



Patent for targeted photodynamic therapy (*t*-PDT) gets green light Down Under

London, October 2008: PhotoBiotics has been granted its first international patent in Australia.¹ The patent claims cover Photobiotics' leading-edge anti-cancer technology, targeted photodynamic therapy (*t*-PDT). PhotoBiotics' Dr Elizabeth Rollinson says, "This Australian patent is an important step toward commercialising *t*-PDT, and we anticipate it will now move to grant in additional territories throughout the world. Added to the huge selectivity gains we've recently demonstrated in targeting tumours for destruction via *t*-PDT over conventional methods, plus the rest of our developing patent portfolio, it significantly enhances our value proposition."

In conventional PDT, diseased tissues (e.g., tumours) are treated with light-activated drugs, then illuminated with cold laser light. This converts nearby oxygen into a highly toxic form which destroys the tumours. To date, PDT has successfully treated head and neck, prostate, oesophageal, cervical, and skin cancers. Compared to other cancer treatments, PDT leaves little cosmetic scarring and no possibility of drug resistance. But being non-targeted, conventional PDT cannot deliver the drugs specifically to tumours. Also, by circulating in the body long after treatment, the drugs sometimes leave patients acutely sensitised to painful light-induced skin damage. So, they may have to remain indoors protected from light for some time after treatment.

Combining the drugs with antibody fragments - special tumour-seeking proteins – is key to solving these problems, and the basis of PhotoBiotics' *t*-PDT technology. While ensuring light-activated drugs are carried specifically to cancerous cells, *t*-PDT also facilitates their rapid removal from the body after tumour irradiation with laser light. "This minimises the risk of accidental damage to healthy tissue during the treatment process, and maximises the number of cancer cells being destroyed", says Dr Till Medinger, PhotoBiotics' Non-Executive Chairman.

"But there's an added bonus", he continues. "Our research team has subsequently noted that, without adversely affecting their targeting properties, small antibody fragments can have many more drug molecules coupled to them, than can practically be attached to much larger whole antibodies. This highly counter-intuitive discovery has helped make our technology truly innovative".

BioWorld Today recently cited PhotoBiotics – a spin-out company from Imperial College London - as one of the top 200 innovative companies 'leading a new wave of biotechnology development'.² Says Dr Medinger, "The Australian patent grant and our initial highly promising results,³⁻⁵ are a green light to complete further pre-clinical studies, and take our technology forward into clinical trials. We are also developing other therapeutic applications of *t*-PDT, and expanding into the lucrative medical diagnostics market."

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Notes for Editors:

1. See patent number **AU2002321496B** at the site, <http://qb.espacenet.com/>
2. 'Innovations in Biotechnology 2008: Development-Stage Companies and Scientific Findings Leading the Way', *BioWorld Today*, June 2008. http://www.bioworld.com/servlet/com.accumedia.web.Dispatcher?next=S08438_6064.
3. 'Towards recombinant antibody-fragment targeted photodynamic therapy.' *Science Progress* 2008; **91**(3): 241-263.
4. Targeted photodynamic therapy with multiply loaded recombinant antibody fragments.' *International Journal of Cancer* 2008; **122**: 1155-1163.
5. 'Fluorescence characterisation of multiply-loaded anti-HER2 single-chain Fv-photosensitiser conjugates suitable for photodynamic therapy'. *Photochemical and Photobiological Sciences*. 2007; **6**: 933-939.

About PDT

Conventional PDT has an established niche in the treatment of certain cancers and in age related macular degeneration (AMD), with product sales in excess of \$500m annually. However, conventional PDT's clinical development and use have been slow to evolve owing mainly to the novelty of the treatment regimen and to post-treatment systemic photosensitivity. The photosensitising agent remains in the system for up to six weeks post treatment in some cases, and when it reaches the skin, patients can become exquisitely photosensitive to ambient light even on cloudy days, leading to symptoms akin to acute sunburn in uncovered parts of the body. Photobiotics uniquely targeted approach to PDT will overcome the issue of photosensitivity without compromising efficacy, thus greatly extending the potential of this otherwise superior treatment modality.

About PhotoBiotics (see www.photobiotics.com)

Photobiotics is a spin-out company from Imperial College London developing novel biologically-targeted photodynamic therapeutic (t-PDT) agents to specifically target and destroy diseased cells far more effectively than the conventional PDT in current use, so significantly extending market penetration. Potential applications of this new technology include the diagnosis and therapy of cancer, restenosis following angioplasty, various proliferative skin conditions, or as 'irresistible antibiotics' and many more. PhotoBiotics is highly distinctive in possessing a unique integrated multidisciplinary capability involving chemistry; laser physics and biology (Please see the website).

About Dr Elizabeth Rollinson

Dr Elizabeth Rollinson (Non-Executive Director) joined the PhotoBiotics Board in April 2006, primarily to provide strategic business development direction to the company. She was previously the Commercial Director for Xenova Group plc, a leading dual-listed UK-based biotech company and concurrently served as Managing Director for Phogen, and as a Non-Executive Director of Discerna. Liz has over 25 years experience in the pharmaceutical industry, and in addition to closing a number of significant commercial transactions for Cantab and Xenova, she has extensive experience of managing the whole R&D spectrum, including manufacturing, and is a registered Qualified Person. Liz has spent the last 12 years in the commercial arena, involved in business development, IP, licensing, M&A, and fund-raising. She obtained her PhD from Imperial College. Liz brings a strong commercial focus to the PhotoBiotics team.

About Dr Till Medinger

Dr Medinger was formerly Senior Vice President for Corporate Strategy at AstraZeneca Plc and prior to that had a long and distinguished career with Zeneca and ICI Pharmaceuticals, directing business and marketing operations internationally and overseeing the launch of several global blockbuster products. He is a past President of the Association of the British Pharmaceutical Industry and has many years international industry experience, serving on the Boards of both the European and the International Pharmaceutical Industry Federations. His business career has spanned R&D, territorial and marketing management, strategic planning, business operations, licensing and acquisitions/divestments, and public and government affairs. Dr Medinger has served as a Non-Executive Director of several biotech companies and is currently on the Board of Datapharm Communications Ltd and Polytherics Ltd. He has also acted as a corporate consultant to a number of emerging high-tech companies within the US and the UK.