

## CARIG Literature Citations – July 2012

(compiled by Harold Furr, University of Wisconsin-Madison, USA)

Abranches, M. V., Mendes, M. C., Pena, G. G., Maia, Y. C., Ribeiro, S. M., Franceschini, S. C., de Paula, S. O., de Freitas, R. N., & Peluzio, M. C. (2011) Antioxidant vitamins and cytokines are altered in breast cancer. *Eur.J Cancer Prev.* 20: 403-410.

Ahn, J. H., Hu, Y., Hernandez, M., & Kim, J. R. (2011) Crocetin inhibits beta-amyloid fibrillization and stabilizes beta-amyloid oligomers. *Biochem.Biophys.Res.Commun.* 414: 79-83.

Alder, A., Jamil, M., Marzorati, M., Bruno, M., Vermathen, M., Bigler, P., Ghisla, S., Bouwmeester, H., Beyer, P., & Al Babili, S. (2012) The path from beta-carotene to carlactone, a strigolactone-like plant hormone. *Science.* 335: 1348-1351.

Almbro, M., Dowling, D. K., & Simmons, L. W. (2011) Effects of vitamin E and beta-carotene on sperm competitiveness. *Ecol.Lett.* 14: 891-895.

Alonso-Alvarez, C. & Galvan, I. (2011) Free radical exposure creates paler carotenoid-based ornaments: a possible interaction in the expression of black and red traits. *PLoS.ONE.* 6: e19403.

Altavilla, D., Bitto, A., Polito, F., Irrera, N., Marini, H., Arena, S., Favilla, V., Squadrito, F., Morgia, G., & Minutoli, L. (2011) The combination of *Serenoa repens*, selenium and lycopene is more effective than serenoa repens alone to prevent hormone dependent prostatic growth. *J Urol.* 186: 1524-1529.

Amengual, J., Gouranton, E., van Helden, Y. G., Hessel, S., Ribot, J., Kramer, E., Kiec-Wilk, B., Razny, U., Lietz, G., Wyss, A., Dembinska-Kiec, A., Palou, A., Keijer, J., Landrier, J. F., Bonet, M. L., & Von Lintig, J. (2011) Beta-carotene reduces body adiposity of mice via BCMO1. *PLoS.ONE.* 6: e20644.

Anarjan, N., Tan, C. P., Ling, T. C., Lye, K. L., Malmiri, H. J., Nehdi, I. A., Cheah, Y. K., Mirhosseini, H., & Baharin, B. S. (2011) Effect of organic-phase solvents on physicochemical properties and cellular uptake of astaxanthin nanodispersions. *J Agric.Food Chem.* 59: 8733-8741.

Araya-Garay, J. M., Feijoo-Siota, L., Veiga-Crespo, P., & Villa, T. G. (2011) cDNA cloning of a novel gene codifying for the enzyme lycopene beta-cyclase from *Ficus carica* and its expression in *Escherichia coli*. *Appl.Microbiol.Biotechnol.* 92: 769-777.

Arima, H., Horiguchi, N., Takaichi, S., Kofuji, R., Ishida, K., Wada, K., & Sakamoto, T. (2012) Molecular genetic and chemotaxonomic characterization of the terrestrial cyanobacterium *Nostoc commune* and its neighboring species. *FEMS Microbiol.Ecol.* 79: 34-45.

Aslim, B. & Ozturk, S. (2011) Phenolic composition and antimicrobial and antioxidant activities of *Leucoagaricus leucothites* (Vittad.) Wasser. *J Med.Food.* 14: 1419-1424.

Auttachoat, W., Germolec, D. R., Smith, M. J., White, K. L., Jr., & Guo, T. L. (2011) Contact sensitizing potential of annatto extract and its two primary color components, *cis*-bixin and norbixin, in female BALB/c mice. *Food Chem Toxicol.* 49: 2638-2644.

Aytac, E., Ayan, F., Saygili, S., Genc, H., Karaca, C., Bayrak, I., Uzun, H., Salihoglu, Z., Erdamar, S., Sozer, V., Altug, T., Seymen, P., & Seymen, H. O. (2011) Effects of lycopene on oxidative stress and remnant liver histology after partial hepatectomy in rats. *Turk.J Gastroenterol.* 22: 408-

413.

Azar, M., Basu, A., Jenkins, A. J., Nankervis, A. J., Hanssen, K. F., Scholz, H., Henriksen, T., Garg, S. K., Hammad, S. M., Scardo, J. A., Aston, C. E., & Lyons, T. J. (2011) Serum carotenoids and fat-soluble vitamins in women with type 1 diabetes and preeclampsia: a longitudinal study. *Diabetes Care.* 34: 1258-1264.

Azmi, W., Thakur, M., & Kumar, A. (2011) Production of beta-carotene from deproteinized waste whey filtrate using *Mucor azygosporus* MTCC 414 in submerged fermentation. *Acta Microbiol.Immunol.Hung.* 58: 189-200.

Azzini, E., Polito, A., Fumagalli, A., Intorre, F., Venneria, E., Durazzo, A., Zaccaria, M., Ciarapica, D., Foddai, M. S., Mauro, B., Raguzzini, A., Palomba, L., & Maiani, G. (2011) Mediterranean Diet Effect: an Italian picture. *Nutr.J.* 10:125.: 125.

Badr, S. E., Shaaban, M., Elkholy, Y. M., Helal, M. H., Hamza, A. S., Masoud, M. S., & El Safty, M. M. (2011) Chemical composition and biological activity of ripe pumpkin fruits (*Cucurbita pepo* L.) cultivated in Egyptian habitats. *Nat.Prod.Res.* 25: 1524-1539.

Bae, J. W. & Bae, J. S. (2011) Barrier protective effects of lycopene in human endothelial cells. *Inflamm.Res.* 60: 751-758.

Baldrick, F. R., Woodside, J. V., Elborn, J. S., Young, I. S., & McKinley, M. C. (2011) Biomarkers of fruit and vegetable intake in human intervention studies: a systematic review. *Crit Rev.Food Sci.Nutr.* 51: 795-815.

Barrero, A. F., Herrador, M. M., Arteaga, P., Gil, J., Gonzalez, J. A., Alcalde, E., & Cerda-Olmedo, E. (2011) New apocarotenoids and beta-carotene cleavage in *Blakeslea trispora*. *Org.Biomol.Chem.* 9: 7190-7195.

Bechoff, A., Poulaert, M., Tomlins, K. I., Westby, A., Menya, G., Young, S., & Dhuique-Mayer, C. (2011) Retention and bioaccessibility of beta-carotene in blended foods containing orange-fleshed sweet potato flour. *J Agric.Food Chem.* 59: 10373-10380.

Beisel, K. G., Schurr, U., & Matsubara, S. (2011) Altered turnover of beta-carotene and Chl a in *Arabidopsis* leaves treated with lincomycin or norflurazon. *Plant Cell Physiol.* 52: 1193-1203.

Bergstrom, T., Bergman, J., & Moller, L. (2011) Vitamin A and C compounds permitted in supplements differ in their abilities to affect cell viability, DNA and the DNA nucleoside deoxyguanosine. *Mutagenesis.* 26: 735-744.

Beydoun, H. A., Shroff, M. R., Mohan, R., & Beydoun, M. A. (2011) Associations of serum vitamin A and carotenoid levels with markers of prostate cancer detection among US men. *Cancer Causes Control.* 22: 1483-1495.

Bhardwaj, R. L. & Pandey, S. (2011) Juice blends--a way of utilization of under-utilized fruits, vegetables, and spices: a review. *Crit Rev.Food Sci.Nutr.* 51: 563-570.

Bian, Q., Qin, T., Ren, Z., Wu, D., & Shang, F. (2012) Lutein or zeaxanthin supplementation suppresses inflammatory responses in retinal pigment epithelial cells and macrophages. *Adv.Exp.Med.Biol.* 723:43-50.: 43-50.

Bie, X., Chen, Y., Zheng, X., & Dai, H. (2011) The role of crocetin in protection following cerebral contusion and in the enhancement of angiogenesis in rats. *Fitoterapia.* 82: 997-1002.

- Biehler, E., Hoffmann, L., Krause, E., & Bohn, T. (2011) Divalent minerals decrease micellarization and uptake of carotenoids and digestion products into Caco-2 cells. *J Nutr.* 141: 1769-1776.
- Biesalski, H. K., Aggett, P. J., Anton, R., Bernstein, P. S., Blumberg, J., Heaney, R. P., Henry, J., Nolan, J. M., Richardson, D. P., van Ommen, B., Witkamp, R. F., Rijkers, G. T., & Zollner, I. (2011) 26th Hohenheim Consensus Conference, September 11, 2010. Scientific substantiation of health claims: evidence-based nutrition. *Nutrition.* 27: S1-20.
- Bihani-Duval, E., Nadaf, J., Berri, C., Pitel, F., Graulet, B., Godet, E., Leroux, S. Y., Demeure, O., Lagarrigue, S., Duby, C., Cogburn, L. A., Beaumont, C. M., & Duclos, M. J. (2011) Detection of a Cis [corrected] eQTL controlling BCMO1 gene expression leads to the identification of a QTG for chicken breast meat color. *PLoS.ONE.* 6: e14825.
- Boereboom, J. M., van Hemert, M. C., & Neugebauer, J. (2011) The resonance Raman spectra of spheroidene revisited with a first-principles approach. *Chemphyschem.* 12: 3157-3169.
- Borghesi, E., Gonzalez-Miret, M. L., Escudero-Gilete, M. L., Malorgio, F., Heredia, F. J., & Melendez-Martinez, A. J. (2011) Effects of salinity stress on carotenoids, anthocyanins, and color of diverse tomato genotypes. *J Agric.Food Chem.* 59: 11676-11682.
- Bovi, D., Mezzetti, A., Vuilleumier, R., Gaigeot, M. P., Chazallon, B., Spezia, R., & Guidoni, L. (2011) Environmental effects on vibrational properties of carotenoids: experiments and calculations on peridinin. *Phys.Chem Chem Phys.* 13: 20954-20964.
- Breidenassel, C., Valtuena, J., Gonzalez-Gross, M., Benser, J., Spinneker, A., Moreno, L. A., De Henauw, S., Widhalm, K., Molnar, D., Maiani, G., & Stehle, P. (2011) Antioxidant vitamin status (A, E, C, and beta-carotene) in European adolescents - the HELENA Study. *Int J Vitam.Nutr.Res.* 81: 245-255.
- Briancon, S., Boini, S., Bertrais, S., Guillemin, F., Galan, P., & Hercberg, S. (2011) Long-term antioxidant supplementation has no effect on health-related quality of life: the randomized, double-blind, placebo-controlled, primary prevention SU.VI.MAX trial. *Int J Epidemiol.* 40: 1605-1616.
- Burt, A. J., Grainger, C. M., Shelp, B. J., & Lee, E. A. (2011) Heterosis for carotenoid concentration and profile in maize hybrids. *Genome.* 54: 993-1004.
- Cano, A. & Bermejo, A. (2011) Influence of rootstock and cultivar on bioactive compounds in citrus peels. *J Sci.Food Agric.* 91: 1702-1711.
- Cardenosa, V., Lunar, M. L., & Rubio, S. (2011) Generalized and rapid supramolecular solvent-based sample treatment for the determination of annatto in food. *J Chromatogr.A.* 1218: 8996-9002.
- Casagrande, S., Dell'omo, G., Costantini, D., Tagliavini, J., & Groothuis, T. (2011) Variation of a carotenoid-based trait in relation to oxidative stress and endocrine status during the breeding season in the Eurasian kestrel: a multi-factorial study. *Comp Biochem.Physiol A Mol.Integr.Physiol.* 160: 16-26.
- Casella, M., Lucotti, A., Tommasini, M., Bedoni, M., Forvi, E., Gramatica, F., & Zerbi, G. (2011) Raman and SERS recognition of beta-carotene and haemoglobin fingerprints in human whole blood. *Spectrochim.Acta A Mol.Biomol.Spectrosc.* 79: 915-919.
- Chandrika, U. G., Salim, N., Wijepala, G. D., Perera, K. S., & Goonetilleke, A. K. (2011) Carotenoid and mineral content of different morphotypes of *Centella asiatica* L. (Gotukola). *Int J Food Sci.Nutr.* 62: 552-557.

