

## What does the Future hold for Medicine?

The future of medicine was one of the topics for discussion at a major Conference which took place on 12 October 2007 at UCC. The Conference, hosted by the Alimentary Pharmabiotic Centre (APC), was part of the 150th anniversary celebrations of the Mercy University Hospital (MUH). More than 200 participants heard presentations by key national and international speakers on many diverse frontier aspects of medicine.

"What does the Future hold for Medicine" was the title of the keynote address delivered by Professor Michael J G Farthing, Vice-Chancellor of the University of Sussex. He discussed the future of medical and healthcare services, the medical practitioner of the future and the profession of medicine in the context of changing world demography, economics, globalisation, migration and climate change. His address was followed by a panel discussion which included Dr Tracey Cooper, Chief Executive of the Health Information and Quality Authority, Sr Sheila Cronin, Director of Healthcare at the Conference of Religious in Ireland (CORI), Dr Liam Plant, Consultant Renal Physician, Cork University Hospital and Dr Paud O'Regan, Consultant Physician/Gastroenterologist, South Tipperary General Hospital. Discussion was lively with enthusiastic participation from the audience.

Further details of the Conference are at <http://apc.ucc.ie>



Pictured from left to right: Mr Criostoir O'Suilleabhain, Mercy University Hospital, Cork, Professor Jayne Franklyn, University of Birmingham, UK, Professor Kevin Cashman, Alimentary Pharmabiotic Centre and UCC and Dr Donhnall Ó Halloran, Cork University Hospital.

## UPCOMING EVENTS

### IRISH SOCIETY FOR COLITIS AND CROHN'S DISEASE PATIENT OPEN DAY

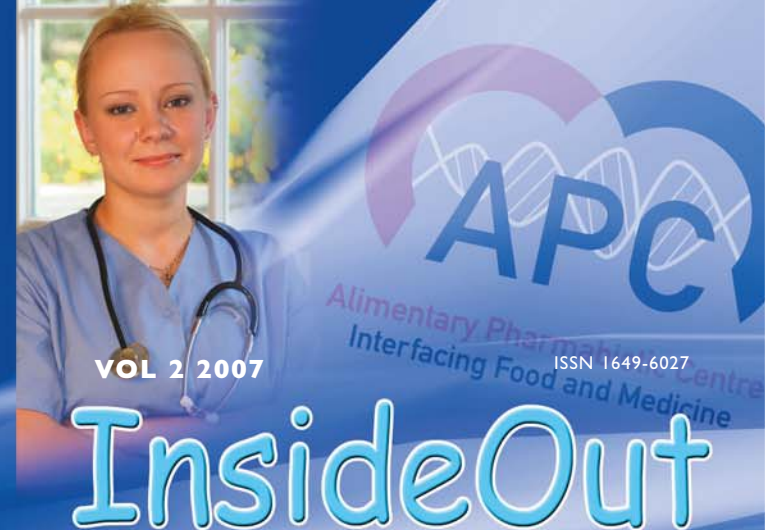
Saturday, 3 November 2007, 2pm  
Rochestown Park Hotel, Cork

### APC PUBLIC FORUM ON FOOD AND HEALTH

UCC, Tuesday, 29 January 2008

*The APC is a Research Centre focusing on gastrointestinal health and developing new therapies for lifelong debilitating disorders such as Crohn's disease, ulcerative colitis, Irritable Bowel Syndrome and gastroenteritis. The APC is funded by Science Foundation Ireland.*

*For further details please contact: Andrea Doolan, APC, BioSciences Institute, University College Cork, Ireland  
e-mail: [apc@ucc.ie](mailto:apc@ucc.ie)  
Web: <http://apc.ucc.ie>*



Welcome to the fourth issue of 'Inside Out' for patients and professionals in the medical community. Since our last issue we have been very active in both research and education and outreach activities relating to how intestinal bacteria, both good and bad, influence health and disease.

Some of the news items in this issue include reports on a Public Forum entitled 'Focus on Health-Straight From The Gut' and the Innovation in Medical Science Conference, 2007 as well as reports on exciting research underway in the APC. The APC also wishes to announce a Patient Open Day organised by the Irish Society for Colitis and Crohn's Disease on 3 November 2007 and another APC Forum on Food and Health which will be held in January 2008.

See APC website (<http://apc.ucc.ie>) for further details.



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Coláiste na hOllscoile Corcaigh, Éire  
University College Cork, Ireland



## Focus on Health - Straight From The Gut

Do you suffer from disorders such as Inflammatory Bowel Disease, Diverticular Disease, or Irritable Bowel Syndrome (IBS)? As part of World Digestive Health Day, a Public Forum titled "Focus on Health-Straight From The Gut" was organised by the Alimentary Pharmabiotic Centre (APC) in UCC on 29 May 2007. The Forum, to which members of the public were invited took place in Brookfield Health Sciences Complex, UCC, College Road.

