

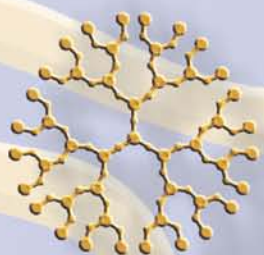
# 8th ISPT



PRINCIPE FELIPE  
CENTRO DE INVESTIGACION

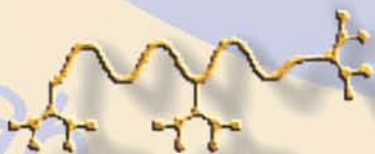
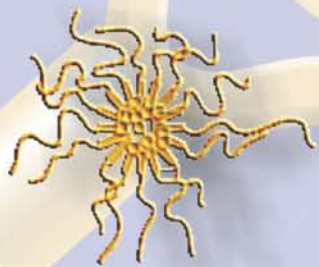


## **8th International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice**



**24th-26th May 2010**

**Centro de Investigación Príncipe Felipe  
Valencia, Spain**



<http://www.cipf.es>

# 8<sup>th</sup> International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice

Monday 24th May – Wednesday 26th May 2010  
Valencia, Spain

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María J. Vicent (CIPF Valencia)

## Co-Chairman:

Ruth Duncan (Cardiff Univ.)

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# OBJECTIVES

- **Polymer Therapeutics are first generation "Nanomedicines"**. This term includes polymers that are inherently biologically active, polymer-protein and polymer-drug hybrid conjugates, polymeric micelles, and the supramolecular assemblies that form multi-component polyplexes designed for intracellular delivery of genes and proteins. The exponential growth of interest in these macromolecular drugs and innovative nanopharmaceuticals underlines their importance as novel treatments for diseases, drug delivery systems and as imaging agents.
- **Polymer Therapeutics** can be administered by a variety of routes (e.g. parenteral, oral, topical).
- The number of **Polymer Therapeutics** approved by Regulatory Authorities for routine clinical use continues to rise. They are used as treatments for cancer, infectious diseases, multiple sclerosis, arthritis and age-related degeneration. Additionally, there are an increasing number of constructs entering pre-clinical and early clinical development. In 2007 they had an estimated annual market value of > 5 billion US \$.
- Both **natural and synthetic polymers** are being used, and ever more **sophisticated synthetic chemistry** is leading to complex three dimensional polymeric architectures, including dendrimers and dendronised polymers. This complexity at the molecular level and heterogeneity of conjugate structure provides many challenges in terms of validated chemical characterisation. There is also a need to ensure acceptable safety for all new polymers depending on their route, frequency and dose of administration.
- Both natural and synthetic polymers are being developed as components of non-viral vectors for delivery of genes, siRNAs and proteins, and there is growing awareness of the need for detailed understanding of intracellular trafficking to facilitate design molecular target-specific polymer directed therapies.
- As we enter the 21st Century polymer therapeutics are also being developed for the first time to address diseases of the aging population e.g. cardiovascular diseases, CNS diseases, to promote wound repair.
- Unlike other Drug Delivery Symposia with a broader remit, this unique conference series was specifically established to provide a forum for interdisciplinary exchange of state-of-the-art techniques and advances in knowledge relating to the design and commercialisation of such **Polymer Therapeutics**.

The **8<sup>th</sup> International Symposium on Polymer Therapeutics** will provide:

- World renown scientists to share with us their recent research and vision for the future of **Polymer Therapeutics** in the context of interdisciplinary research at the interface of biology, chemistry and medicine.
- The latest developments in polymer technology and the biological and clinical disciplines relating to **Polymer Therapeutics** -*New products in development, New clinical indications, New polymeric materials, Advances in Understanding of Bio-mechanisms*
- Industrial and medical progress in the transfer of **Polymer Therapeutics** from Laboratory to Clinic.
- Finally, last but not least, this International Symposium will provide an opportunity for the active participation of young scientists from around the world. A number of travel grants will be available to support their attendance.

