



## ONE PATHWAY, MANY POSSIBILITIES

Reported in the news this month are exciting results in the treatment of advanced melanoma skin cancers. New treatments are targeting an immune pathway called PD1 as there is considerable evidence that this biological pathway is being used – hi-jacked – by cancers to disguise themselves from the body's immune system. The wide-ranging role of the PD1 pathway is being increasingly recognised and our scientists have also been looking at it, specifically in relation to treatment for patients with chronic hepatitis B viral infection and also in the development of hepatocellular carcinoma.

### THE LIVER AND IMMUNITY

The liver is at frontline of the body's immune system, an important and critical component in the defense against blood-borne infections. Within the liver are numerous immune cells that specialise in detection, capture and removal of pathogens from the blood in a tightly regulated defense system. This system divides into two types of immune response: **innate** and **adaptive**. The **innate** system produces a non-specific response to invading pathogens and consists of cells and proteins that are always present and ready to mobilise against infection. The **adaptive** immune response is called into action against pathogens that are able to evade or overcome the innate defenses. Normally 'silent', the components of adaptive immunity 'adapt' to the presence of infectious agents by activating, proliferating and creating mechanisms to neutralise or eliminate the invaders. With 30% of the body's blood passing through it every minute, the liver has a key role in our immune system.



Dr Shilpa Chokshi, Head of the Viral Hepatitis Research Group in the Institute of Hepatology, working in the lab with Dr Elena Palma

For many years drug therapies have been the main medical response to infection but drug resistance is an increasing problem. Drugs which have been effective become less so as the pathogens they are designed to target, mutate. A well-publicised example of this is the growing resistance to antibiotic drugs. The cost of new drug development is phenomenal and the time delay to market can be long and scientists are increasingly exploring alternative solutions. One approach is to identify how these pathogens - viruses, microbes, tumour cells - are evading the immune system and in blocking the pathways that they are exploiting, restoring the body's own immune response. The PD1 work is an example of this approach and Dr Shilpa Chokshi and her Viral Hepatitis team are working with the pharmaceutical company Bristol-Myers Squibb in a clinical study in chronic hepatitis B patients. The aim is to therapeutically block the PD1 pathway with the aim of restoring a favourable virus-specific adaptive immune response. The team is the central immunological site for this multi-centre clinical study.



## Elena Baltacha

In our Spring newsletter we wrote about tennis star Elena Baltacha and her diagnosis of liver cancer on a background of Primary Sclerosing Cholangitis. Tragically, treatment was not successful and Elena died in May. Our sympathies go to Elena's family and friends and her death at such a young age is one more reason why we must continue to fund research into liver disease. Research in the Institute in this area was reported in the last newsletter and we will update you on progress in another edition.

## Please consider a donation

It costs nearly £4,000 a day to run the Institute of Hepatology. The Foundation funds around half of this through income from investments and projects such as the Viral Hepatitis PD1 work described above are funded through partners such as the pharmaceutical company Bristol Meyers Squibb. We rely on the donations and legacies that we receive to bridge the funding gap and many of these are made in memory of someone who has died of a liver illness. Please consider supporting our work with a regular donation so that we can help more people survive liver disease. Whatever sum you can spare, it will help to keep our scientists at work.

For information on how to make a donation please call 020 7255 9832 or see our website:

<http://www.liver-research.org.uk/liver-research-donations>

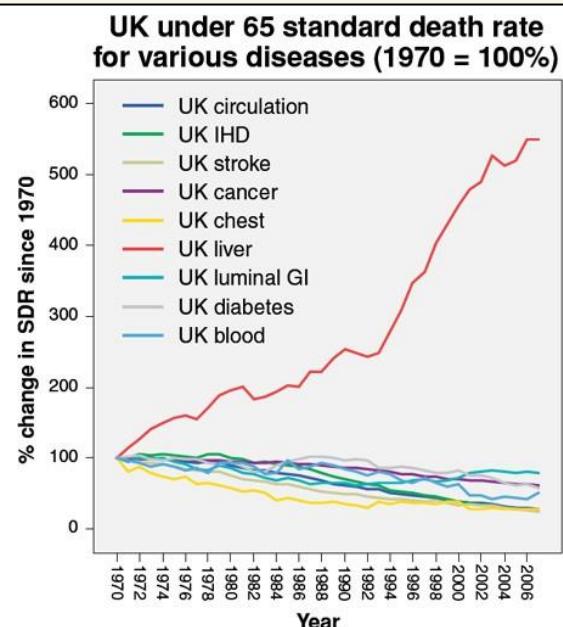
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If you would like further information about the Foundation please contact: Natalie Day [n.day@researchinliver.org.uk](mailto:n.day@researchinliver.org.uk) or tel: 020 7255 9832 RCN 1134579

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