Your Monthly Update

Dear Colleague

Welcome to the January 07 newsletter from Pure Bio Ltd.

STOP PRESS!!

The **NHS Confidentiality** campaign currently in process is a system designed to be a huge national database of patient medical records and personal information (sometimes referred to as the NHS 'spine') with no opt-out mechanism for patients at all. It is being rolled out during 2007, and is objectionable for many of the same reasons as the government's proposed ID database.

Your medical confidentiality is at risk from this new database, as over a million NHS employees and central government bureaucrats will have access to not only your medical records but also your demographic details—name, address, NHS Number, GP details, phone number (even if it's ex-directory) and mobile number.

You will eventually be allowed to 'lock down' some of your medical details (though the security mechanisms haven't been built yet). But although you can keep some of your medical details confidential from some of the doctors involved in your care, they can override this if they think it's necessary, and there is no way for you to keep your information confidential from civil servants. For the first time everyone's most up-to-date and confidential details are to be held on one massive database.

YOU HAVE UNTIL 31st JANUARY TO OPT OUT OF THIS SYSTEM!

Visit www.thebigoptout.org for full details on how to achieve this – please pass this on to your patients, friends and family!

Did you know. . .?

Pure Bio now supplies Liquid Zinc (as Zinc Picolinate) and Liquid Magnesium (as Magnesium Chloride)

ALL MINERALS ARE ABSORBED IN IONIC FORM, MAKING PURE BIO LIQUID FORMULAS THE MOST HIGHLY BIO-AVAILABLE FORM.

For more details, please see the website (under minerals section and on the "New Products" page), or contact the office – 01403 730342 - for product information sheets and your free sample.

Our topic for this month is:

Immune Function

Ranking	Nutritional Supplements	Botanical Medicine
Primary	Multiple vitamin-mineral (for elderly people) Vitamin E (for elderly people)	
Secondary	Acidophilus Beta-carotene Fish oil (omega-3 fatty acids for critically ill and post surgery patients only) Glutamine (for prevention of post-exercise infection in performance athletes) Selenium (for elderly people) Thymus extracts Vitamin A Vitamin C Zinc (for elderly people)	Ashwagandha Asian ginseng Echinacea Eleuthero
Other	Beta-glucan Cordyceps DHEA Lycopene Vitamin B12 Zinc (for non-elderly people)	Astragalus Cat's claw Green tea Maitake Noni

Primary – Reliable and relatively consistent scientific data showing a substantial health benefit.

Secondary – Contradictory, insufficient, or preliminary studies suggesting a health benefit or minimal health benefit.

Other – An herb is primarily supported by traditional use, or the herb or supplement has little scientific support and/or minimal health benefit.

Dietary Modification

All forms of sugar (including honey) interfere with the ability of white blood cells to destroy bacteria. Animal studies suggest diets high in sucrose (refined sugar) impair certain aspects of immune function.

Alcohol intake, including single episodes of moderate consumption, interferes with a wide variety of immune defences. Alcohol's immune-suppressive effect may be one mechanism for the association between alcohol intake and certain cancers and infections.

The effect of fats on the immune system is complex and only partially understood. Excessive intake of total dietary fat impairs immune response, but some types of fat may be neutral or even beneficial. For example, monounsaturated fats, as found in olive oil, appear to have no detrimental effect on the immune system in humans at reasonable dietary levels.

Research on the effect of the omega-3 fatty acids that are abundant in some fish, fish oils, and flaxseed oil is conflicting. Liquid diets containing omega-3 fatty acids used in hospitals for critically ill people have been shown to improve immune function and reduce infections.

Supplementation with DHA in healthy young men has been shown to decrease the activity of immune cells, such as natural killer (NK) cells, and to inhibit certain measures of inflammation *in vitro* . The anti-inflammatory effects of DHA may be useful in the management of autoimmune disorders; however, such benefits need to be balanced with the potential for increased risk of infections. Other studies suggest that increased oxidative damage might be the reason for the negative effects on the immune system sometimes caused by fish oil, and that increased intake of antioxidants, such as vitamin E, could correct the problem.

In summary, low-fat diets with moderate levels of monounsaturated fat from olive oil appear least likely to compromise immune function and may provide some benefits.

Many studies, in both animals and humans, have demonstrated immune-stimulating effects from yogurt which contains live cultures, such as *Lactobacillus acidophilus* and other probiotics. The effects of probiotics observed in humans include increasing the activity of several types of white blood cells. In preliminary human studies, consumption of live culture-containing yogurt has been associated with a reduced incidence of several immune-related diseases, including cancer, infections of the stomach and intestines, and some allergic reactions.