## **Who should attend ?**

Academics active in, or recently joining the field of **Polymer Therapeutics and Nanopharmaceuticals**, Post Doctoral Scientists and Postgraduate Students working in this interdisciplinary field and Industrialists, either active in the field, or requiring an update/introduction of the current status of **Polymer Therapeutics and Polymeric Nanopharmaceuticals**.

## Abstracts

### Deadline for all abstracts: 19th February 2010

- **ALL SPEAKERS** should provide the single A4 sheet Abstract. The format is shown in the attached example.
- All **DELEGATES** are all encouraged to submit abstracts describing their latest work. The instructions and format are shown below. Applications for travel grants must be accompanied by an abstract.
- All abstracts will be displayed as **POSTER PRESENTATIONS** throughout the meeting. As far as possible (depending on the number of abstracts submitted and the quality of research described) the first author will be invited to give a **Short 15 min, 10 min or 3 min Oral Presentation** describing the key points from their Poster. These Oral Poster Sessions are the backbone of the meeting and thus they will begin immediately after the opening lectures on the first afternoon.
- **All Abstracts** must be accompanied by a completed Registration Form **with payment**. Abstracts received after the above deadline cannot be guaranteed to be accepted.

### Instructions for preparation of abstracts (see Sample)

- **ALL ABSTRACTS** will be reproduced Camera Ready in the Symposium Proceedings. The abstract should be understandable to an inter-disciplinary readership therefore the “**Introduction**” and “**References**” sections of the Abstract are particularly important. The Symposium Proceedings will be published as of the Conference date.

**One page of A4 text only. font : size 12 (Times), single spacing**

- 1. Authors, Presenting Author first**
- 2. INTRODUCTION** (Headings Bold Caps)
- 3. RESULTS AND DISCUSSION**
- 4. REFERENCES** Font size 12 or 10 up to 5 key references

## NOVEL DES-POLYACETAL BLOCK COPOLYMERS FOR THE TREATMENT OF PROSTATE AND BREAST CANCER

V. Giménez, P. Ruíz, F. Canal and M. J. Vicent.

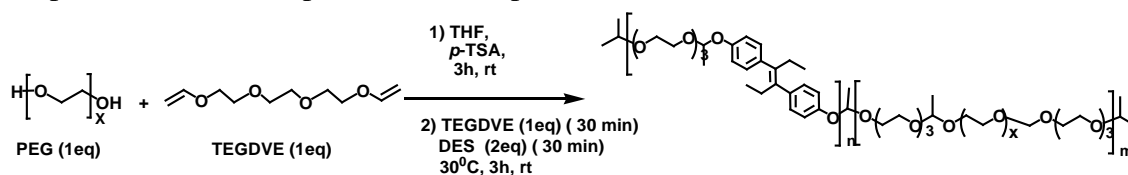
Polymer Therapeutics Lab., Centro de Investigación Príncipe Felipe (CIPF) Av. Autopista del Saler 16, E-46012 Valencia, Spain.

### INTRODUCTION

The development of better polymeric carriers is an ongoing challenge to achieve second generation polymer therapeutics. There is a need to develop biodegradable polymeric carriers that can better exploit EPR-mediated tumour targeting.<sup>1</sup> PEG–polyacetals that show pH-dependent degradation<sup>2</sup> and dextrans<sup>3</sup> that are degraded by amylase might be two practical options for such carriers. Additionally, there is an urgent need to move away from heterogeneous, random-coiled, polymeric carriers towards better defined polymer structures. Within this context, we have previously designed pH-responsive terpolymers into which drug can be incorporated within the polymer backbone allowing controlled release on exposure to a decrease in pH. These linear DES-polyacetals are the first water-soluble anticancer polymeric drugs designed for acidic pH-triggered release of a drug incorporated into the polymer mainchain.<sup>4</sup> In order to obtain a second generation constructs with improved characteristics, such as, lower polydispersity or higher drug capacity novel block-*co*-polymers and hyperbranched systems have been selected as novel polyacetalic systems to be studied.

