

# Chlorella

Tamiya, N., et al.: Preliminary experiments in the use of chlorella as human food. *Food Technology* Vol. VIII, 4: 179-182, 1954),

CGF : optimal facial development, optimal skeletal growth and development of intelligence:

Yamagishi, Y., et al.: School children's growth and the value of chlorophyll. *Nihon Iji Shimpo*, S. 2196, 1961 (in Japanese)

Tokuyasu, M.: Examples of diets for infant's and children's nutritional guidance, and their effects of adding chlorella and C.G.F. to food schedule. *Totori City, Japan: Conference proceedings at the nutritional Illness Counseling Clinic 1983*, siehe auch: *Jpn. J. Nutr.* 41(5): 275-283, (1980 u.) 1983)

CGF in adults: hGH (human Growth hormone)

Isidori, A., et al.: A study of human growth hormone (HGH) release in man after oral administration of amino acids. *Current-Medical Research and Opinion*, 7, 1981

# Chlorella in cancer therapy

- Komiyama, K.; Hirokawa, Y.; Mocota, T., et al: An acidic polysaccharide chlon A, from chlorella pyrenoidosa. Anti-tumour activity and immunological response, *Chemotherapy*, 34: 302-307, 1986.
- Konishi, F.; Tanaka, K. ; Himeno, K., et al: Anti-tumour effect induced by a hot water extract of chlorella vulgaris: Resistance to meth-A tumour growth mediated by CE-induced polymorphonuclear leucocytes. *Cancer Immunology and Immunotherapy*, 19 : 73-78, 1985.
- Kuniaki, T.; Yoshifumi, T.; Tsuruta, M. et al: Oral administration of chlorella vulgaris augments concomitant anti-tumour immunity. *Immuno-pharmacology and Immunotoxicology*, 12 (2): 277-291, 1990.
- Miyazawa, Y.; Murayama, T.; Ooya, N. et al: Immunomodulation by unicellular green algae (chlorella pyrenoidosa) in tumour-bearing mice. *Journal of Ethnopharmacology*, 24, 135-146, 1988.
- Tanaka, K.; Konishi, F.; Himeno, K: Augmentation of anti-tumour resistance by a strain of unicellular green algae, chlorella vulgaris. *Cancer Immunology and Immunotherapy*, 17: 90-94, 1984. 83

## CVE: infections and lead

- CVE wird vor allem zur Bleientgiftung eingesetzt und zur anti-mikrobiellen Behandlung von chronischen Darminfektionen (Hasegawa, T./ Okuda, M./ Nomoto, K., et al.: Augmentation of the resistance against *Listeria monocytogenes* by oral administration of hot water extract of *Chlorella vulgaris* in mice. *Immunopharmacology and Immunotoxicology*, 16(2): 191-202, 1994

- .



# Chlorella Safety

- 500 Gramm Chlorella per day in experiment without serious side effects except bloatedness (Algae Feeding in Humans R.Powell et al, J of Nutrition 75: 61, pg 7-12). Exempt in Japan from necessity of further safety studies
- NIN report: no LD 50 in rats
- South Korea: 4000 tons of chlorella used annually by humans without reports of worrisome side effects

# Chlorella membrane

- (Bohumil Voelsky: Biosorption of Heavy Metals. CRC Press, 1990)
- Hemizellulose A and B
- C. P membrane contains Sporopollenin, not C.V
- Membrane contains carotenoids, polyphenols and more
- Ben-Basset,D.; Mayer, A.M.: Reduction of mercury chloride by chlorella: Evidence for a reducing factor. *Physiol. Pl.*, 40, 157-162, 1977).

# Chlorella and Metal Binding

## Cadmium

Hagino et al.: Effect of chlorella on fecal and urinary cadmium excretion in Itai-itai. *Jap. J. Hyg.* 30: 77, 4/1975

Nagano, T./Suketa, Y., et al.: Absorption and excretion of chlorella ellipsoidea cadmium-binding protein and inorganic cadmium in rats. *Jpn. J. Hyg.*, 38: 741-747, 1983

Carr, H.P., Carino, F.A., et al.: Characterization of the cadmium-binding capacity of chlorella vulgaris. *Bull. Environ. Contam. Toxicol.*, 60: 433-440, 1998

## Uranium

Horikoshi, T./ Nakajima, A., et al.: Uptake of uranium by various cell fractions of chlorella vulgaris. *Radioisotopes* 28: 485-488, 1979

Nakajima, A; Horikoshi, T; Sakagushi, T.: Recovery of uranium by immobilised micro-organisms. *Evr. J. Appl. Microbiol. Biotech.*, 16: 88-91, 1982.

## Lead

Protective effects of chlorella vulgaris in lead exposed mice infected with *Listeria monocytogenes*  
M. Queiroz et al *International Immunopharmacology* 3 (2003) 889-900

## Mercury

Shieh, Y.J.; Barger, J: Uptake of mercury by chlorella and its effect on potassium regulation. *Planta*, 109: 49-60, 1973

Klinghardt, D. : Algenpraeparat hilfreich bei der Amalgamausleitung  
Erfahrungsheilkunde Band 48, Heft 7, Juli 1999

D.Klinghardt and J. Mercola: Mercury toxicity and systemic elimination agents D.Klinghardt and J. Mercola, *J of Nutritional and environmental Medicine* (2001) 11, 53-62

*Parachlorella beyerinckii* CK-5 is found to accelerate excretion of methyl-mercury both into feces and urine: "Japan Society for Bioscience, Biotechnology and Agro-chemistry" (JSBBA: <http://www.jsbba.or.jp>) Meeting in Nagoya City, Japan, March 29~30, 2008 .



# Chlorella and Chemical Detox

- Pore, R.S.; Detoxification of **chlordecone** poisoned rats with chlorella and chlorella-derived sporopollenin. *Drug. Chem. Toxicol*, 7: 57-71, 1984
- Urey, J.C., et al.: Bioconcentration of four pure **PCB** Isomers by chlorella pyrenoidosa. *Bull. Envir. Contam. Toxicol* 16: 81-85, 1976
- Morita, K., Matsueda T., Iida, T., Hasegawa, T.: Chlorella accelerates **dioxin** excretion in rats. *Journal of nutrition* 129 (9): 1731-6, 1999
- Kunimasa M., Masahiro O., Hasegawa, T.: Chlorophyll derived from chlorella inhibits **dioxin** absorption from the gastrointestinal tract and accelerates dioxin excretion in rats. *Environmental Health Perspectives* 109: 289, 2001

# The Randall Merchant PhD Studies

- Merchant, R.E.; Rice, C.C.; Young, H.F.: Dietary chlorella pyrenoidosa for patients with malignant glioma: Effects on immunocompetence, quality of life, and survival. *Phytotherapy Research*, Vol. 4, No. 6, 220-230, 1990.)
- Merchant, R., Andre, C.: A review of recent clinical trials of the nutritional supplement chlorella pyrenoidosa in the treatment of fibromyalgia, hypertension, and ulcerative colitis. *Alternative Therapies* 7: 79, 2001)