Immodulon Newsletter December 2012

I wanted to send you a brief letter to update you on our immunotherapy progress so that you could have an idea of where and how your generous support has been used.

Perhaps the most important development in the last year has been the recognition by the establishment that immunotherapy is the way forward. At last, it is now becoming clear that conventional chemotherapy is just not working in the majority of cancers in the same way that we are losing the battle against bacteria that are learning how to become resistant to antibiotics. Indeed, we have a massive problem with TB which has always been a clever organism and needed at least 3 drugs to kill it. We now have a strain that is resistant to all known drugs and the old enemy is returning to Europe with a vengeance.

Luckily, we believe we have a great effect on TB as well as cancer and the EC is at last realising the threat of TB in Europe and are very keen to look at therapy options before it is too late. As I have explained in the past, TB research needs to be funded by governments and pure philanthropy since the financial return is so poor and we cannot attract major investors. It remains nevertheless an important part of our philanthropic drive. The good news is that the EC are giving grants to fund this work and we have crossed the main hurdle and are now in discussions about a budget. Keep your fingers crossed for us!

On the cancer front, look at this report from the Lancet in November summarising findings in prostate cancer from the Royal Marsden and the Sloane-Kettering in New York – the key points are below:

Immune Function Predicts Prostate Cancer Aggressiveness *- The result that immune function is key to prostate cancer outcome is very surprising, said Dr. de Bono.*
"The biggest surprise of this study was that the most significant six genes which predicted survival were not primarily cancer-related genes, but were involved in immune function."
"In some ways, this is not a surprise, since it suggests that the patient's innate immune response to cancer may be a strong predictor of the impact of the cancer."
"The blood contains a molecular signature in patients with advanced prostate cancer which predicts survival based on the functioning of the immune system."

At last, the establishment has woken up to the fact that it is the response by the host that is the key to survival and not the nature of the tumour. This is music to our ears! It makes me feel like St John the Baptist!!

Given that all of us men are going to get prostate cancer at some point but 20% of us will die of it, it concentrates the mind and shows the importance of the work we are doing in terms of modulating (tuning) the immune system to go from a "bad" response to a "good" one. To this end we are considering a trial of precisely this but it will take time and funds.

We have excellent news on the scientific front with several experiments that you have helped to fund bearing wonderful fruit.

The first is a historical review of Professor Dalgleish's vaccae patients with stage 4 melanoma – there were 71 cases treated by him over the years and of these 20% have lived over 15 years – this is unprecedented and were they in a trial rather than anecdotal would warrant an immediate licence! Luckily, the obuense cases are doing well so we are confident things will work out well in this trial.

The second is an experiment which has shown that cancer cells behave exactly like many parasites and deceive the immune response by the host. This action can be reversed by our agent again proving the concept nicely. It is a fabulous piece of work and not only gives us a functional marker but it also provides a basis for a biomarker in the individual patient. This means we can tailor therapy to an individual patient and is something of a Holy Grail in oncology. This work was done using donations by you by Dr Androulla Elia at St Georges and she has more exciting data in the pipeline.

The third study done again at St Georges has shown the effect of our material on preventing the development of lung metastases (spread of the cancer) in a mouse model using colon cancer cells. Again, a lovely experiment and very good data to confirm the observations from Dr Hagemann in a separate laboratory – see below.

The fourth and fifth studies involve the development of a proteomic chip (this is a laboratory on a chip model) with a Californian group which is another and perhaps even more set of important biomarkers - we hope to validate these results by the end of the year. These data are even better than the prostate genomics I mentioned earlier.

The other work in collaboration with Dr Thorsten Hagemann at Bart's is also nearing completion as are experiments we have commissioned elsewhere on the induction of immunogenic cell death – this is where we damage a cancer to release antigens so that the immune system can "see" it and attack. The key is to unmask the tumour which, like a parasite, hides itself from recognition.

Finally, we are also anticipating some nice data from Professor Bahr at Balamand – he has been a valued partner and his work on isolated dendritic cells (the watchdog of the immune system) is going well and will provide yet another predictive marker.

All these have added huge steps in the understanding of mechanisms as we build our hypotheses relating to mode of action and outcome and are providing a way of tailoring the treatment to an individual patient.

On the clinical side, we have more data from the phase 1 study on the end stage melanoma patients that show good news. 12 of 18 survivors are now in the ongoing long-term follow-up trial and are doing well and now into their third year of

survival. This is exciting and when added to the older data from Gus, gives huge hope that a good number may well achieve permanent response.

Perhaps more importantly, the patients who we have treated on compassionate grounds at the Clinic continue to astound us. As you know, these are patients with no other hope and it costs a fortune to fund this work but no-one is expected to pay a penny towards the treatment and we supply the drug for free. Some 25% of the patients do very well and amaze us – what has become obvious is that even though the cancer may not get smaller, these patients often live with their tumour and have a good quality of life as well as survival. This is a key element of immunotherapy as compared to chemotherapy and if you have time please look at this great lecture by Dr Axel Hoos on YouTube – we could have written it!

See http://www.youtube.com/watch?v=UohA1WQVnHw&feature=plcp

Finally, some nice news - Professor Sir Roy Calne, emeritus Professor of Surgery at Cambridge, has just received the Lasker Prize (the US equivalent of the Nobel Prize) for his work on human organ transplantation – his co-winner is Dr Tom Starzl, the top transplant surgeon in the USA. A wonderful if late recognition of his work – he should get the Nobel Prize itself soon. Roy is a great believer in our work and is on our Scientific Advisory Committee.

Professor Georges Bahr has just been appointed to a personal chair at the St Georges Hospital in Balamand with a budget of $1million for research. Our lobbying has clearly borne fruit and his work will continue to be of great value.

I cannot end this without stating the obvious – that we still need support for the on-going research and to give you an idea, each research experiment takes about 4 months and costs £25,000, so a year's work is £75,000. Each patient in the compassionate care programme cost us £1000 each session but this contrasts with £35,000 to £60,000 for a course of conventional chemotherapy! We make every penny work and will continue to do so!

Thank you again for your help and support and please remember us again next year!

I wish you all a wonderful Christmas and pray the New Year will bring prosperity and good health and happiness.

Yours,

Charles

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