Lifestyle Modification

Both excessive thinness and severe obesity are associated with impaired immune responses. Obesity increases the risk of infection. However, attempts to lose weight through dietary restriction may actually be harmful to the immune system. The detrimental effects of both excess weight and weight-loss diets appear to be offset when people regularly perform aerobic exercise.

The effects of exercise on immune function depend on many factors, including frequency and intensity of exercise. Regular moderate physical activity has positive effects on immunity, and has been shown to reduce risk of upper respiratory infection. However, very intense and prolonged exercise, such as running a marathon or overtraining, can, in the short term, actually increase the risk of developing infections. The positive effects of moderate exercise on immunity may also partly explain the apparent reduced susceptibility to cancer of physically active people.

Nutritional Supplement Treatment Options

Most, but not all, double-blind studies have shown that elderly people have better immune function and reduced infection rates when taking a multiple vitamin-mineral formula. In one double-blind trial, supplements of 100 mcg per day of selenium and 20 mg per day of zinc, (with or without additional vitamin C, vitamin E, and beta-carotene), reduced infections in elderly people; although vitamins without minerals had no effect. Burn victims have also experienced fewer infections after receiving trace mineral supplements in double-blind research.

Vitamin E enhances some measures of immune-cell activity in the elderly. This effect is more pronounced with 200 IU per day compared to either lower (60 IU per day) or higher (800 IU per day) amounts, according to double-blind research.

Beta-carotene and other carotenoids have increased immune cell numbers and activity in animal and human research. Placebo-controlled research has shown positive benefits of beta-carotene supplements in increasing numbers of some white blood cells and enhancing cancer-fighting immune functions in healthy people at 25,000–100,000 IU per day.

In double-blind trials in the elderly, supplementation with 40,000–150,000 IU per day of beta-carotene has increased natural killer (NK) cell activity.

Controlled research has found that 50,000 IU per day of beta-carotene boosted immunity in people with colon cancer. Beta-carotene has also prevented immune suppression from ultraviolet light exposure.

Vitamin C stimulates the immune system by both elevating interferon levels and enhancing the activity of certain immune cells. A review of 20 double-blind studies concluded that while several grams of vitamin C per day has only a small effect in *preventing* colds, when taken at the onset of a cold, it does significantly reduce the duration of a cold.

However, in controlled reports studying people doing heavy exercise, cold frequency was reduced an average of 50% with vitamin C supplements ranging from 600 to 1,000 mg per day.

Vitamin A plays an important role in immune system function and helps mucous membranes (including those in the lungs) resist invasion by micro-organisms. However, vitamin A supplementation during infections appears beneficial only in certain diseases. An analysis of trials revealed that vitamin A reduces mortality from measles and diarrhoea, but not from pneumonia, in children living in developing countries. A double-blind trial of vitamin A supplementation in Tanzanian children with pneumonia confirmed its lack of effectiveness for this condition.

In general, parents in the developed world should *not* give vitamin A supplements to children unless there is a reason to believe vitamin A deficiency is likely, such as the presence of a condition causing malabsorption (e.g., coeliac disease). However, the American Academy of Paediatrics recommends that all children with measles be given short-term supplementation with high-dose vitamin.

A combination of antioxidants vitamin A, vitamin C, and vitamin E significantly improved immune cell number and activity compared with placebo in a group of hospitalized elderly people. Daily intake of a 1,000 mg vitamin C plus 200 IU vitamin E for four months improved several measures of immune function in a preliminary study.

Glutamine is important for immune system function. Liquid diets high in glutamine have been reported in controlled studies to be more helpful to critically ill people than other diets. Endurance athletes are susceptible to upper respiratory tract infections after heavy exercise, which depletes glutamine levels in blood.

Probiotics - Supplements of probiotics such as *Lactobacillus acidophilus,* or the growth factors that encourage their development in the gastrointestinal tract may help protect the body from harmful organisms in the intestine that cause local or systemic infection, according to published research (including controlled trials). The effective amount of probiotics depends on the strain used, as well as the concentration of viable organisms. Infectious diarrhoea in children has been successfully reduced with supplements of friendly bacteria in several trials, some of which were double-blind.

Thymomodulin® - The thymus gland is responsible for many immune system functions. Preliminary studies suggest that a thymus extract known as Thymomodulin® may improve immune function, and double-blind trials in children and adults with a history of recurrent respiratory-tract infections have found reduced numbers of recurrent infections with Thymomodulin supplementation. Thymomodulin has also been shown in a double-blind study to improve immune function in cases of exercise-induced immune suppression, and in preliminary studies to improve immune function in people with diabetes and in elderly people.