- Checkley, W., West, K. P., Jr., Wise, R. A., Wu, L., LeClerq, S. C., Khatry, S., Katz, J., Christian, P., Tielsch, J. M., & Sommer, A. (2011) Supplementation with vitamin A early in life and subsequent risk of asthma. *Eur.Respir.J.* 38: 1310-1319.
- Chen, C. R., Hong, S. E., Wang, Y. C., Hsu, S. L., Hsiang, D., & Chang, C. M. (2012) Preparation of highly pure zeaxanthin particles from sea water-cultivated microalgae using supercritical anti-solvent recrystallization. *Bioresour.Technol.* 104:828-31.
- Choi, H. D., Kim, J. H., Chang, M. J., Kyu-Youn, Y., & Shin, W. G. (2011) Effects of astaxanthin on oxidative stress in overweight and obese adults. *Phytother.Res.* 25: 1813-1818.
- Choi, Y. E., Yun, Y. S., Park, J. M., & Yang, J. W. (2011) Multistage operation of airlift photobioreactor for increased production of astaxanthin from *Haematococcus pluvialis*. *J Microbiol.Biotechnol.* 21: 1081-1087.
- Choi, Y. E., Yun, Y. S., Park, J. M., & Yang, J. W. (2011) Determination of the time transferring cells for astaxanthin production considering two-stage process of *Haematococcus pluvialis* cultivation. *Bioresour.Technol.* 102: 11249-11253.
- Christian, P., Labrique, A. B., Ali, H., Richman, M. J., Wu, L., Rashid, M., & West, K. P., Jr. (2011) Maternal vitamin A and beta-carotene supplementation and risk of bacterial vaginosis: a randomized controlled trial in rural Bangladesh. *Am.J Clin Nutr.* 94: 1643-1649.
- Chung, J., Koo, K., Lian, F., Hu, K. Q., Ernst, H., & Wang, X. D. (2012) Apo-10'-lycopenoic acid, a lycopene metabolite, increases sirtuin 1 mRNA and protein levels and decreases hepatic fat accumulation in ob/ob mice. *J Nutr.* 142: 405-410.
- Collins, A. M., Jones, H. D., Han, D., Hu, Q., Beechem, T. E., & Timlin, J. A. (2011) Carotenoid distribution in living cells of *Haematococcus pluvialis* (*Chlorophyceae*). *PLoS.ONE.* 6: e24302.
- Connolly, E. E., Beatty, S., Loughman, J., Howard, A. N., Louw, M. S., & Nolan, J. M. (2011) Supplementation with all three macular carotenoids: response, stability, and safety. *Invest Ophthalmol.Vis.Sci.* 52: 9207-9217.
- Cordero, B. F., Obraztsova, I., Couso, I., Leon, R., Vargas, M. A., & Rodriguez, H. (2011) Enhancement of lutein production in *Chlorella sorokiniana* (*Chlorophyta*) by improvement of culture conditions and random mutagenesis. *Mar.Drugs.* 9: 1607-1624.
- Cordero, B. F., Couso, I., Leon, R., Rodriguez, H., & Vargas, M. A. (2011) Enhancement of carotenoids biosynthesis in *Chlamydomonas reinhardtii* by nuclear transformation using a phytoene synthase gene isolated from *Chlorella zofingiensis*. *Appl.Microbiol.Biotechnol.* 91: 341-351.
- Cornacchia, L. & Roos, Y. H. (2011) Stability of beta-carotene in protein-stabilized oil-in-water delivery systems. *J Agric.Food Chem.* 59: 7013-7020.
- Crane, T. E., Kubota, C., West, J. L., Kroggel, M. A., Wertheim, B. C., & Thomson, C. A. (2011) Increasing the vegetable intake dose is associated with a rise in plasma carotenoids without modifying oxidative stress or inflammation in overweight or obese postmenopausal women. *J Nutr.* 141: 1827-1833.
- Crispim, S. P., Geelen, A., Souverein, O. W., Hulshof, P. J., Ruprich, J., Dofkova, M., Huybrechts, I., De Keyzer, W., Lillegaard, I. T., Andersen, L. F., Lafay, L., Rousseau, A. S., Ocke, M. C., Slimani, N., Van, 't, V., & de Vries, J. H. (2011) Biomarker-based evaluation of two 24-h recalls for comparing usual fish, fruit and vegetable intakes across European centers in the EFCOVAL Study.

Eur.J Clin Nutr. 65 Suppl 1:S38-47.

Darvin, M. E., Fluhr, J. W., Schanzer, S., Richter, H., Patzelt, A., Meinke, M. C., Zastrow, L., Golz, K., Doucet, O., Sterry, W., & Lademann, J. (2011) Dermal carotenoid level and kinetics after topical and systemic administration of antioxidants: enrichment strategies in a controlled in vivo study. J Dermatol.Sci. 64: 53-58.

Davidsson, L. & Tanumihardjo, S. (2011) New frontiers in science and technology: nuclear techniques in nutrition. Am.J Clin Nutr. 94: 691S-695S.

de Oliveira, V. E., Almeida, E. W., Castro, H. V., Edwards, H. G., Dos Santos, H. F., & de Oliveira, L. F. (2011) Carotenoids and beta-cyclodextrin inclusion complexes: Raman spectroscopy and theoretical investigation. J Phys.Chem A. 115: 8511-8519.

De Spirt, S., Sies, H., Tronnier, H., & Heinrich, U. (2012) An encapsulated fruit and vegetable juice concentrate increases skin microcirculation in healthy women. Skin Pharmacol Physiol. 25: 2-8.

de, I., V, Diaz, E., Vila, M., & Leon, R. (2011) Isolation of a new strain of *Picochlorum* sp and characterization of its potential biotechnological applications. Biotechnol.Prog. 27: 1535-1543.

Dehghan-Shoar, Z., Mandimika, T., Hardacre, A. K., Reynolds, G. W., & Brennan, C. S. (2011) Lycopene bioaccessibility and starch digestibility for extruded snacks enriched with tomato derivatives. J Agric.Food Chem. 59: 12047-12053.

Deshmukh, S. S., Tang, K., & Kalman, L. (2011) Lipid binding to the carotenoid binding site in photosynthetic reaction centers. J Am.Chem Soc. 133: 16309-16316.

Deslauriers, A. M., Afkhami-Goli, A., Paul, A. M., Bhat, R. K., Acharya, S., Ellestad, K. K., Noorbakhsh, F., Michalak, M., & Power, C. (2011) Neuroinflammation and endoplasmic reticulum stress are coregulated by curcumin to prevent demyelination and neurodegeneration. J Immunol. 187: 4788-4799.

Di Valentin, M., Tait, C., Salvadori, E., Ceola, S., Scheer, H., Hiller, R. G., & Carbonera, D. (2011) Conservation of spin polarization during triplet-triplet energy transfer in reconstituted peridinin-chlorophyll-protein complexes. J Phys.Chem B. 115: 13371-13380.

Dias, M. I., Barros, L., Sousa, M. J., & Ferreira, I. C. (2011) Comparative study of lipophilic and hydrophilic antioxidants from *in vivo* and *in vitro* grown *Coriandrum sativum*. Plant Foods Hum.Nutr. 66: 181-186.

Diaz-Sanchez, V., Estrada, A. F., Trautmann, D., Al Babili, S., & Avalos, J. (2011) The gene carD encodes the aldehyde dehydrogenase responsible for neurosporaxanthin biosynthesis in *Fusarium fujikuroi*. FEBS J. 278: 3164-3176.

Dissing, B. S., Nielsen, M. E., Ersboll, B. K., & Frosch, S. (2011) Multispectral imaging for determination of astaxanthin concentration in salmonids. PLoS.ONE. 6: e19032.

Donaldson, M. S. (2011) A carotenoid health index based on plasma carotenoids and health outcomes. Nutrients. 3: 1003-1022.

Earnest, C. P., Lupo, M., White, K. M., & Church, T. S. (2011) Effect of astaxanthin on cycling time trial performance. Int J Sports Med. 32: 882-888.

Egea, I., Bian, W., Barsan, C., Jauneau, A., Pech, J. C., Latche, A., Li, Z., & Chervin, C. (2011) Chloroplast to chromoplast transition in tomato fruit: spectral confocal microscopy analyses of

carotenoids and chlorophylls in isolated plastids and time-lapse recording on intact live tissue. Ann.Bot. 108: 291-297.

Eh, A. L. & Teoh, S. G. (2012) Novel modified ultrasonication technique for the extraction of lycopene from tomatoes. Ultrason.Sonochem. 19: 151-159.

El Agamey, A. & Fukuzumi, S. (2011) Laser flash photolysis study on the retinol radical cation in polar solvents. Org.Biomol.Chem. 9: 6437-6446.

El Rouby, D. H. (2011) Histological and immunohistochemical evaluation of the chemopreventive role of lycopene in tongue carcinogenesis induced by 4-nitroquinoline-1-oxide. Arch.Oral Biol. 56: 664-671.

Esfahani, A., Wong, J. M., Truan, J., Villa, C. R., Mirrahimi, A., Srirachaikul, K., & Kendall, C. W. (2011) Health effects of mixed fruit and vegetable concentrates: a systematic review of the clinical interventions. J Am.Coll.Nutr. 30: 285-294.

Etoh, H., Suhara, M., Tokuyama, S., Kato, H., Nakahigashi, R., Maejima, Y., Ishikura, M., Terada, Y., & Maoka, T. (2012) Auto-oxidation products of astaxanthin. J Oleo.Sci. 61: 17-21.

Evans, S. R. & Sheldon, B. C. (2012) Quantitative genetics of a carotenoid-based color: heritability and persistent natal environmental effects in the great tit. Am.Nat. 179: 79-94.

Farre, G., Bai, C., Twyman, R. M., Capell, T., Christou, P., & Zhu, C. (2011) Nutritious crops producing multiple carotenoids--a metabolic balancing act. Trends Plant Sci. 16: 532-540.

Ferreira, B. S., de Almeida, C. G., Faza, L. P., de Almeida, A., Diniz, C. G., da Silva, V. L., Grazul, R. M., & Le Hyaric, M. (2011) Comparative properties of Amazonian oils obtained by different extraction methods. Molecules. 16: 5875-5885.

Ferreiro-Vera, C., Mata-Granados, J. M., Quesada Gomez, J. M., & Luque, D. C. (2011) On-line coupling of automatic solid-phase extraction and HPLC for determination of carotenoids in serum. Talanta. 85: 1842-1847.

Filaire, E., Massart, A., Rouveix, M., Portier, H., Rosado, F., & Durand, D. (2011) Effects of 6 weeks of n-3 fatty acids and antioxidant mixture on lipid peroxidation at rest and postexercise. Eur.J Appl.Physiol. 111: 1829-1839.

Floegel, A., Chung, S. J., von Ruesten, A., Yang, M., Chung, C. E., Song, W. O., Koo, S. I., Pischon, T., & Chun, O. K. (2011) Antioxidant intake from diet and supplements and elevated serum C-reactive protein and plasma homocysteine concentrations in US adults: a cross-sectional study. Public Health Nutr. 14: 2055-2064.

Focsan, A. L., Bowman, M. K., Molnar, P., Deli, J., & Kispert, L. D. (2011) Carotenoid radical formation: dependence on conjugation length. J Phys.Chem B. 115: 9495-9506.

Forjan, E., Garbayo, I., Henriques, M., Rocha, J., Vega, J. M., & Vilchez, C. (2011) UV-A mediated modulation of photosynthetic efficiency, xanthophyll cycle and fatty acid production of *Nannochloropsis*. Mar.Biotechnol.(NY). 13: 366-375.

Frandsen, J. E., Llop, S., Digre, K. B., Bernstein, P. S., Sharifzadeh, M., Warner, J. E., Gellerman, W., & Katz, B. J. (2012) Quantification of macular carotenoids using autofluorescence imaging in patients with photosensitive migraine and benign essential blepharospasm. Arch.Ophthalmol. 130: 259-260.

