



World Cancer
Research Fund
Hong Kong

世界癌症研究基金會(香港)

Issue 9

Autumn 2007

Informed

Solving the Diet-Cancer Mystery

Teasing out the association between diet and cancer is challenging, as cancer is a multifactorial disease that can take decades to develop. In addition, diets are complex as people eat different foods every day and diets change over time.

On 1st November 2007, WCRF HK will launch the WCRF/AICR second expert report *Food, Nutrition, Physical Activity and the Prevention of Cancer: a Global Perspective*. This report is the largest study of its kind ever published. Its recommendations will be based on the most comprehensive analysis of the literature ever undertaken and will increase understanding of how diet and lifestyle factors can influence cancer risk.

Establishing a Method

Since not all studies come to the same conclusions and some evidence is of a better standard, a critical step in developing the second expert report was to decide on a more systematic way to assess the quality and merit of scientific studies. To do this, WCRF/AICR brought together a task force of scientific experts in nutrition, cancer, laboratory research, and public health. This independent task force produced a specification manual for reviewing the scientific literature, which outlined a clear and thorough process to analyse the scientific results of the research in this area.

No Single Study is Perfect

There are many types of studies used in investigating the prevention of cancer, such as 'mechanistic', 'cohort', 'case control study' or 'randomised controlled trial'. All have strengths and weaknesses, and no one type of study is perfect. Even the randomised controlled trial, which works so well with medicines, has limitations when it comes to the study of chronic diseases like cancer and complex lifetime exposures like food and nutrition. WCRF/AICR's comprehensive second expert report has therefore used a portfolio approach, which means it reviews all types of research and takes into account the advantages and disadvantages of each.

Collecting the Evidence

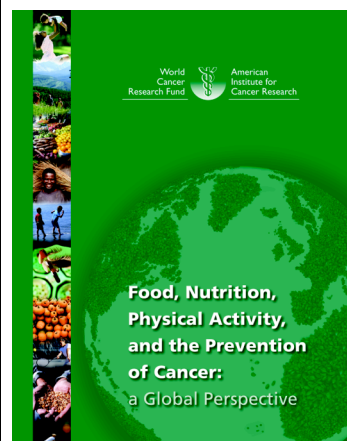
Nine independent teams of scientists from universities and research centres around the world conducted systematic literature reviews of 17 different types of cancer, along with research on obesity and cancer, as well as research on cancer survivors. The scientists also looked at authoritative reports on other chronic diseases such as heart disease and diabetes. In the initial sweep, half a million research studies were found, which were screened down to 22,000.

Eventually, 7,000 of the top studies were found relevant and met the carefully developed guidelines for the most defined conclusions on the causes and prevention of cancer.

Analysing the Evidence

WCRF/AICR has engaged an independent expert panel of 21 world-renowned scientists to work on the report over the past five years. The expert Panel has reviewed and assessed the evidence collected by the systematic literature reviews, ensuring that conclusions and recommendations made by the Panel are firmly based on scientific evidence. Six international organisations have been invited to be formal observers of this report: the World Health Organisation (WHO) and the Food and Agriculture Organization (FAO) of the United Nations (UN); the UN Children's Fund (UNICEF); the International Union of Nutritional Sciences (IUNS); the Union Internationale Contre le Cancer (UICC); and the International Food Policy Research Institute (IFPRI). In addition to the expert Panel, many other scientists from around the world, who are experts in this field of work, reviewed the Panel's work as part of the process. This, as well as the involvement of the international health organisations, has made this truly a global report.

Want to learn first hand about this important report on cancer prevention? Come to our launch conference!