Zinc supplements have been reported to increase immune function. This effect may be especially important in the elderly, according to double-blind studies. Zinc supplementation may be recommended for people with recurrent infections, at a dosage of 30 mg per day for adults and lower amounts for children (depending on body weight).

While zinc lozenges have been shown to be effective for reducing the symptoms and duration of the common cold in some controlled studies, it is not clear whether this effect is due to an enhancement of immune function or to the direct effect of zinc on the viruses themselves.

Lycopene - Large amounts of the carotenoid lycopene have been shown to increase the activity of NK cells in the elderly. In a controlled trial, 15 mg of lycopene significantly increased NK cell concentration, but no other immune functions.

Vitamin B12 - A deficiency of vitamin B12 has been associated with decreased immune function. In a controlled trial, people with vitamin B12 deficiency anaemia were also found to have markedly decreased levels of white blood cells associated with immune function. Restoration of vitamin B12 stores by means of injections improved levels of these immune cells, suggesting an important role for vitamin B12 in immune function.

Beta-glucan is a fibre-type polysaccharide (complex sugar) derived from the cell wall of baker's yeast, oat and barley fibre, and many medicinal mushrooms, such as maitake. Numerous experimental studies *in vitro* and in animals have shown beta-glucan to activate white blood cells. In fact, there have been hundreds of research papers on beta-glucan since the 1960s. The research indicates that beta-1,3-glucan, in particular, is very effective at activating macrophages and neutrophils. A beta-glucan–activated macrophage or neutrophil can recognize and kill tumour cells; remove cellular debris resulting from oxidative damage; speed up recovery of damaged tissue; and further activate other components of the immune system.

DHEA - The hormone DHEA affects immunity. In a controlled trial, a group of elderly men with low DHEA levels who were given a high level of DHEA (50 mg per day) for 20 weeks, experienced a significant activation of immune function. Postmenopausal women have also shown increased immune functioning in just three weeks when given DHEA in double-blind research.

Botanical Treatment Options

Echinacea - In general, human studies have found that echinacea taken orally stimulates the function of a variety of immune cells, particularly NK cells. The balance of evidence currently available from studies suggests that echinacea speeds recovery from the common cold, via immune stimulation (as opposed to killing the cold virus directly).

Asian (Panax) Ginseng has a long history of use in traditional herbal medicine for preventing and treating conditions related to the immune system. A double-blind study of healthy people found that taking 100 mg of a standardized extract of Asian ginseng BID improved immune function.

Eleuthero (Siberian ginseng) has also historically been used to support the immune system. Preliminary Russian research has supported this traditional use. A double-blind study has shown that healthy people who take 10 ml of eleuthero tincture TID had an increase in certain T lymphocytes important to normal immune function.

Ashwagandha is considered a general stimulant of the immune system, and has been called a tonic or adaptogen —an herb with multiple, non-specific actions that counteract the effects of stress and generally promote wellness.

Complex polysaccharides present in astragalus and in maitake and coriolus mushrooms appear to act as "immunomodulators" and, as such, are being researched for their potential role in AIDS and cancer. Presently, the only human studies on astragalus indicate that it can prevent white blood cell numbers from falling in people given chemotherapy and radiotherapy and can elevate antibody levels in healthy people.

The primary immuno-activating polysaccharide found in the maitake / shiitake / reishi mushrooms, beta-D-glucan, is well absorbed when taken orally and is currently under investigation as a supportive tool for HIV infection.

Cat's Claw - Substances found in cat's claw, called oxyindole alkaloids have been shown to stimulate the immune system.

Cordyceps has immune strengthening actions in human and animal studies.

Green tea has stimulated production of immune cells and has shown anti-bacterial properties in animal studies.

Noni - Animal and test tube studies show noni to have some immune-enhancing activity. Specifically, the polysaccharide component has been shown to increase the release of immune-enhancing compounds that activate white blood cells to destroy tumour cells. The usual recommendation is 4 ounces of noni juice 30 minutes before breakfast (effectiveness is thought to be best on an empty stomach).

Integrative Options

The immune system is suppressed during times of stress. Chronic mental and emotional stress can reduce immune function, but whether this effect is sufficient to increase the risk of infection or cancer is less clear. Nevertheless, immune function has been increased by stress-reducing techniques such as relaxation exercises, biofeedback, and other approaches.

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