- Fritz, H., Kennedy, D., Fergusson, D., Fernandes, R., Doucette, S., Cooley, K., Seely, A., Sagar, S., Wong, R., & Seely, D. (2011) Vitamin A and retinoid derivatives for lung cancer: a systematic review and meta analysis. PLoS.ONE. 6: e21107.
- Fu, G. M., Shi, S. P., Ip, F. C., Pang, H. H., & Ip, N. Y. (2011) A new carotenoid glycoside from *Rehmannia glutinosa*. Nat.Prod.Res. 25: 1213-1218.
- Fu, X., Kong, W., Peng, G., Zhou, J., Azam, M., Xu, C., Grierson, D., & Chen, K. (2012) Plastid structure and carotenogenic gene expression in red- and white-fleshed loquat (*Eriobotrya japonica*) fruits. J Exp.Bot. 63: 341-354.
- Fujii, S., Chang, S. Y., & Burke, M. D. (2011) Total synthesis of synechoxanthin through iterative cross-coupling. Angew.Chem Int Ed Engl. 50: 7862-7864.
- Gall, A., Berera, R., Alexandre, M. T., Pascal, A. A., Bordes, L., Mendes-Pinto, M. M., Andrianambinintsoa, S., Stoitchkova, K. V., Marin, A., Valkunas, L., Horton, P., Kennis, J. T., van Grondelle, R., Ruban, A., & Robert, B. (2011) Molecular adaptation of photoprotection: triplet states in light-harvesting proteins. Biophys.J. 101: 934-942.
- Garcia Costas, A. M., Tsukatani, Y., Rijpstra, W. I., Schouten, S., Welander, P. V., Summons, R. E., & Bryant, D. A. (2012) Identification of the bacteriochlorophylls, carotenoids, quinones, lipids, and hopanoids of "*Candidatus Chloracidobacterium thermophilum*". J Bacteriol. 194: 1158-1168.
- Ghadrdoost, B., Vafaei, A. A., Rashidy-Pour, A., Hajisoltani, R., Bandegi, A. R., Motamedi, F., Haghghi, S., Sameni, H. R., & Pahlvan, S. (2011) Protective effects of saffron extract and its active constituent crocin against oxidative stress and spatial learning and memory deficits induced by chronic stress in rats. Eur.J Pharmacol. 667: 222-229.
- Giasson, J., Hernandez, M., & Chen, Y. (2011) Stability of serum carotene at various light and temperature conditions. Arch.Pathol.Lab Med. 135: 1529-1530.
- Giovannucci, E. (2011) Commentary: Serum lycopene and prostate cancer progression: a re-consideration of findings from the prostate cancer prevention trial. Cancer Causes Control. 22: 1055-1059.
- Gonzalez, C. A., Travier, N., Lujan-Barroso, L., Castellsague, X., Bosch, F. X., Roura, E., Bueno-de-Mesquita, H. B., Palli, D., Boeing, H., Pala, V., Sacerdote, C., Tumino, R., Panico, S., Manjer, J., Dillner, J., Hallmans, G., Kjellberg, L., Sanchez, M. J., Altzibar, J. M., Barricarte, A., Navarro, C., Rodriguez, L., Allen, N., Key, T. J., Kaaks, R., Rohrmann, S., Overvad, K., Olsen, A., Tjonneland, A., Munk, C., Kjaer, S. K., Peeters, P. H., van Duijnhoven, F. J., Clavel-Chapelon, F., Boutron-Ruault, M. C., Trichopoulou, A., Benetou, V., Naska, A., Lund, E., Engeset, D., Skeie, G., Franceschi, S., Slimani, N., Rinaldi, S., & Riboli, E. (2011) Dietary factors and in situ and invasive cervical cancer risk in the European prospective investigation into cancer and nutrition study. Int J Cancer. 129: 449-459.
- Gopal, K., Nagarajan, P., Raj, T. A., Jahan, P., Ganapathy, H. S., & Mahesh Kumar, M. J. (2011) Effect of dietary beta carotene on cerebral aneurysm and subarachnoid haemorrhage in the brain apo E-/ mice. J Thromb.Thrombolysis. 32: 343-355.
- Gouranton, E., Thabuis, C., Riollet, C., Malezet-Desmoulin, C., El Yazidi, C., Amiot, M. J., Borel, P., & Landrier, J. F. (2011) Lycopene inhibits proinflammatory cytokine and chemokine expression in adipose tissue. J Nutr.Biochem. 22: 642-648.
- Gouranton, E., Aydemir, G., Reynaud, E., Marcotorchino, J., Malezet, C., Caris-Veyrat, C.,

- Blomhoff, R., Landrier, J. F., & Ruhl, R. (2011) Apo-10'-lycopenoic acid impacts adipose tissue biology via the retinoic acid receptors. *Biochim.Biophys.Acta.* 1811: 1105-1114.
- Granado-Lorencio, F., Simal-Anton, A., Blanco-Navarro, I., Gonzalez-Dominguez, T., & Perez-Sacristan, B. (2011) Depletion of serum carotenoid and other fat-soluble vitamin concentrations following obesity surgery. *Obes.Surg.* 21: 1605-1611.
- Granado-Lorencio, F., Donoso-Navarro, E., Sanchez-Siles, L. M., Blanco-Navarro, I., & Perez-Sacristan, B. (2011) Bioavailability of beta-cryptoxanthin in the presence of phytosterols: *in vitro* and *in vivo* studies. *J Agric.Food Chem.* 59: 11819-11824.
- Greaves, R. F., Hoad, K. E., Woollard, G. A., Walmsley, T. A., Briscoe, S., Johnson, L. A., Carter, W. D., & Gill, J. P. (2011) External quality assurance target setting with NIST SRM 968d material: performance in the 2010 Royal College of Pathologists of Australasia Quality Assurance Program with retinol, alpha-tocopherol and beta-carotene. *Ann.Clin Biochem.* 48: 480-482.
- Guedes, A. C., Amaro, H. M., & Malcata, F. X. (2011) Microalgae as sources of high added-value compounds--a brief review of recent work. *Biotechnol.Prog.* 27: 597-613.
- Guerra, B. A. & Otton, R. (2011) Impact of the carotenoid astaxanthin on phagocytic capacity and ROS/RNS production of human neutrophils treated with free fatty acids and high glucose. *Int Immunopharmacol.* 11: 2220-2226.
- Gupta, R., Kopec, R. E., Schwartz, S. J., & Balasubramaniam, V. M. (2011) Combined pressure-temperature effects on carotenoid retention and bioaccessibility in tomato juice. *J Agric.Food Chem.* 59: 7808-7817.
- Gushchin, I., Reshetnyak, A., Borshchevskiy, V., Ishchenko, A., Round, E., Grudinin, S., Engelhard, M., Buldt, G., & Gordeliy, V. (2011) Active state of sensory rhodopsin II: structural determinants for signal transfer and proton pumping. *J Mol.Biol.* 412: 591-600.
- Gwizdala, M., Wilson, A., & Kirilovsky, D. (2011) *In vitro* reconstitution of the cyanobacterial photoprotective mechanism mediated by the Orange Carotenoid Protein in *Synechocystis* PCC 6803. *Plant Cell.* 23: 2631-2643.
- Halataei, B. A., Khosravi, M., Arbabian, S., Sahraei, H., Golmanesh, L., Zardooz, H., Jalili, C., & Ghoshooni, H. (2011) Saffron (*Crocus sativus*) aqueous extract and its constituent crocin reduces stress-induced anorexia in mice. *Phytother.Res.* 25: 1833-1838.
- Han, R. M., Li, D. D., Chen, C. H., Liang, R., Tian, Y. X., Zhang, J. P., & Skibsted, L. H. (2011) Phenol acidity and ease of oxidation in isoflavonoid/beta-carotene antioxidant synergism. *J Agric.Food Chem.* 59: 10367-10372.
- Hardin, J., Cheng, I., & Witte, J. S. (2011) Impact of consumption of vegetable, fruit, grain, and high glycemic index foods on aggressive prostate cancer risk. *Nutr.Cancer.* 63: 860-872.
- Harrison, E. H. (2012) Mechanisms involved in the intestinal absorption of dietary vitamin A and provitamin A carotenoids. *Biochim.Biophys.Acta.* 1821: 70-77.
- Hasan, S. S., Yamashita, E., Ryan, C. M., Whitelegge, J. P., & Cramer, W. A. (2011) Conservation of lipid functions in cytochrome bc complexes. *J Mol.Biol.* 414: 145-162.
- Heath, A. P., Bennett, G. N., & Kavraki, L. E. (2011) An algorithm for efficient identification of branched metabolic pathways. *J Comput.Biol.* 18: 1575-1597.

- Heinen, M. M., Verhage, B. A., Goldbohm, R. A., & van den Brandt, P. A. (2012) Intake of vegetables, fruits, carotenoids and vitamins C and E and pancreatic cancer risk in The Netherlands Cohort Study. *Int J Cancer.* 130: 147-158.
- Hesterberg, K., Schanzer, S., Patzelt, A., Sterry, W., Fluhr, J. W., Meinke, M. C., Lademann, J., & Darvin, M. E. (2012) Raman spectroscopic analysis of the carotenoid concentration in egg yolks depending on the feeding and housing conditions of the laying hens. *J Biophotonics.* 5: 33-39.
- Hiseni, A., Arends, I. W., & Otten, L. G. (2011) Biochemical characterization of the carotenoid 1,2-hydrolases (*CrtC*) from *Rubrivivax gelatinosus* and *Thiocapsa roseopersicina*. *Appl.Microbiol.Biotechnol.* 91: 1029-1036.
- Holt, D. C., Holden, M. T., Tong, S. Y., Castillo-Ramirez, S., Clarke, L., Quail, M. A., Currie, B. J., Parkhill, J., Bentley, S. D., Feil, E. J., & Giffard, P. M. (2011) A very early-branching *Staphylococcus aureus* lineage lacking the carotenoid pigment staphyloxanthin. *Genome Biol.Evol.* 3:881-95.
- Hu, X., Li, Y., Li, C., Fu, Y., Cai, F., Chen, Q., & Li, D. (2012) Combination of fucoxanthin and conjugated linoleic acid attenuates body weight gain and improves lipid metabolism in high-fat diet-induced obese rats. *Arch.Biochem.Biophys.* 519: 59-65.
- Huang, C. S., Lyu, S. C., Chen, J. Y., & Hu, M. L. (2012) The anti-metastatic efficacy of beta-ionone and the possible mechanisms of action in human hepatocarcinoma SK-Hep-1 cells. *Br.J Nutr.* 107: 631-638.
- Huang, H. C., Lin, C. L., & Lin, J. K. (2011) 1,2,3,4,6-penta-O-galloyl-beta-D-glucose, quercetin, curcumin and lycopene induce cell-cycle arrest in MDA-MB-231 and BT474 cells through downregulation of Skp2 protein. *J Agric.Food Chem.* 59: 6765-6775.
- Hung, L. C., Basri, M., Tejo, B. A., Ismail, R., Nang, H. L., Abu, H. H., & May, C. Y. (2011) An improved method for the preparations of nanostructured lipid carriers containing heat-sensitive bioactives. *Colloids Surf.B Biointerfaces.* 87: 180-186.
- Ilioiaia, C., Johnson, M. P., Liao, P. N., Pascal, A. A., van Grondelle, R., Walla, P. J., Ruban, A. V., & Robert, B. (2011) Photoprotection in plants involves a change in lutein 1 binding domain in the major light-harvesting complex of photosystem II. *J Biol.Chem.* 286: 27247-27254.
- Irakli, M. N., Samanidou, V. F., & Papadoyannis, I. N. (2011) Development and validation of an HPLC method for the simultaneous determination of tocopherols, tocotrienols and carotenoids in cereals after solid-phase extraction. *J Sep.Sci.* 34: 1375-1382.
- Jahns, P. & Holzwarth, A. R. (2012) The role of the xanthophyll cycle and of lutein in photoprotection of photosystem II. *Biochim.Biophys.Acta.* 1817: 182-193.
- Jang, H. J., Yoon, S. H., Ryu, H. K., Kim, J. H., Wang, C. L., Kim, J. Y., Oh, D. K., & Kim, S. W. (2011) Retinoid production using metabolically engineered *Escherichia coli* with a two-phase culture system. *Microb.Cell Fact.* 10:59.: 59.
- Jaramillo-Flores, M. E., Permaday, H. H., Puebla-Perez, A. M., Padilla, E., Lugo-Cervantes, E. C., Delgado-Saucedo, J. I., & Ramon-Gallegos, E. (2011) Effect of ditaxin and heteranthin and inhibitory effect of *Ditaxis heterantha* extract on L5178Y tumor development in mice. *J Med.Food.* 14: 462-467.
- Jayappriyan, K. R., Rajkumar, R., & Rengasamy, R. (2011) Unusual occurrence of non carotenogenic strains of *Dunaliella bardawil* and *Dunaliella parva* in India. *J Basic Microbiol.* 51:

473-483.