Launch Conference

WCRF/AICR's Second Expert Report
Food, Nutrition, Physical Activity and the Prevention of Cancer: a Global Perspective

Hong Kong Convention and Exhibition Centre
1st November 2007
1:00pm – 5:30pm

Reserve your seat now!
Please see the enclosed registration form.
www.wcrf-hk.org

Vitamin D and Colon Cancer

Supported by a grant from WCRF, researchers have demonstrated that a form of vitamin D may be able to “fine tune” the activity of colon cells to help protect against cancer in ways that have not been seen before. The scientists showed that an analogue of vitamin D called S-4a can help regulate the growth of colon cells, and can do so without the side effects other forms of the vitamin have displayed.

One form of vitamin D – in fact, the most active form found in the body – is called 1-alpha-25-dihydroxyvitamin D3. This is termed a metabolite of vitamin D because it does not exist outside our bodies, but only arises once our cells and tissues begin to break down the vitamin D we get from sunlight or food.

This substance plays an important role in regulating cellular calcium levels, which directly influence how healthy colon cells grow and reproduce. Previous research has shown that “speeding up” the enzyme (called CYP27B1) that produces this vitamin D metabolite in the first place can help slow or stop tumour progression in the colon.

The problem, however, is that when this particular form of vitamin D accumulates, another enzyme called CYP24 often interferes with its protective effect. Also, very high levels of calcium in the blood (hypercalcemia) can occur.

What researchers are looking for, then, is a way to specifically inhibit the interfering CYP24 enzyme without inhibiting the cancer-protective CYP28B1 enzyme. Being able to do this could help researchers devise a direct way to control the growth and spread of cancerous colon cells.

In this study, researchers demonstrated that a structurally similar “analogue” of vitamin D called KRC-24SO₂Ph-1 (or S-4a) selectively stimulates anti-cancer activity in colon cells. They are investigating methods for using this selectivity in the control and treatment of colon cancer.

Reference:

Lechner D. et al. A 24-phenylsulfone analog of vitamin D inhibits 1 alpha 25-dihydroxyvitamin D3 degradation in vitamin D metabolism-competent cells. *Journal of Pharmacology and Experimental Therapeutics*. March 2007; 320(3):1119-26.

Check List

Please circulate this newsletter to other colleagues in order to help us spread the good news that cancer is a largely preventable disease.

Informed is available free of charge to all healthcare professionals.

How to join the mailing list

If you would like to join the mailing list for *Informed*, please contact WCRF HK or email us at info-hk@wcrf.org.

Newsletter copy review

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Register Today for WCRF/AICR's
Second Expert Report Launch
Conference – Seats are limited!

www.wcrf-hk.org

Pancreatic Cancer and Phytochemicals

A WCRF-funded laboratory study showed that three different naturally occurring plant compounds could halt the progression of pancreatic cancer cells.

The study was the first to uncover possible mechanisms linking perillyl alcohol (found in cherries, sage and spearmint), geraniol (found in citrus fruits, blueberries, blackberries and nutmeg) and farnesol (found in lemongrass and chamomile), to the “growth-arrest” of pancreatic cancer cells, which are often resistant to chemotherapy.

The substances seem to specifically target specific two genes called p21 and p27 that produce proteins, which stop the cancer cell's growth cycle at a specific stage. This is a promising development, but further investigations are needed.

Previously, all three substances have demonstrated the ability to slow or halt the growth of many different types of cancer in the laboratory. Perillyl alcohol has gone through several human Phase I and Phase II trials and has shown “therapeutic potential with relative mild adverse effects,” according to the new study's authors.

By uncovering one potential biological reason for the anti-cancer effects of these substances, this study may lead to the development of more potent and targeted methods to combat one of the most aggressive forms of cancer.

WCRF HK recommends eating a wide variety of fruits and vegetables, whole grains and beans, and using herbs and spices instead of salt as seasoning to help increase the intake of phytochemicals in the diet.

Reference:

Wiseman DA, et al. Cell cycle arrest by the isoprenoids Perillyl alcohol, geraniol, and farnesol is mediated by p21 and p27 in human pancreatic adenocarcinoma cells. *Journal of Pharmacology and Experimental Therapeutics*. March 2007; 320(3):1163-70.

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