Chairing the Forum was Professor Eamonn Quigley who also presented a talk on "New concepts in digestive health". Professor Quigley, from the APC and Department of Medicine, UCC and Consultant Gastroenterologist, Cork University Hospital is President of the World Gastroenterology Organisation (OMGE).

Peter Cartwright, author of several books including "Coping with Diverticulitis" spoke about this common condition where the colon or large intestine become inflamed or infected. Peter Cartwright has many years experience of working for patient and self-help associations, as Assistant Director of the National Association for Colitis and Crohn's Disease. In addition to this event he also gave a presentation earlier in the day entitled 'Digestive Health As You Age' to an elderly audience.

Mary Rea of Teagasc Moorepark Food Research Centre and APC spoke about how her research will help control the bacterium *Clostridium difficile*, an emerging hospital bug. This bacterium can cause serious diarrhoea and inflammation of the colon in patients in hospitals and nursing homes and development of new approaches are needed to prevent and control the bug.



Speakers from left to right; Mary Rea, Teagasc, Eamonn Quigley, APC & CUH, Peter Cartwright, Author seen with Deirdre Jordan, Yakult Ireland, sponsor of the Forum

The Forum and other events to celebrate World Digestive Health Day were generously supported by Yakult.

## Probiotics for the Developing World – Roy Sleator

The World Health Organisation estimates that by the year 2015, 113.4 million children under five years of age will suffer from malnutrition. The overwhelming majority of these children will live in developing countries.



With weakened immunity and little or no access to proper medical support the malnourished in developing countries are increasingly susceptible to bouts of dehydrating diarrhoea which in turn worsens the nutritional status of the individual. This, compounded by the continuing scourge of HIV (AIDS), has created a critical situation which desperately needs to be addressed.

The answer write the APC's Dr Roy Sleator and Prof. Colin Hill in the cover story of first issue of the Journal of Infection in Developing Countries just might be Probiotics (so called "good bacteria").

These "good bacteria" can alleviate many of the symptoms of malnutrition, fight infection and help strengthen the body's immune system. In addition, unlike many drugs currently in development, probiotic bacteria are relatively cheap to produce, deliver and store; important considerations in the context of the developing world.

In addition to alleviating the symptoms of malnutrition and diarrhoea, the potential of probiotics to target bacterial and viral infections is currently the focus of intense scientific study. 'Designer probiotics' have been genetically engineered to express receptors on their surface which bind to and neutralise many infectious agents, including HIV, before they have a chance to bind to their target host cells.

'Designer probiotics' can also be used in large scale vaccination programs. Added to foods and eaten, as opposed to the traditional method of administering vaccines by needle injection, large populations can be rapidly and cheaply vaccinated without the requirement for medically trained personnel.

Thus, in an era of increasing antibiotic resistance and fewer antimicrobials coming online, probiotic bacteria represent a new hope for the future, both for the developing and the developed world.



## The Gut Microflora as a Forgotten Organ – Eileen Murphy

Bacteria aren't always bad. In fact, they can be extremely helpful partners. Our gut microflora, as the gut bacteria are called, can be pictured as a microbial organ placed within a host organ. These bugs play a critical role in nutrition, helping to break down food products, conduct a multitude of biochemical reactions, supply some vitamins and other nutrients that we cannot make ourselves and can thus be collectively thought of as a metabolically active "organ". Adults carry over 1 kg of gut bacteria and excrete their own weight in faecal bacteria every year. The gut microbiota plays a vital role in health and has largely been underestimated. In fact, 90% of our cells are microbial, whereas only 10% are human. Scientific evidence is accumulating that upsetting the intestinal flora by unhealthy diet, surgery, use of antibiotics, oral contraceptives, chronic stress and poor lifestyle habits can lead to health problems such as indigestion, lowered immunity and susceptibility to diarrhoea.

## University College Cork researchers hope to control food poisoning – Pat Casey

The use of 'good' bacteria in pig feed may help to limit the incidence of food poisoning in humans, a research programme in University College Cork has established. Salmonella infection is a major cause of gastroenteritis, with thousands of cases reported across the European Union every year, at a cost to the taxpayer of many millions of euros. Many of these cases are due to people eating infected pig meat products.

Now, scientists in University College Cork have published results which suggest that the inclusion of probiotic bacteria in pigs' diet notably inhibits Salmonella infection. During trials, pigs that were fed a combination of five probiotic bacteria in yoghurt - style feed and were then given an oral dose of Salmonella showed reduced incidence and severity of diarrhoea when compared to pigs that were also infected but did not receive the probiotics. The animals which received probiotics also gained weight at a greater rate than the control group. The research group is now focusing on how the probiotics can be produced commercially, as it would not be viable to distribute the bacteria in their current formulation.

The project is being carried out in collaboration with University College Dublin and Teagasc Moorepark and is funded by the Irish Government.