Jeon, Y. J., Myung, S. K., Lee, E. H., Kim, Y., Chang, Y. J., Ju, W., Cho, H. J., Seo, H. G., & Huh, B. Y. (2011) Effects of beta-carotene supplements on cancer prevention: meta-analysis of randomized controlled trials. *Nutr.Cancer*. 63: 1196-1207.

Jessri, M., Rashidkhani, B., Hajizadeh, B., Jessri, M., & Gotay, C. (2011) Macronutrients, vitamins and minerals intake and risk of esophageal squamous cell carcinoma: a case-control study in Iran. *Nutr.J.* 10:137.

Jeukendrup, A. E. & Randell, R. (2011) Fat burners: nutrition supplements that increase fat metabolism. *Obes.Rev.* 12: 841-851.

Johnson, M. P., Brain, A. P., & Ruban, A. V. (2011) Changes in thylakoid membrane thickness associated with the reorganization of photosystem II light harvesting complexes during photoprotective energy dissipation. *Plant Signal.Behav.* 6: 1386-1390.

Jordao, F. M., Kimura, E. A., & Katzin, A. M. (2011) Isoprenoid biosynthesis in the erythrocytic stages of *Plasmodium falciparum*. *Mem.Inst.Oswaldo Cruz*. 106 Suppl 1:134-41.: 134-141.

Juan, L. X., Hua, W. Y., Chao, Z. L., Yao, X. S., Mei, Z. A., & Xin, L. (2011) Determination of astaxanthin in *Haematococcus pluvialis* by first-order derivative spectrophotometry. *J AOAC Int.* 94: 1752-1757.

Kaczor, A. & Baranska, M. (2011) Structural changes of carotenoid astaxanthin in a single algal cell monitored in situ by Raman spectroscopy. *Anal.Chem.* 83: 7763-7770.

Kaiser, P., Geyer, R., Surmann, P., & Fuhrmann, H. (2012) LC-MS method for screening unknown microbial carotenoids and isoprenoid quinones. *J Microbiol.Methods.* 88: 28-34.

Kao, T. H., Chen, C. J., & Chen, B. H. (2011) Carotenoid composition in *Rhinacanthus nasutus* (L.) Kurz as determined by HPLC-MS and affected by freeze-drying and hot-air-drying. *Analyst*. 136: 3194-3202.

Karadas, F., Surai, P. F., & Sparks, N. H. (2011) Changes in broiler chick tissue concentrations of lipid-soluble antioxidants immediately post-hatch. *Comp Biochem.Physiol A Mol.Integr.Physiol.* 160: 68-71.

Karppi, J., Kurl, S., Laukkonen, J. A., Rissanen, T. H., & Kauhanen, J. (2011) Plasma carotenoids are related to intima-media thickness of the carotid artery wall in men from eastern Finland. *J Intern.Med.* 270: 478-485.

Katayama, S., Ogawa, H., & Nakamura, S. (2011) Apricot carotenoids possess potent anti-amyloidogenic activity *in vitro*. *J Agric.Food Chem.* 59: 12691-12696.

Kaur, H., Chauhan, S., & Sandhir, R. (2011) Protective effect of lycopene on oxidative stress and cognitive decline in rotenone induced model of Parkinson's disease. *Neurochem.Res.* 36: 1435-1443.

Kawashima, T. (2011) A marine carotenoid, fucoxanthin, induces regulatory T cells and inhibits Th17 cell differentiation *in vitro*. *Biosci.Biotechnol.Biochem.* 75: 2066-2069.

Khaled, I. A., El Ansary, M. S., Saleh, A. F., Mahmoud, O. M., Baioumi, E. A., & Bakr, H. A. (2011) Cytogenetic study of the effect of *Schistosoma mansoni* infection on human peripheral blood lymphocytes and the role of beta-carotene and vitamin E in modulating this effect. *Mol.Biol.Rep.*

38: 4101-4109.

Khan, M. I., Harsha, P. S., Giridhar, P., & Ravishankar, G. A. (2011) Pigment identification, antioxidant activity, and nutrient composition of *Tinospora cordifolia* (willd.) Miers ex Hook. f & Thoms fruit. Int J Food Sci.Nutr. 62: 239-249.

Kidd, P. (2011) Astaxanthin, cell membrane nutrient with diverse clinical benefits and anti-aging potential. Altern.Med.Rev. 16: 355-364.

Kiec-Wilk, B., Sliwa, A., Mikolajczyk, M., Malecki, M. T., & Mathers, J. C. (2011) The CpG island methylation regulated expression of endothelial proangiogenic genes in response to beta-carotene and arachidonic acid. Nutr.Cancer. 63: 1053-1063.

Kim, H. (2011) Inhibitory mechanism of lycopene on cytokine expression in experimental pancreatitis. Ann.N.Y.Acad.Sci. 1229:99-102.

Kim, J. E., Leite, J. O., DeOgburn, R., Smyth, J. A., Clark, R. M., & Fernandez, M. L. (2011) A lutein-enriched diet prevents cholesterol accumulation and decreases oxidized LDL and inflammatory cytokines in the aorta of guinea pigs. J Nutr. 141: 1458-1463.

Kim, J. H., Chang, M. J., Choi, H. D., Youn, Y. K., Kim, J. T., Oh, J. M., & Shin, W. G. (2011) Protective effects of *Haematococcus astaxanthin* on oxidative stress in healthy smokers. J Med.Food. 14: 1469-1475.

Kim, S. M., Shang, Y. F., & Um, B. H. (2011) A preparative method for isolation of fucoxanthin from *Eisenia bicyclis* by centrifugal partition chromatography. Phytochem.Anal. 22: 322-329.

Kirilovsky, D. & Kerfeld, C. A. (2012) The orange carotenoid protein in photoprotection of photosystem II in cyanobacteria. Biochim.Biophys.Acta. 1817: 158-166.

Klarod, K., Hongsprabhas, P., Khampitak, T., Wirasorn, K., Kiertiburanakul, S., Tangrassameeprasert, R., Daduang, J., Yongvanit, P., & Boonsiri, P. (2011) Serum antioxidant levels and nutritional status in early and advanced stage lung cancer patients. Nutrition. 27: 1156-1160.

Klenina, I. B., Makhneva, Z. K., Moskalenko, A. A., & Proskuryakov, I. I. (2011) Carotenoid triplet states in vitro and in light-harvesting complexes of the phototrophic bacterium *Allochromatium minutissimum*. Dokl.Biochem.Biophys. 441:290-3. Epub@2012 Jan 6.: 290-293.

Koh, W. P., Yuan, J. M., Wang, R., Lee, Y. P., Lee, B. L., Yu, M. C., & Ong, C. N. (2011) Plasma carotenoids and risk of acute myocardial infarction in the Singapore Chinese Health Study. Nutr.Metab Cardiovasc.Dis. 21: 685-690.

Komousani, T. A. & Moselhy, S. S. (2011) Modulation of lead biohazards using a combination of epicatechin and lycopene in rats. Hum.Exp.Toxicol. 30: 1674-1681.

Konwarh, R., Pramanik, S., Kalita, D., Mahanta, C. L., & Karak, N. (2012) Ultrasonication--a complementary 'green chemistry' tool to biocatalysis: a laboratory-scale study of lycopene extraction. Ultrason.Sonochem. 19: 292-299.

Kotake-Nara, E. & Nagao, A. (2011) Absorption and metabolism of xanthophylls. Mar.Drugs. 9: 1024-1037.

Kuhnen, S., Lemos, P. M., Campestrini, L. H., Ogliari, J. B., Dias, P. F., & Maraschin, M. (2011) Carotenoid and anthocyanin contents of grains of Brazilian maize landraces. J Sci.Food Agric. 91:

1548-1553.

Kumar, A., Srikanta, A. H., Muthukumar, S. P., Sukumaran, U. K., & Govindaswamy, V. (2011) Antioxidant and lipid peroxidation activities in rats fed with *Aspergillus carbonarius* carotenoid. Food Chem Toxicol. 49: 3098-3103.

Lai, C. S., Tsai, M. L., Badmaev, V., Jimenez, M., Ho, C. T., & Pan, M. H. (2012) Xanthigen suppresses preadipocyte differentiation and adipogenesis through down-regulation of PPARgamma and C/EBPs and modulation of SIRT-1, AMPK, and FoxO pathways. J Agric.Food Chem. 60: 1094-1101.

Lai, Y., Grattan, J., Shi, Y., Young, G., Muldrew, A., & Chakravarthy, U. (2011) Functional and morphologic benefits in early detection of neovascular age-related macular degeneration using the preferential hyperacuity perimeter. Retina. 31: 1620-1626.

Landen, E. A. & Badyaev, A. V. (2012) Developmental integration of feather growth and pigmentation and its implications for the evolution of diet-derived coloration. J Exp.Zool.B Mol.Dev.Evol. 318: 59-70.

Lange, N. & Steinbuchel, A. (2011) beta-Carotene production by *Saccharomyces cerevisiae* with regard to plasmid stability and culture media. Appl.Microbiol.Biotechnol. 91: 1611-1622.

Lao, Y. M., Xiao, L., Ye, Z. W., Jiang, J. G., & Zhou, S. S. (2011) *In silico* analysis of phytoene synthase and its promoter reveals hints for regulation mechanisms of carotenogenesis in *Duanliella bardawil*. Bioinformatics. 27: 2201-2208.

Leclaire, S., White, J., Arnoux, E., Faivre, B., Vetter, N., Hatch, S. A., & Danchin, E. (2011) Integument coloration signals reproductive success, heterozygosity, and antioxidant levels in chick-rearing black-legged kittiwakes. Naturwissenschaften. 98: 773-782.

Lee, J. S., Park, S. A., Chung, D., & Lee, H. G. (2011) Encapsulation of astaxanthin-rich *Xanthophyllomyces dendrorhous* for antioxidant delivery. Int J Biol.Macromol. 49: 268-273.

Li, J., Zhu, D., Niu, J., Shen, S., & Wang, G. (2011) An economic assessment of astaxanthin production by large scale cultivation of *Haematococcus pluvialis*. Biotechnol.Adv. 29: 568-574.

Li, M., Gan, Z., Cui, Y., Shi, C., & Shi, X. (2011) Cloning and characterization of the zeta-carotene desaturase gene from *Chlorella protothecoides* CS-41. J Biomed.Biotechnol. 2011:731542.

Li, Y., Wicha, M. S., Schwartz, S. J., & Sun, D. (2011) Implications of cancer stem cell theory for cancer chemoprevention by natural dietary compounds. J Nutr.Biochem. 22: 799-806.

Lietz, G., Oxley, A., Leung, W., & Hesketh, J. (2012) Single nucleotide polymorphisms upstream from the beta-carotene 15,15'-monoxygenase gene influence provitamin A conversion efficiency in female volunteers. J Nutr. 142: 161S-165S.

Lii, J. H., Liao, F. X., & Hu, C. H. (2011) Accurate prediction of the enthalpies of formation for xanthophylls. J Comput.Chem. 32: 3175-3187.

Lima, X. T. & Kimball, A. B. (2011) Skin carotenoid levels in adult patients with psoriasis. J Eur.Acad.Dermatol.Venereol. 25: 945-949.

Lin, M. C., Wang, F. Y., Kuo, Y. H., & Tang, F. Y. (2011) Cancer chemopreventive effects of lycopene: suppression of MMP-7 expression and cell invasion in human colon cancer cells. J Agric.Food Chem. 59: 11304-11318.

