

# ELENA REDDI

## CURRICULUM VITAE

Current Position: Associate Professor at the Department of Biology- University of Padova

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### 1. Education and training:

Nov 1983-Dec1983. Visiting research scientist at the Center for Fast Kinetics Research- University of Texas at Austin. Field of study: photophysics and photochemistry. Supervisor Michael A.J. Rodgers

Mar 1982-Dec 1982. Associate research at the Center for Fast Kinetics Research- University of Texas at Austin. Field of study: photodynamic therapy. Supervisor: Michael A.J. Rodgers

Jan 1980- Jan 1981. Post-doctoral fellowship at the University of Padova. Field of study: photodynamic therapy. Supervisor: Giulio Jori

Jun 1980-Jul 1980. Post doctoral fellowship at Max-Planck Institute fur Strahlenchmie. Field of study:light induced degradation of bilirubin. Supervisor: Alfred R. Holzwarth.

Feb 1979 Degree in Biological Sciences at the University of Padova. Experimental thesis on pharmacokinetics of photosensitizers used in photodynamic therapy. Supervisor: Giulio Jori.

### 2. Research and professional experience

Oct 2014 – today. Associate Professor (BIO/06) at the Department of Biology- University of Padova.

Apr 1984 – Oct 2014. Assistant professor (ricercatore) at the Department of Biology- University of Padova.

Mar 1982 - Dec 1982. Associate research at the University of Texas at Austin, Center for Fast Kinetic Research, Austin, Texas

### 3. Major research fields and activities

The early research activity of Elena Reddi was focused on the characterization of the mechanisms of photosensitized processes and on their potential applications in medicine. In particular, she was interested in the application of the photosensitized processes to photodynamic therapy, a minimally invasive treatment that uses visible light to kill tumors. In this context, she was one of the first researchers that proposed the use of liposomes and other lipid-based nanoparticulates for the delivery of hydrophobic photosensitizing agents as, for example, phthalocyanines useful for photodynamic therapy.

In more recent years, a renewed interest, in establishing new strategies for selective delivery of photosensitizers for photodynamic therapy of solid tumors, stimulated the submission of the project on “Targeted Nanosystems for Improving Photodynamic

Therapy and Diagnosis of Cancer” (NANOPHOTO, <http://www.bio.unipd.it/nanophoto>) that was funded by the European Commission in 2008 (FP7contract 201031). This was the first project of photodynamic therapy funded by EC. She successfully coordinated the NANOPHOTO consortium (4 research institutions and the company Biolitec ) and the work carried out during the project contributed to establish Foslip® as improved formulation of the active agent Temoporfin marketed by Biolitec that is starting clinical trials with the new formulation.

The collaboration with the company Biolitec, that successfully started with the EU funded project is still active and documented by recently published work.

Her interest in selective drug delivery, exploiting the unique properties of nanoformulations is now extended also to more classic chemotherapeutics and combinations of chemotherapeutics or combinations of chemotherapy and photodynamic therapy, capitalising years of experience in this field.

One additional research topic developed over the years is antimicrobial photodynamic therapy also in combination with cationic antimicrobial peptides. This is another photobiological application where light is used to activate a photosensitising molecules and kill pathogenic microorganisms. The aim is the development of new antibacterial agents to combat and limit antibiotics resistance.

The research activity is documented in 91 scientific papers published in peer reviewed international journals.

She was chairperson of scientific sessions at national and international meetings/conferences.

### **Invited papers at national and international meeting**

Delivery of photosensitizers for PDT via pegylated nanoparticles  
Congresso Annuale 2012 della Società Italiana di Fotobiologia, Padova 14-16 Giugno 2012

Pegylated liposomes, PLGA or ORMOSIL nanoparticles for the delivery of mTHPC to cancer cells.

13th International Photodynamic Association World Congress, Innsbruck (Austria) 10-14 Maggio 2011

Pegylated ORMOSIL nanoparticles for improved delivery of photosensitisers used in photodynamic therapy

6th Conference on Experimental and Translation Oncology, Kranjska Gora (Slovenia), 24-28 Marzo 2010.

Nanosistemi per ottimizzare la terapia fotodinamica dei tumori: aspettative e limitazioni  
Congresso Annuale 2009 della Società Italiana di Fotobiologia, Locorotondo (Bari) 4-5 Giugno 2009.

Photosensitizer-loaded nanoparticles for improving the efficacy and selectivity of photodynamic therapy of tumours

5th Conference on Experimental and Translation Oncology, Kranjska Gora (Slovenia), 26-30 Marzo 2008.

Apoptotic and necrotic cell death induced by photosensitisation  
Photobiologie 2000. Colloque organisé conjointement par la Société Française de Photobiologie et la Société Italienne de Photobiologie, Aix-les-Bains, Francia, 26-27 Maggio 2000

Interazione tra luce e tessuti: applicazioni terapeutiche e diagnostiche”  
47° Congresso Nazionale della Società Italiana di Chirurgia Plastica Ricostruttiva ed Estetica, Palermo, Settembre 1998.

Molecular engineering of photosensitizers for photodynamic therapy of tumours  
7th Congress of the European Society for Photobiology, Stresa, (Italy) Settembre 1997.

Tumour-localizing properties of porphycenes with different chemical structure  
European Biomedical Optics Week - BIOS Europe '96 (Vienna, Austria) Settembre 1996

Does the use of delivery vehicles for photosensitizers enhance the selectivity of PDT?  
Conference on Photochemotherapy: Photodynamic Therapy and Other Modalities organizzata dalla Society of Photo-Optical Instrumentation Engineers (SPIE), Barcellona, Spagna, 12-16 Settembre 1995.

Liposome-incorporated photosensitizers: plasma protein distribution and tumour targeting  
The Fourth Liposome Research Days Conference, Albert-Ludwigs-University, Friburgo, Germania, 30 agosto- 2 settembre 1995.

Liposomes and Photodynamic therapy of tumors  
European Science Foundation Workshop on Liposomes as Biomembrane Models, Jerez, Spagna 16-20 marzo 1994.

Studies on the transport of photodynamic agents for tumours  
Conference on Photodynamic Therapy of Cancer organizzata dalla Society of Photo-Optical Instrumentation Engineers (SPIE), Budapest, Ungheria, 1-5 settembre 1993.

### **She organised the following symposia and meetings**

Symposium: Nanotechnology: from photochemistry to photomedicine. 14th Congresso della European Society for Photobiology, Ginevra (Svizzera), 1-6 Settembre 2011

Scientific session: Delivery Systems in Cancer. 6th Conference on Experimental and Translation Oncology, Kranjska Gora (Slovenia), 24-28 Marzo 2010.

Meeting: Nano-Vehicles for Photodynamic Therapy and Imaging of Tumours. Padova, 3 luglio 2008

### **Reviewer activity for the following international journals**

Photochemistry and Photobiology; Journal of Photochemistry and Photobiology, B: Biology, British Journal of Cancer, International Journal of Biochemistry and Cell Biology, Photochemical and Photobiological Sciences, Nanoscale.

#### **4. Membership of Scientific Societies**

Italian Society for Photobiology  
European Society for Photobiology

#### **5. Other activities**

She was part, as foreign opponent, of the commission for Tola Haukvik's doctoral dissertation, (10 February 2012) University of Oslo, Norway.

She is a Graduate Faculty Member and Steering Committee member of the PhD program in Biosciences.