prophylactic agents against carcinogenesis. They are absorbed by the human organism in reasonable amounts, and they have antioxidant properties, immunomodulating effects and may possibly influence gene expression enhancing gap junction communication. Recent suggestions that beta carotene may be metabolized directly to retinoic acid in retinoic acid target tissue and the discovery of retinoic acid nuclear receptors open up new perspectives for research. The best established chain of evidence for a protective effect of carotenoids against cancer development is available for beta carotene. Positive effects were observed in cell culture and experimental animal studies as well as in dietary and blood level studies in humans. More conclusive evidence will be provided by double-blind intervention trials in humans that are in progress. Beta carotene appears to be active in the promotion phase of carcinogenesis stabilizing initiated cells. Canthaxanthin, which has often been included in animal experiments for comparative purposes having little or no provitamin A activity, also exhibits strong protective effects. Of the other carotenoids only limited data are available. Depending on the experimental model used, lycopene, lutein or alpha carotene was particularly active. In preliminary human blood level studies, lycopene was inversely associated with cancers of the pancreas and cervix. Much work remains to be done. Of particular interest is the question of organ specificity of individual carotenoids.

PMID 8407171 [PubMed - indexed for MEDLINE]

**Dei comuni carotenoidi presenti nei cibi, il beta-carotene, l'alfa-carotene, il licopene, la luteina, la zeaxantina e anche la cantaxantina possono essere considerati potenziali agenti profilattici contro la carcinogenesi.**

**Hanno proprietà antiossidanti, effetti immunomodulanti e la possibilità di influenzare l'espressione genetica migliorando il gap di comunicazione giunzionale.**

**Il beta-carotene offre la migliore evidenza protettiva dei carotenoidi contro il cancro. Il beta-carotene appare attivo nella fase di promozione della carcinogenesi stabilizzando le cellule iniziate.**