- Liu, A. G. & Erdman, J. W., Jr. (2011) Lycopene and apo-10'-lycopenal do not alter DNA methylation of GSTP1 in LNCaP cells. *Biochem.Biophys.Res.Commun.* 412: 479-482.
- Liu, C., Bronson, R. T., Russell, R. M., & Wang, X. D. (2011) beta-Cryptoxanthin supplementation prevents cigarette smoke-induced lung inflammation, oxidative damage, and squamous metaplasia in ferrets. *Cancer Prev.Res.(Phila).* 4: 1255-1266.
- Liu, C. L., Chiu, Y. T., & Hu, M. L. (2011) Fucoxanthin enhances HO-1 and NQO1 expression in murine hepatic BNL CL.2 cells through activation of the Nrf2/ARE system partially by its pro-oxidant activity. *J Agric.Food Chem.* 59: 11344-11351.
- Liu, Y. Q., Davis, C. R., Schmaelzle, S. T., Rocheford, T., Cook, M. E., & Tanumihardjo, S. A. (2012) beta-Cryptoxanthin biofortified maize (*Zea mays*) increases beta-cryptoxanthin concentration and enhances the color of chicken egg yolk. *Poult.Sci.* 91: 432-438.
- Loane, E., Nolan, J. M., McKay, G. J., & Beatty, S. (2011) The association between macular pigment optical density and CFH, ARMS2, C2/BF, and C3 genotype. *Exp.Eye Res.* 93: 592-598.
- Lobo, G. P., Amengual, J., Palczewski, G., Babino, D., & Von Lintig, J. (2012) Mammalian carotenoid-oxygenases: key players for carotenoid function and homeostasis. *Biochim.Biophys.Acta.* 1821: 78-87.
- Lopez-Sanchez, P., Schumm, S., Pudney, P. D., & Hazekamp, J. (2011) Carotene location in processed food samples measured by cryo In-SEM Raman. *Analyst.* 136: 3694-3697.
- Lu, C. H., Choi, J. H., Engelmann, M. N., Jin, Y. S., & Erdman, J. W., Jr. (2011) Laboratory-scale production of 13C-labeled lycopene and phytoene by bioengineered *Escherichia coli*. *J Agric.Food Chem.* 59: 9996-10005.
- Ma, L., Dou, H. L., Wu, Y. Q., Huang, Y. M., Huang, Y. B., Xu, X. R., Zou, Z. Y., & Lin, X. M. (2012) Lutein and zeaxanthin intake and the risk of age-related macular degeneration: a systematic review and meta-analysis. *Br.J Nutr.* 107: 350-359.
- Maeda, T., Perusek, L., Amengual, J., Babino, D., Palczewski, K., & Von Lintig, J. (2011) Dietary 9-cis-beta,beta-carotene fails to rescue vision in mouse models of leber congenital amaurosis. *Mol.Pharmacol.* 80: 943-952.
- Magbanua, M. J., Roy, R., Sosa, E. V., Weinberg, V., Federman, S., Mattie, M. D., Hughes-Fulford, M., Simko, J., Shinohara, K., Haqq, C. M., Carroll, P. R., & Chan, J. M. (2011) Gene expression and biological pathways in tissue of men with prostate cancer in a randomized clinical trial of lycopene and fish oil supplementation. *PLoS.ONE.* 6: e24004.
- Mallik, A. K., Qiu, H., Sawada, T., Takafuji, M., & Ihara, H. (2011) Molecular-shape selectivity by molecular gel-forming compounds: bioactive and shape-constrained isomers through the integration and orientation of weak interaction sites. *Chem Commun.(Camb.).* 47: 10341-10343.
- Mamatha, B. S. & Baskaran, V. (2011) Effect of micellar lipids, dietary fiber and beta-carotene on lutein bioavailability in aged rats with lutein deficiency. *Nutrition.* 27: 960-966.
- Maoka, T., Akimoto, N., Tsushima, M., Komemushi, S., Mezaki, T., Iwase, F., Takahashi, Y., Sameshima, N., Mori, M., & Sakagami, Y. (2011) Carotenoids in marine invertebrates living along the Kuroshio current coast. *Mar.Drugs.* 9: 1419-1427.
- Maraccini, P. A., Ferguson, D. M., & Boehm, A. B. (2012) Diurnal variation in *Enterococcus* species composition in polluted ocean water and a potential role for the enterococcal carotenoid in

- protection against photoinactivation. *Appl. Environ. Microbiol.* 78: 305-310.
- Marcoleta, A., Niklitschek, M., Wozniak, A., Lozano, C., Alcaino, J., Baeza, M., & Cifuentes, V. (2011) Glucose and ethanol-dependent transcriptional regulation of the astaxanthin biosynthesis pathway in *Xanthophyllomyces dendrorhous*. *BMC. Microbiol.* 11:190.: 190.
- Marek, M. S., Buckup, T., & Motzkus, M. (2011) Direct observation of a dark state in lycopene using pump-DFWM. *J Phys. Chem. B.* 115: 8328-8337.
- Marin, A., Passarini, F., van Stokkum, I. H., van Grondelle, R., & Croce, R. (2011) Minor complexes at work: light-harvesting by carotenoids in the photosystem II antenna complexes CP24 and CP26. *Biophys.J.* 100: 2829-2838.
- Marisiddaiah, R., Rangaswamy, L., & Vallikannan, B. (2011) Single oral dose of micellar beta-carotene containing phospholipids improves beta-carotene metabolism and plasma lipids in vitamin A-deficient rats. *Eur. J. Nutr.* 50: 531-541.
- Martinez-Moya, P., Watt, S. A., Niehaus, K., Alcaino, J., Baeza, M., & Cifuentes, V. (2011) Proteomic analysis of the carotenogenic yeast *Xanthophyllomyces dendrorhous*. *BMC. Microbiol.* 11:131.: 131.
- Mathies, G., van Hemert, M. C., Gast, P., Gupta, K. B., Frank, H. A., Lugtenburg, J., & Groenen, E. J. (2011) Configuration of spheroidene in the photosynthetic reaction center of *Rhodobacter sphaeroides* : a comparison of wild-type and reconstituted R26. *J Phys. Chem. A.* 115: 9552-9556.
- Matsubara, S., Chen, Y. C., Caliandro, R., Govindjee, & Clegg, R. M. (2011) Photosystem II fluorescence lifetime imaging in avocado leaves: contributions of the lutein-epoxide and violaxanthin cycles to fluorescence quenching. *J Photochem. Photobiol. B.* 104: 271-284.
- Matsumoto, M., Iwama, D., Arakaki, A., Tanaka, A., Tanaka, T., Miyashita, H., & Matsunaga, T. (2011) *Altererythrobacter ishigakiensis* sp. nov., an astaxanthin-producing bacterium isolated from a marine sediment. *Int J Syst. Evol. Microbiol.* 61: 2956-2961.
- Mayo-Wilson, E., Imdad, A., Herzer, K., Yakoob, M. Y., & Bhutta, Z. A. (2011) Vitamin A supplements for preventing mortality, illness, and blindness in children aged under 5: systematic review and meta-analysis. *BMJ.* 343:d5094.
- McCarty, M. F. (2011) Full-spectrum antioxidant therapy featuring astaxanthin coupled with lipoprvic strategies and salsalate for management of non-alcoholic fatty liver disease. *Med. Hypotheses.* 77: 550-556.
- McGraw, K. J., Lee, K., & Lewin, A. (2011) The effect of capture-and-handling stress on carotenoid-based beak coloration in zebra finches. *J Comp Physiol A Neuroethol. Sens. Neural Behav. Physiol.* 197: 683-691.
- Medina, H. R., Cerda-Olmedo, E., & Al Babili, S. (2011) Cleavage oxygenases for the biosynthesis of trisporoids and other apocarotenoids in *Phycomyces*. *Mol. Microbiol.* 82: 199-208.
- Meier, S., Tzfadia, O., Vallabhaneni, R., Gehring, C., & Wurtzel, E. T. (2011) A transcriptional analysis of carotenoid, chlorophyll and plastidial isoprenoid biosynthesis genes during development and osmotic stress responses in *Arabidopsis thaliana*. *BMC. Syst. Biol.* 5:77.
- Meyer, K. M., Macalady, J. L., Fulton, J. M., Kump, L. R., Schaperdoth, I., & Freeman, K. H. (2011) Carotenoid biomarkers as an imperfect reflection of the anoxygenic phototrophic community in meromictic Fayetteville Green Lake. *Geobiology.* 9: 321-329.

- Mezzomo, N., Maestri, B., dos Santos, R. L., Maraschin, M., & Ferreira, S. R. (2011) Pink shrimp (*P. brasiliensis* and *P. paulensis*) residue: influence of extraction method on carotenoid concentration. *Talanta*. 85: 1383-1391.
- Mildner, J. & Dynarowicz-Latka, P. (2012) beta-Carotene does not form a true Langmuir monolayer at the air/water interface. *Colloids Surf.B Biointerfaces*. 90:244-7.
- Misawa, N. (2011) Carotenoid beta-ring hydroxylase and ketolase from marine bacteria-promiscuous enzymes for synthesizing functional xanthophylls. *Mar.Drugs*. 9: 757-771.
- Miyashita, K., Nishikawa, S., Beppu, F., Tsukui, T., Abe, M., & Hosokawa, M. (2011) The allenic carotenoid fucoxanthin, a novel marine nutraceutical from brown seaweeds. *J Sci.Food Agric*. 91: 1166-1174.
- Miyazawa, T., Nakagawa, K., Kimura, F., Satoh, A., & Miyazawa, T. (2011) Plasma carotenoid concentrations before and after supplementation with astaxanthin in middle-aged and senior subjects. *Biosci.Biotechnol.Biochem*. 75: 1856-1858.
- Mohler, E. R., III, Gainer, J. L., Whitten, K., Eraso, L. H., Thanaporn, P. K., & Bauer, T. (2011) Evaluation of *trans* sodium crocetinate on safety and exercise performance in patients with peripheral artery disease and intermittent claudication. *Vasc.Med*. 16: 346-353.
- Molnar, J., Serly, J., Pusztai, R., Vincze, I., Molnar, P., Horvath, G., Deli, J., Maoka, T., Zalatnai, A., Tokuda, H., & Nishino, H. (2012) Putative supramolecular complexes formed by carotenoids and xanthophylls with ascorbic acid to reverse multidrug resistance in cancer cells. *Anticancer Res*. 32: 507-517.
- Mondul, A. M., Yu, K., Wheeler, W., Zhang, H., Weinstein, S. J., Major, J. M., Cornelis, M. C., Mannisto, S., Hazra, A., Hsing, A. W., Jacobs, K. B., Eliassen, H., Tanaka, T., Reding, D. J., Hendrickson, S., Ferrucci, L., Virtamo, J., Hunter, D. J., Chanock, S. J., Kraft, P., & Albanes, D. (2011) Genome-wide association study of circulating retinol levels. *Hum.Mol.Genet*. 20: 4724-4731.
- Mondul, A. M., Rager, H. C., Kopp, W., Virtamo, J., & Albanes, D. (2011) Supplementation with alpha-tocopherol or beta-carotene reduces serum concentrations of vascular endothelial growth factor-D, but Not -A or -C, in male smokers. *J Nutr*. 141: 2030-2034.
- Montory, M., Habit, E., Bahamonde, P., Fernandez, P., Grimalt, J. O., Saez, K., Rudolph, I., & Barra, R. (2011) Polychlorinated biphenyls in farmed and wild *Onchorhynchus kisutch* and *Onchorhynchus mykiss* from the Chilean Patagonia. *Environ. Sci. Pollut. Res. Int*. 18: 629-637.
- Mousavi, S. H., Moallem, S. A., Mehri, S., Shahsavand, S., Nassirli, H., & Malaekeh-Nikouei, B. (2011) Improvement of cytotoxic and apoptogenic properties of crocin in cancer cell lines by its nanoliposomal form. *Pharm.Biol*. 49: 1039-1045.
- Muller, W. E., Binder, M., Von Lintig, J., Guo, Y. W., Wang, X., Kaandorp, J. A., Wiens, M., & Schroder, H. C. (2011) Interaction of the retinoic acid signaling pathway with spicule formation in the marine sponge *Suberites domuncula* through activation of bone morphogenetic protein-1. *Biochim.Biophys.Acta*. 1810: 1178-1194.
- Najafi, N., Ahmadi, A. R., Hosseini, R., & Golkho, S. (2011) Gamma irradiation as a useful tool for the isolation of astaxanthin-overproducing mutant strains of *Phaffia rhodozyma*. *Can.J Microbiol*. 57: 730-734.
- Nanou, K. & Roukas, T. (2011) Stimulation of the biosynthesis of carotenes by oxidative stress in

