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Guest edited by Kristian Berg and Qian Peng

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Other papers in this issue:

Milestones in the development of photodynamic therapy and fluorescence diagnosis

A. Juzeniene *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1234 (DOI: 10.1039/b705461k)

The role of oxygen monitoring during photodynamic therapy and its potential for treatment dosimetry

J. H. Woodhams *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1246 (DOI: 10.1039/b709644e)

Photophysical, electrochemical characteristics and cross-linking of STAT-3 protein by an efficient bifunctional agent for fluorescence image-guided photodynamic therapy

Y. Chen *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1257 (DOI: 10.1039/b7110395f)

Topical applications of iron chelators in photosensitization

A. Juzeniene *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1268 (DOI: 10.1039/b703861e)

Hypericin-mediated photodynamic therapy in combination with Avastin (bevacizumab) improves tumor response by downregulating angiogenic proteins

R. Bhuvaneswari *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1275 (DOI: 10.1039/b705763f)

Dying cells program their expedient disposal: serum amyloid P component upregulation *in vivo* and *in vitro* induced by photodynamic therapy of cancer

S. Merchant *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1284 (DOI: 10.1039/b709439f)

Apoptotic and autophagic responses to Bcl-2 inhibition and photodamage

D. Kessel *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1290 (DOI: 10.1039/b707953b)

Analyzing effects of photodynamic therapy with 5-aminolevulinic acid (ALA) induced protoporphyrin IX (PPIX) in urothelial cells using reverse phase protein arrays

R. C. Krieg *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1296 (DOI: 10.1039/b704464j)

Response to ALA-based PDT in an immortalised normal breast cell line and its counterpart transformed with the Ras oncogene

L. Rodriguez *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1306 (DOI: 10.1039/b704235c)

Using the singlet oxygen scavenging property of carotenoid in photodynamic molecular beacons to minimize photodamage to non-targeted cells

J. Chen *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1311 (DOI: 10.1039/b706820d)

The effect of Tookad-mediated photodynamic ablation of the prostate gland on adjacent tissues—*in vivo* study in a canine model

Z. Huang *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1318 (DOI: 10.1039/b705984a)

Light fractionation does not enhance the efficacy of methyl 5-aminolevulinate mediated photodynamic therapy in normal mouse skin

H. S. de Bruijn *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1325 (DOI: 10.1039/b708340h)

Role of mitochondria in cell death induced by Photofrin®-PDT and ursodeoxycholic acid by means of SLIM

I. Kinzler *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1332 (DOI: 10.1039/b705919a)

A study on the photodynamic properties of chlorophyll derivatives using human hepatocellular carcinoma cells

W.-T. Li *et al.*, *Photochem. Photobiol. Sci.*, 2007, 1341 (DOI: 10.1039/b704539e)

Introduction to the special issue on photodynamic therapy and photodetection

DOI: 10.1039/b716101h

Photodynamic therapy (PDT) is a two-step therapeutic technique in which the topical or systemic delivery of a photosensitiser or porphyrin precursor is followed by irradiation with visible light. In PDT the light-activated photosensitiser transfers the absorbed energy to molecular oxygen, generating reactive oxygen species. The subsequent oxidation of lipids and proteins induces cell necrosis and apoptosis. The absorbed energy can also be released as fluorescence that can be utilised for photodetection (PD). This special issue on PDT and PD presents 14 peer-reviewed scientific papers based on reports presented at the 11th World Congress of the International Photodynamic Association (IPA) in Shanghai, China, March 28–31, 2007.

The IPA, established in 1986 and organizer of biennial congresses, is an academic organization promoting scientific studies and clinical application of PDT and PD. Previous congresses were in Tokyo (1986), London (1988), Buffalo (1990), Milan (1992), Amelia Island, Florida (1994), Melbourne (1996), Nantes (1998),

Vancouver (2001), Miyazaki, Japan (2003) and Munich (2005). This was the first time that an IPA biennial congress was held in China, an emerging country. It was organized locally by the Congress President, Jing Zhu (China) and Secretary General, Yuanlong Yang (China) in association with Qian Peng (Norway) as the Scientific Committee Chair. Over 460 participants, among whom many are leading scientists and clinicians in this field, from more than 30 different countries attended this meeting. Eighteen guest/plenary lectures and 18 sessions/symposia covering all major topics of advances from history and basic research to clinical application greatly encouraged the attendants. Compared to the situation at the first IPA congress 21 years ago, the technologies of PDT and PD have made great progress with 6 photosensitisers and porphyrin precursors officially approved for clinical use and the light sources have become more cost effective and easy-to-use. The improvements in PDT and PD were also reflected by the presentations at the IPA 2007 congress related to new promising photosensitisers

and photosensitiser prodrugs, molecular and vascular targeting, new knowledge on mechanisms of action, immunological response, PDT dosimetry studied with sophisticated instrumentation and mathematical models, new techniques, combined PDT protocols, photodynamic cell purging, antimicrobial PDT and photochemical internalization. Clinical PDT and PD applications were presented for various disciplines of medicine, including dermatology, gastroenterology, otorhinolaryngology, pneumology, urology, gynaecology and neurosurgery. PDT and PD have started to contribute to our armamentarium of therapeutic and diagnostic tools and will certainly do much more when their diverse potentials are fully developed in the future.

Finally, we would like to thank all the authors for their excellent contributions and collaboration in the production of this special issue.

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