- Blakeslea trispora* induced by elevated dissolved oxygen levels in the culture medium. Bioresour.Technol. 102: 8159-8164.
- Narvaez-Zapata, J. A., Rojas-Herrera, R., Lopez-Uc, Y., & Sanchez-Estudillo, L. (2011) Different physiological responses influenced by salinity in genetically related *Dunaliella salina* isolates. Biotechnol.Lett. 33: 1021-1026.
- Naziroglu, M., Akkus, S., & Celik, H. (2011) Levels of lipid peroxidation and antioxidant vitamins in plasma and erythrocytes of patients with ankylosing spondylitis. Clin Biochem. 44: 1412-1415.
- Nik, A. M., Corredig, M., & Wright, A. J. (2011) Release of lipophilic molecules during *in vitro* digestion of soy protein-stabilized emulsions. Mol.Nutr.Food Res. 55 Suppl 2:S278-89.
- Ning, Y., Li, Q., Chen, F., Yang, N., Jin, Z., & Xu, X. (2012) Low-cost production of 6G-fructofuranosidase with high value-added astaxanthin by *Xanthophyllomyces dendrorhous*. Bioresour.Technol. 104:660-7.
- Ninomiya, M., Satoh, H., Yamaguchi, Y., Takenaka, H., & Koketsu, M. (2011) Antioxidative activity and chemical constituents of edible terrestrial alga *Nostoc commune* Vauch. Biosci.Biotechnol.Biochem. 75: 2175-2177.
- Nishino, M., Miuchi, T., Sakata, M., Nishida, A., Murata, Y., & Nakamura, Y. (2011) Photostability of lycopene dispersed in an aqueous solution. Biosci.Biotechnol.Biochem. 75: 1389-1391.
- Obana, A., Tanito, M., Gohto, Y., Gellermann, W., Okazaki, S., & Ohira, A. (2011) Macular pigment changes in pseudophakic eyes quantified with resonance Raman spectroscopy. Ophthalmology. 118: 1852-1858.
- Oborna, I., Malickova, K., Fingerova, H., Brezinova, J., Horka, P., Novotny, J., Bryndova, H., Filipcikova, R., & Svobodova, M. (2011) A randomized controlled trial of lycopene treatment on soluble receptor for advanced glycation end products in seminal and blood plasma of normospermic men. Am.J Reprod.Immunol. 66: 179-184.
- Obulesu, M., Dowlatshabad, M. R., & Bramhachari, P. V. (2011) Carotenoids and Alzheimer's disease: an insight into therapeutic role of retinoids in animal models. Neurochem.Int. 59: 535-541.
- Osawa, A., Kasahara, A., Mastuoka, S., Gassel, S., Sandmann, G., & Shindo, K. (2011) Isolation of a novel carotenoid, OH-chlorobactene glucoside hexadecanoate, and related rare carotenoids from *Rhodococcus* sp. CIP and their antioxidative activities. Biosci. Biotechnol. Biochem. 75: 2142-2147.
- Osterrothova, K. & Jehlicka, J. (2011) Feasibility of Raman microspectroscopic identification of biomarkers through gypsum crystals. Spectrochim.Acta A Mol.Biomol.Spectrosc. 80: 96-101.
- Paiva-Bandeira, G. T., Rios-Asciutti, L. S., Rivera, A. A., Rodrigues-Goncalves, M. C., Pordeus-de-Lima, R. C., Marinho-Albuquerque, T., Marcos-de-Morais, R., Toledo-Vianna, R. P., Farias-de-Oliveira, A., Teixeira-Lima, R., & Carvalho-Costa, M. J. (2011) [The relationship between income and children's habitual consumption of beta-carotene, vitamin C and vitamin E in food]. Rev.Salud Publica (Bogota.). 13: 386-397.
- Papaioannou, D., Cooper, K. L., Carroll, C., Hind, D., Squires, H., Tappenden, P., & Logan, R. F. (2011) Antioxidants in the chemoprevention of colorectal cancer and colorectal adenomas in the general population: a systematic review and meta-analysis. Colorectal Dis. 13: 1085-1099.
- Paradikovic, N., Vinkovic, T., Vinkovic, V., I., Zuntar, I., Bojic, M., & Medic-Saric, M. (2011) Effect of

natural biostimulants on yield and nutritional quality: an example of sweet yellow pepper (*Capsicum annuum* L.) plants. *J Sci.Food Agric.* 91: 2146-2152.

Park, J. S., Mathison, B. D., Hayek, M. G., Massimino, S., Reinhart, G. A., & Chew, B. P. (2011) Astaxanthin stimulates cell-mediated and humoral immune responses in cats. *Vet.Immunol.Immunopathol.* 144: 455-461.

Pasquet, V., Morisset, P., Ihammouine, S., Chepied, A., Aumailley, L., Berard, J. B., Serive, B., Kaas, R., Lanneluc, I., Thiery, V., Lafferriere, M., Piot, J. M., Patrice, T., Cadoret, J. P., & Picot, L. (2011) Antiproliferative activity of violaxanthin isolated from bioguided fractionation of *Dunaliella tertiolecta* extracts. *Mar.Drugs.* 9: 819-831.

Pedreschi, R., Betalleluz-Pallardel, I., Chirinos, R., Curotto, C., & Campos, D. (2011) Impact of cooking and drying on the phenolic, carotenoid contents and *in vitro* antioxidant capacity of Andean arracacha (*Arracacia xanthorrhiza* Bancr.) root. *Food Sci.Technol Int.* 17: 319-330.

Pointer, M. A., Prager, M., Andersson, S., & Mundy, N. I. (2012) A novel method for screening a vertebrate transcriptome for genes involved in carotenoid binding and metabolism. *Mol.Ecol.Resour.* 12: 149-159.

Poliakov, E., Gubin, A., Laird, J., Gentleman, S., Salomon, R. G., & Redmond, T. M. (2012) The mechanism of fenretinide (4-HPR) inhibition of beta-carotene monooxygenase 1. New suspect for the visual side effects of fenretinide. *Adv.Exp.Med.Biol.* 723:167-74.: 167-174.

Polidori, M. C., Stahl, W., De Spirt, S., & Pientka, L. (2012) [Influence of vascular comorbidities on the antioxidant defense system in Alzheimer's disease]. *Dtsch. Med. Wochenschr.* 137: 305-308.

Qin, L., Bartlett, H., Griffiths, H. R., Eperjesi, F., Armstrong, R. A., & Gherghel, D. (2011) Macular pigment optical density is related to blood glutathione levels in healthy individuals. *Invest Ophthalmol.Vis.Sci.* 52: 5029-5033.

Qu, M., Zhou, Z., Chen, C., Li, M., Pei, L., Chu, F., Yang, J., Wang, Y., Li, L., Liu, C., Zhang, L., Zhang, G., Yu, Z., & Wang, D. (2011) Lycopene protects against trimethyltin-induced neurotoxicity in primary cultured rat hippocampal neurons by inhibiting the mitochondrial apoptotic pathway. *Neurochem.Int.* 59: 1095-1103.

Qu, M., Li, L., Chen, C., Li, M., Pei, L., Chu, F., Yang, J., Yu, Z., Wang, D., & Zhou, Z. (2011) Protective effects of lycopene against amyloid beta-induced neurotoxicity in cultured rat cortical neurons. *Neurosci.Lett.* 505: 286-290.

Raman, R., Rajan, R., Biswas, S., Vaitheeswaran, K., & Sharma, T. (2011) Macular pigment optical density in a South Indian population. *Invest Ophthalmol.Vis.Sci.* 52: 7910-7916.

Ramoneda, X. A., Ponce-Cevallos, P. A., del Pilar, B. M., & Elizalde, B. E. (2011) Degradation of beta-carotene in amorphous polymer matrices. Effect of water sorption properties and physical state. *J Sci.Food Agric.* 91: 2587-2593.

Ravikrishnan, R., Rusia, S., Ilamurugan, G., Salunkhe, U., Deshpande, J., Shankaranarayanan, J., Shankaranarayana, M. L., & Soni, M. G. (2011) Safety assessment of lutein and zeaxanthin (Lutemax 2020): subchronic toxicity and mutagenicity studies. *Food Chem Toxicol.* 49: 2841-2848.

Rawson, A., Tiwari, B. K., Tuohy, M. G., O'Donnell, C. P., & Brunton, N. (2011) Effect of ultrasound and blanching pretreatments on polyacetylene and carotenoid content of hot air and freeze dried carrot discs. *Ultrason.Sonochem.* 18: 1172-1179.

- Reboul, E. & Borel, P. (2011) Proteins involved in uptake, intracellular transport and basolateral secretion of fat-soluble vitamins and carotenoids by mammalian enterocytes. *Prog.Lipid Res.* 50: 388-402.
- Renger, T. & Schlodder, E. (2011) Optical properties, excitation energy and primary charge transfer in photosystem II: theory meets experiment. *J Photochem.Photobiol.B.* 104: 126-141.
- Rhinn, M., Schuhbaur, B., Niederreither, K., & Dolle, P. (2011) Involvement of retinol dehydrogenase 10 in embryonic patterning and rescue of its loss of function by maternal retinaldehyde treatment. *Proc.Natl.Acad.Sci.U.S.A.* 108: 16687-16692.
- Riccioni, G., Scotti, L., Di Ilio, E., Bucciarelli, V., Ballone, E., De Girolamo, M., D' Orazio, N., Martini, F., Aceto, A., & Bucciarelli, T. (2011) Lycopene and preclinical carotid atherosclerosis. *J Biol.Regul.Homeost.Agents.* 25: 435-441.
- Riccioni, G., D'Orazio, N., Franceschelli, S., & Speranza, L. (2011) Marine carotenoids and cardiovascular risk markers. *Mar.Drugs.* 9: 1166-1175.
- Richer, S. P., Stiles, W., Graham-Hoffman, K., Levin, M., Ruskin, D., Wrobel, J., Park, D. W., & Thomas, C. (2011) Randomized, double-blind, placebo-controlled study of zeaxanthin and visual function in patients with atrophic age-related macular degeneration: the Zeaxanthin and Visual Function Study (ZVF) FDA IND #78, 973. *Optometry.* 82: 667-680.
- Rivera, S. M. & Canela-Garayoa, R. (2012) Analytical tools for the analysis of carotenoids in diverse materials. *J Chromatogr.A.* 1224:1-10.
- Rockwell, S., Liu, Y., Mayne, S. T., & Redlich, C. A. (2011) Subclinical vitamin A deficiency does not increase development of tumors in irradiated or unirradiated lungs. *Exp. Biol. Med.* (Maywood.). 236: 1173-1179.
- Rodriguez-Avila, N. L., Narvaez-Zapata, J. A., Ramirez-Benitez, J. E., Aguilar-Espinosa, M. L., & Rivera-Madrid, R. (2011) Identification and expression pattern of a new carotenoid cleavage dioxygenase gene member from *Bixa orellana*. *J Exp.Bot.* 62: 5385-5395.
- Rodriguez-Ojea, A., Alonso, C., Yarnell, J. W., & Woodside, J. V. (2011) Status of novel cardiovascular risk factor and cardiovascular disease risk in an urban Cuban population--a pilot study. *J Health Popul.Nutr.* 29: 510-515.
- Rodriguez-Suarez, C., Atienza, S. G., & Piston, F. (2011) Allelic variation, alternative splicing and expression analysis of Psy1 gene in *Hordeum chilense* Roem. et Schult. *PLoS.ONE.* 6: e19885.
- Rodriguez-Uribe, L., Guzman, I., Rajapakse, W., Richins, R. D., & O'Connell, M. A. (2012) Carotenoid accumulation in orange-pigmented *Capsicum annuum* fruit, regulated at multiple levels. *J Exp.Bot.* 63: 517-526.
- Roehrs, M., Valentini, J., Paniz, C., Moro, A., Charao, M., Bulcao, R., Freitas, F., Brucker, N., Duarte, M., Leal, M., Burg, G., Grune, T., & Garcia, S. C. (2011) The relationships between exogenous and endogenous antioxidants with the lipid profile and oxidative damage in hemodialysis patients. *BMC.Nephrol.* 12:59.: 59.
- Rogozin, D. Y., Zykov, V. V., Kalugin, I. A., Daryin, A. V., & Degermendzhy, A. G. (2011) Carotenoids of phototrophic organisms in bottom sediments of meromictic Lake Shira (Siberia, Russia) as an indicator of past stratification. *Dokl.Biol.Sci.* 439:228-31.
- Ruban, A. V., Johnson, M. P., & Duffy, C. D. (2012) The photoprotective molecular switch in the

photosystem II antenna. *Biochim.Biophys.Acta.* 1817: 167-181.

Ryckebosch, E., Muylaert, K., Eeckhout, M., Ruyssen, T., & Foubert, I. (2011) Influence of drying and storage on lipid and carotenoid stability of the microalga *Phaeodactylum tricornutum*. *J Agric.Food Chem.* 59: 11063-11069.

Ryden, M., Leanderson, P., Kastbom, K. O., & Jonasson, L. (2012) Effects of simvastatin on carotenoid status in plasma. *Nutr.Metab Cardiovasc.Dis.* 22: 66-71.

Sahin, K., Tuzcu, M., Sahin, N., Akdemir, F., Ozercan, I., Bayraktar, S., & Kucuk, O. (2011) Inhibitory effects of combination of lycopene and genistein on 7,12-dimethyl benz(a)anthracene-induced breast cancer in rats. *Nutr.Cancer.* 63: 1279-1286.

Saito, M., Yoshida, K., Saito, W., Fujiya, A., Ohgami, K., Kitaichi, N., Tsukahara, H., Ishida, S., & Ohno, S. (2012) Astaxanthin increases choroidal blood flow velocity. *Graefes Arch. Clin Exp. Ophthalmol.* 250: 239-245.

Sakai, S., Sugawara, T., & Hirata, T. (2011) Inhibitory effect of dietary carotenoids on dinitrofluorobenzene-induced contact hypersensitivity in mice. *Biosci. Biotechnol. Biochem.* 75: 1013-1015.

Sanz, C., Velayos, A., Alvarez, M. I., Benito, E. P., & Eslava, A. P. (2011) Functional analysis of the Phycomyces carRA gene encoding the enzymes phytoene synthase and lycopene cyclase. *PLoS.ONE.* 6: e23102.

Sasaki, Y., Kobara, N., Higashino, S., Giddings, J. C., & Yamamoto, J. (2011) Astaxanthin inhibits thrombosis in cerebral vessels of stroke-prone spontaneously hypertensive rats. *Nutr.Res.* 31: 784-789.

Schweigert, F. J. & Reimann, J. (2011) [Micronutrients and their relevance for the eye--function of lutein, zeaxanthin and omega-3 fatty acids]. *Klin.Monbl.Augenheilkd.* 228: 537-543.

Schweiggert, R. M., Steingass, C. B., Heller, A., Esquivel, P., & Carle, R. (2011) Characterization of chromoplasts and carotenoids of red- and yellow-fleshed papaya (*Carica papaya* L.). *Planta.* 234: 1031-1044.

Shalaby, E. A. (2011) Algae as promising organisms for environment and health. *Plant Signal.Behav.* 6: 1338-1350.

Shanmugam, S., Baskaran, R., Balakrishnan, P., Thapa, P., Yong, C. S., & Yoo, B. K. (2011) Solid self-nanoemulsifying drug delivery system (S-SNEDDS) containing phosphatidylcholine for enhanced bioavailability of highly lipophilic bioactive carotenoid lutein. *Eur.J Pharm.Biopharm.* 79: 250-257.

Sild, E., Sepp, T., Manniste, M., & Horak, P. (2011) Carotenoid intake does not affect immune-stimulated oxidative burst in greenfinches. *J Exp.Biol.* 214: 3467-3473.

Simone, R. E., Russo, M., Catalano, A., Monego, G., Froehlich, K., Boehm, V., & Palozza, P. (2011) Lycopene inhibits NF- $\kappa$ B-mediated IL-8 expression and changes redox and PPARgamma signalling in cigarette smoke-stimulated macrophages. *PLoS.ONE.* 6: e19652.

Song, L. L., Liang, R., Li, D. D., Xing, Y. D., Han, R. M., Zhang, J. P., & Skibsted, L. H. (2011) beta-Carotene radical cation addition to green tea polyphenols. Mechanism of antioxidant antagonism in peroxidizing liposomes. *J Agric.Food Chem.* 59: 12643-12651.

- Sonmez, M., Turk, G., Ceribasi, A. O., Sakin, F., & Atessahin, A. (2011) Attenuating effect of lycopene and ellagic acid on 2,3,7,8-tetrachlorodibenzo-p-dioxin-induced spermotoxicity and testicular apoptosis. *Drug Chem Toxicol.* 34: 347-356.
- Sowmya, R., Rathinaraj, K., & Sachindra, N. M. (2011) An autolytic process for recovery of antioxidant activity rich carotenoprotein from shrimp heads. *Mar.Biotechnol.(NY).* 13: 918-927.
- Spiegler, E., Kim, Y. K., Wassef, L., Shete, V., & Quadro, L. (2012) Maternal-fetal transfer and metabolism of vitamin A and its precursor beta-carotene in the developing tissues. *Biochim.Biophys.Acta.* 1821: 88-98.
- Stadnichuk, I. N., Yanyushin, M. F., Zharmukhamedov, S. K., Maksimov, E. G., Muronets, E. M., & Pashchenko, V. Z. (2011) Quenching of phycobilisome fluorescence by orange carotenoid protein. *Dokl.Biochem.Biophys.* 439:167-70.
- Suh, W. (2012) High isoprenoid flux *Escherichia coli* as a host for carotenoids production. *Methods Mol. Biol.* 834:49-62.: 49-62.
- Sun, Z., Liu, J., Zeng, X., Huangfu, J., Jiang, Y., Wang, M., & Chen, F. (2011) Protective actions of microalgae against endogenous and exogenous advanced glycation endproducts (AGEs) in human retinal pigment epithelial cells. *Food Funct.* 2: 251-258.
- Suzuki, K., Ito, Y., Inoue, T., & Hamajima, N. (2011) Inverse association of serum carotenoids with prevalence of metabolic syndrome among Japanese. *Clin Nutr.* 30: 369-375.
- Takahashi, K., Takimoto, T., Sato, K., & Akiba, Y. (2011) Effect of dietary supplementation of astaxanthin from *Phaffia rhodozyma* on lipopolysaccharide-induced early inflammatory responses in male broiler chickens (*Gallus gallus*) fed a corn-enriched diet. *Anim Sci.J.* 82: 753-758.
- Takaichi, S. (2011) Carotenoids in algae: distributions, biosyntheses and functions. *Mar.Drugs.* 9: 1101-1118.
- Takayanagi, K., Morimoto, S., Shirakura, Y., Mukai, K., Sugiyama, T., Tokuji, Y., & Ohnishi, M. (2011) Mechanism of visceral fat reduction in Tsumura Suzuki obese, diabetes (TSOD) mice orally administered beta-cryptoxanthin from Satsuma mandarin oranges (*Citrus unshiu* Marc). *J Agric.Food Chem.* 59: 12342-12351.
- Tanaka, T., Tanaka, T., Tanaka, M., & Kuno, T. (2012) Cancer chemoprevention by citrus pulp and juices containing high amounts of beta-cryptoxanthin and hesperidin. *J Biomed. Biotechnol.* 2012:516981.
- Tang, F. Y., Pai, M. H., & Wang, X. D. (2011) Consumption of lycopene inhibits the growth and progression of colon cancer in a mouse xenograft model. *J Agric.Food Chem.* 59: 9011-9021.
- Tarwadi, K. V. & Agte, V. V. (2011) Effect of micronutrients on methylglyoxal-mediated in vitro glycation of albumin. *Biol. Trace Elem. Res.* 143: 717-725.
- Taskin, M. & Erdal, S. (2011) Production of carotenoids by *Rhodotorula glutinis* MT-5 in submerged fermentation using the extract from waste loquat kernels as substrate. *J Sci.Food Agric.* 91: 1440-1445.
- Thorogood, R., Ewen, J. G., & Kilner, R. M. (2011) Sense and sensitivity: responsiveness to offspring signals varies with the parents' potential to breed again. *Proc.Biol.Sci.* 278: 2638-2645.
- Thyagarajan, B., Meyer, A., Smith, L. J., Beckett, W. S., Williams, O. D., Gross, M. D., & Jacobs,

- D. R., Jr. (2011) Serum carotenoid concentrations predict lung function evolution in young adults: the Coronary Artery Risk Development in Young Adults (CARDIA) study. Am.J Clin Nutr. 94: 1211-1218.
- Tichy, E., Zabka, M., Gardavská, K., Halenarova, A., Scheerová, Z. K., & Potucková, M. (2011) Dissolution and spectrophotometric determination of astaxanthin in aqueous solutions. Pharmazie. 66: 560-563.
- Toomey, M. B. & McGraw, K. J. (2011) The effects of dietary carotenoid supplementation and retinal carotenoid accumulation on vision-mediated foraging in the house finch. PLoS.ONE. 6: e21653.
- Torrecilla, J. S., Fernandez-Ruiz, V., Camara, M., & Mata, M. C. (2011) The ability of spectrum autocorrelation models to predict the lycopene concentration in foods through visible spectroscopic data. Talanta. 85: 2479-2483.
- Tranbarger, T. J., Dussert, S., Joet, T., Argout, X., Summo, M., Champion, A., Cros, D., Omore, A., Nouy, B., & Morcillo, F. (2011) Regulatory mechanisms underlying oil palm fruit mesocarp maturation, ripening, and functional specialization in lipid and carotenoid metabolism. Plant Physiol. 156: 564-584.
- Tsika, C., Tsilimbaris, M. K., Makridaki, M., Kontadakis, G., Plainis, S., & Moschandreas, J. (2011) Assessment of macular pigment optical density (MPOD) in patients with unilateral wet age-related macular degeneration (AMD). Acta Ophthalmol. 89: e573-e578.
- Tsuboi, M., Etoh, H., Kato, K., Nakatugawa, H., Kato, H., Maejima, Y., Matsumoto, G., Mori, H., Hosokawa, M., Miyashita, K., Tokuda, H., Suzuki, N., & Maoka, T. (2011) Nitrocapsanthin and nitrofucoxanthin, respective products of capsanthin and fucoxanthin reaction with peroxy nitrite. J Agric.Food Chem. 59: 10572-10578.
- Tsukatani, Y., Romberger, S. P., Golbeck, J. H., & Bryant, D. A. (2012) Isolation and characterization of homodimeric type-I reaction center complex from *Candidatus Chloracidobacterium thermophilum*, an aerobic chlorophototroph. J Biol.Chem. 287: 5720-5732.
- Tuan, P. A., Kim, J. K., Kim, H. H., Lee, S. Y., Park, N. I., & Park, S. U. (2011) Carotenoid accumulation and characterization of cDNAs encoding phytoene synthase and phytoene desaturase in garlic (*Allium sativum*). J Agric.Food Chem. 59: 5412-5417.
- Tundis, R., Loizzo, M. R., Menichini, F., Bonesi, M., Conforti, F., Statti, G., De Luca, D., de Cindio, B., & Menichini, F. (2011) Comparative study on the chemical composition, antioxidant properties and hypoglycaemic activities of two *Capsicum annuum* L. cultivars (*Acuminatum small* and *Cerasiferum*). Plant Foods Hum.Nutr. 66: 261-269.
- Ueno, R., Hamada-Sato, N., Ishida, M., & Urano, N. (2011) Potential of carotenoids in aquatic yeasts as a phylogenetically reliable marker and natural colorant for aquaculture. Biosci. Biotechnol. Biochem. 75: 1654-1661.
- Vachali, P., Li, B., Nelson, K., & Bernstein, P. S. (2012) Surface plasmon resonance (SPR) studies on the interactions of carotenoids and their binding proteins. Arch. Biochem. Biophys. 519: 32-37.
- Valacchi, G., Sticozzi, C., Lim, Y., & Pecorelli, A. (2011) Scavenger receptor class B type I: a multifunctional receptor. Ann.N.Y.Acad.Sci. 1229:E1-7.
- van Breemen, R. B., Sharifi, R., Viana, M., Pajkovic, N., Zhu, D., Yuan, L., Yang, Y., Bowen, P. E., & Stacewicz-Sapuntzakis, M. (2011) Antioxidant effects of lycopene in African American men with

prostate cancer or benign prostate hyperplasia: a randomized, controlled trial. *Cancer Prev.Res.(Phila)*. 4: 711-718.

van Helden, Y. G., Godschalk, R. W., Von Lintig, J., Lietz, G., Landrier, J. F., Luisa, B. M., van Schooten, F. J., & Keijer, J. (2011) Gene expression response of mouse lung, liver and white adipose tissue to beta-carotene supplementation, knockout of *Bcmo1* and sex. *Mol.Nutr.Food Res.* 55: 1466-1474.

Vani, P. R., Rao, Y. P., & Thatipaka, S. D. (2012) Response of glutathione system and carotenoids to sublethal copper in the postlarvae of *Penaeus indicus*. *Ecotoxicol.Environ.Saf.* 75: 127-133.

Verschuren, L., Wielinga, P. Y., van Duyvenvoorde, W., Tijani, S., Toet, K., van Ommen, B., Kooistra, T., & Kleemann, R. (2011) A dietary mixture containing fish oil, resveratrol, lycopene, catechins, and vitamins E and C reduces atherosclerosis in transgenic mice. *J Nutr.* 141: 863-869.

Vitek, P., Edwards, H. G., Jehlicka, J., & Cox, R. (2011) Evaluation of portable Raman instrumentation for identification of beta-carotene and mellitic acid in two-component mixtures with halite. *Spectrochim.Acta A Mol.Biomol.Spectrosc.* 80: 32-35.

Vogl, K. & Bryant, D. A. (2011) Elucidation of the biosynthetic pathway for Okenone in *Thiodictyon* sp. CAD16 leads to the discovery of two novel carotene ketolases. *J Biol.Chem.* 286: 38521-38532.

Von Lintig, J. (2012) Metabolism of carotenoids and retinoids related to vision. *J Biol.Chem.* 287: 1627-1634.

Wade, N. M., Anderson, M., Sellars, M. J., Tume, R. K., Preston, N. P., & Glencross, B. D. (2012) Mechanisms of colour adaptation in the prawn *Penaeus monodon*. *J Exp.Biol.* 215: 343-350.

Wahadoszamen, M., Berera, R., Ara, A. M., Romero, E., & van Grondelle, R. (2012) Identification of two emitting sites in the dissipative state of the major light harvesting antenna. *Phys.Chem Chem Phys.* 14: 759-766.

Wahyuni, Y., Ballester, A. R., Sudarmonowati, E., Bino, R. J., & Bovy, A. G. (2011) Metabolite biodiversity in pepper (*Capsicum*) fruits of thirty-two diverse accessions: variation in health-related compounds and implications for breeding. *Phytochemistry.* 72: 1358-1370.

Wakai, K., Matsuo, K., Nagata, C., Mizoue, T., Tanaka, K., Tsuji, I., Sasazuki, S., Shimazu, T., Sawada, N., Inoue, M., & Tsugane, S. (2011) Lung cancer risk and consumption of vegetables and fruit: an evaluation based on a systematic review of epidemiological evidence from Japan. *Jpn.J Clin Oncol.* 41: 693-708.

Walsh, N., Dale, J., McGraw, K. J., Pointer, M. A., & Mundy, N. I. (2012) Candidate genes for carotenoid coloration in vertebrates and their expression profiles in the carotenoid-containing plumage and bill of a wild bird. *Proc.Biol.Sci.* 279: 58-66.

Weiss, S. L., Foerster, K., & Hudon, J. (2012) Pteridine, not carotenoid, pigments underlie the female-specific orange ornament of striped plateau lizards (*Sceloporus virgatus*). *Comp Biochem.Physiol B Biochem.Mol.Biol.* 161: 117-123.

Wilson, K. M., Finkelstein, J. N., Blumkin, A. K., Best, D., & Klein, J. D. (2011) Micronutrient levels in children exposed to secondhand tobacco smoke. *Nicotine.Tob.Res.* 13: 800-808.

Wise, L. A., Radin, R. G., Palmer, J. R., Kumanyika, S. K., Boggs, D. A., & Rosenberg, L. (2011) Intake of fruit, vegetables, and carotenoids in relation to risk of uterine leiomyomata. *Am.J Clin*

Nutr. 94: 1620-1631.

Xiao, F. G., Shen, L., & Ji, H. F. (2011) On photoprotective mechanisms of carotenoids in light harvesting complex. Biochem. Biophys. Res. Commun. 414: 1-4.

Xiao, X., Song, W., Wang, J., & Li, G. (2012) Microwave-assisted extraction performed in low temperature and *in vacuo* for the extraction of labile compounds in food samples. Anal.Chim.Acta. 712:85-93.

Yang, H., Xu, Z., Liu, W., Deng, Y., & Xu, B. (2011) The protective role of procyanidins and lycopene against mercuric chloride renal damage in rats. Biomed.Environ.Sci. 24: 550-559.

Yang, Y., Seo, J. M., Nguyen, A., Pham, T. X., Park, H. J., Park, Y., Kim, B., Bruno, R. S., & Lee, J. (2011) Astaxanthin-rich extract from the green alga *Haematococcus pluvialis* lowers plasma lipid concentrations and enhances antioxidant defense in apolipoprotein E knockout mice. J Nutr. 141: 1611-1617.

Yazaki, K., Yoshikoshi, C., Oshiro, S., & Yanase, S. (2011) Supplemental cellular protection by a carotenoid extends lifespan via Ins/IGF-1 signaling in *Caenorhabditis elegans*. Oxid.Med.Cell Longev. 2011:596240.

Yeon, J. Y., Suh, Y. J., Kim, S. W., Baik, H. W., Sung, C. J., Kim, H. S., & Sung, M. K. (2011) Evaluation of dietary factors in relation to the biomarkers of oxidative stress and inflammation in breast cancer risk. Nutrition. 27: 912-918.

Yoshii, H., Yoshii, Y., Asai, T., Furukawa, T., Takaichi, S., & Fujibayashi, Y. (2012) Photo-excitation of carotenoids causes cytotoxicity via singlet oxygen production. Biochem. Biophys. Res. Commun. 417: 640-645.

Yu, F., Hao, S., Zhao, Y., Yang, H., Fan, X. L., & Yang, J. (2011) *In utero* and lactational beta-carotene supplementation attenuates D-galactose-induced hearing loss in newborn rats. Food Chem Toxicol. 49: 1697-1704.

Yurcu, E., Iseri, O. D., & Sahin, F. I. (2011) Effects of ascorbic acid and beta-carotene on HepG2 human hepatocellular carcinoma cell line. Mol.Biol.Rep. 38: 4265-4272.

Zahroojian, N., Moravej, H., & Shivaazad, M. (2011) Comparison of marine algae (*Spirulina platensis*) and synthetic pigment in enhancing egg yolk colour of laying hens. Br.Poult.Sci. 52: 584-588.

Zaini, R., Clench, M. R., & Le Maitre, C. L. (2011) Bioactive chemicals from carrot (*Daucus carota*) juice extracts for the treatment of leukemia. J Med.Food. 14: 1303-1312.

Zhang, R., Kramer, D. M., Cruz, J. A., Struck, K. R., & Sharkey, T. D. (2011) The effects of moderately high temperature on zeaxanthin accumulation and decay. Photosynth.Res. 108: 171-181.

Zhang, X., Spiegelman, D., Baglietto, L., Bernstein, L., Boggs, D. A., van den Brandt, P. A., Buring, J. E., Gapstur, S. M., Giles, G. G., Giovannucci, E., Goodman, G., Hankinson, S. E., Helzlsouer, K. J., Horn-Ross, P. L., Inoue, M., Jung, S., Khudyakov, P., Larsson, S. C., Lof, M., McCullough, M. L., Miller, A. B., Neuhouser, M. L., Palmer, J. R., Park, Y., Robien, K., Rohan, T. E., Ross, J. A., Schouten, L. J., Shikany, J. M., Tsugane, S., Visvanathan, K., Weiderpass, E., Wolk, A., Willett, W. C., Zhang, S. M., Ziegler, R. G., & Smith-Warner, S. A. (2012) Carotenoid intakes and risk of breast cancer defined by estrogen receptor and progesterone receptor status: a pooled analysis of 18 prospective cohort studies. Am.J Clin Nutr. 95: 713-725.

- Zhang, X., Dai, B., Zhang, B., & Wang, Z. (2012) Vitamin A and risk of cervical cancer: a meta-analysis. *Gynecol.Oncol.* 124: 366-373.
- Zhao, D., Zhou, C., Kong, F., & Tao, J. (2011) Cloning of phytoene desaturase and expression analysis of carotenogenic genes in persimmon (*Diospyros kaki L.*) fruits. *Mol. Biol. Rep.* 38: 3935-3943.
- Zhao, J., Fu, Y., Zhao, C., Yang, S., Qu, Y., & Jiao, N. (2011) [Identification and characterization of a purple sulfur bacterium from mangrove with rhodopin as predominant carotenoid]. *Wei Sheng Wu Xue.Bao.* 51: 1318-1325.
- Zheng, Q., Zhang, R., Koblizek, M., Boldareva, E. N., Yurkov, V., Yan, S., & Jiao, N. (2011) Diverse arrangement of photosynthetic gene clusters in aerobic anoxygenic phototrophic bacteria. *PLoS.ONE.* 6: e25050.
- Zhong, Y. J., Shi, F., Zheng, X. L., Wang, Q., Yang, L., Sun, H., He, F., Zhang, L., Lin, Y., Qin, Y., Liao, L. C., & Wang, X. (2011) Crocetin induces cytotoxicity and enhances vincristine-induced cancer cell death via p53-dependent and -independent mechanisms. *Acta Pharmacol Sin.* 32: 1529-1536.
- Zhong, Y. J., Huang, J. C., Liu, J., Li, Y., Jiang, Y., Xu, Z. F., Sandmann, G., & Chen, F. (2011) Functional characterization of various algal carotenoid ketolases reveals that ketolating zeaxanthin efficiently is essential for high production of astaxanthin in transgenic *Arabidopsis*. *J Exp.Bot.* 62: 3659-3669.
- Zhu, L., Wu, X., Li, O., Chen, Y., Qian, C., Teng, Y., Tao, X., & Gao, H. (2011) Cloning and knockout of phytoene desaturase gene in *Sphingomonas elodea* ATCC 31461 for economic recovery of gellan gum. *J Ind.Microbiol.Biotechnol.* 38: 1507-1513.
- Zhu, S. Q., Chen, M. W., Ji, B. H., Jiao, D. M., & Liang, J. S. (2011) Roles of xanthophylls and exogenous ABA in protection against NaCl-induced photodamage in rice (*Oryza sativa L*) and cabbage (*Brassica campestris*). *J Exp.Bot.* 62: 4617-4625.
- Zou, Z., Xu, X., Huang, Y., Xiao, X., Ma, L., Sun, T., Dong, P., Wang, X., & Lin, X. (2011) High serum level of lutein may be protective against early atherosclerosis: the Beijing atherosclerosis study. *Atherosclerosis.* 219: 789-793.
- Zuniga, K. E. & Erdman, J. W., Jr. (2011) Combined consumption of soy germ and tomato powders results in altered isoflavone and carotenoid bioavailability in rats. *J Agric.Food Chem.* 59: 5335-5341.
- Zuorro, A., Fidaleo, M., & Lavecchia, R. (2011) Enzyme-assisted extraction of lycopene from tomato processing waste. *Enzyme Microb.Technol.* 49: 567-573.