### RESULTS AND DISCUSSION

A novel DES-based block copolymer, DES-*co*-polyacetal-*b*-PEG-*co*-Polyacetal (Scheme 1), has been synthesised. PEG<sub>4000</sub> was chosen as the co-monomer diol to achieve a well-defined hydrophilic block increasing, consequently, the water solubility of a drug impaired by its lipophilicity. A 1:2 ratio of PEG:DES gave a block-*co*-polymer of greater DES loading than the previously described DES terpolymer (7 wt% and 4 wt%, respectively) and also a lower polydispersity (Mw/Mn=1.4 vs. Mw/Mn=1.8). <sup>1</sup>H-NMR confirmed the presence of two distinct sets of acetal peaks, which correspond to the two possible mainchain acetals.



**Scheme 1.** Synthetic scheme of DES-*co*-polyacetal-*b*-PEG-*co*-Polyacetal.

As expected, this block-*co*-polymer undergo pH-dependent degradation, with much faster rates of DES release at acidic pH, to liberate principally the bioactive trans-DES form. Preliminary studies examined the cytotoxicity of block-DES-polyacetal (Scheme 1) in comparison with free DES and terpolymer DES-polyacetal<sup>4</sup> against PC3 and LNCaP human prostate cancer cells lines and MCF-7 human breast cancer cell line. The block-*co*-polymer displayed greater cytotoxicity in all cases. This could be explained by the different conformation adopted in solution, the amphiphilic character of our block-*co*-polymer could result in a polymeric micelle formation. More studies are being done to elucidate this conformational behaviour.

### REFERENCES

1. F. Greco and M.J. Vicent. *Front. Biosci.* 2008, 13, 2744- 2756.
2. R. Tomlinson et al. *Macromolecules* 2002, 35, 473-480
3. D. Hreczuk-Hirst et al. *Int. J. Pharm.* 2001, 230, 57-663.
4. M J. Vicent et al. *J. Drug Targeting*, 2004, 12, 491-501.

## REGISTRATION

**PLEASE NOTE** that participation will be limited to 250 delegates. The last conference was heavily oversubscribed. Early registration is recommended to secure a place.

Registration should be made on the attached registration form and **must** be accompanied by the full payment.

**Cancellation Policy:** A refund of 80% will be made in case of cancellation before end March 2010 (a handling fee is charged). After this date no refunds will be made.

## APPLICATIONS FOR A TRAVEL GRANT

Young scientists or scientists without access to travel funds should indicate their intention to apply for a Travel Grant on the Registration Form and also send:

- A supporting letter from their PhD supervisor (students) or Head of Department (Young researchers)
- Only those applicants also submitting an Abstract will be considered for a travel grant.
- The number of Awards made will be dependent on the Sponsorship funds available and all successful applicants will be notified by beginning March 2010.
- It should be noted that request made without this documentation will not be considered and the organisers will only consider ONE application from any RESEARCH TEAM.

## ACCOMMODATION AND LOCAL ARRANGEMENTS

### Venue

All lectures and the Poster Session will take place at 'Centro de Investigación Príncipe Felipe', Av. Autopista del Saler 16 (Camino de las Moreras), E-46012, Valencia, Spain

The scientific program of the meeting will commence at ~ 12.30 p.m. on Monday 24th May 2010 and end at 5.30 p.m. on Wednesday 26th May 2010.

### Travel

The CIPF is located next to the famous "Ciudad de las Artes y las Ciencias" in Valencia (see <http://www.cipf.es/Ubicacion/?lang=en> for map)



## **By Air**

**Valencia International Airport** is served by low cost airlines from most of European cities. Most intercontinental flights arrive at Barcelona or Madrid in Spain and many other major European cities.

Travel from the airport to Valencia city center takes ~ 15 min by taxi (costs ~ 20€).

There is an Aero-bus from the airport to city center (tickets: €2.50) and also direct underground line connection. The metro station is at the ground floor of the regional flights terminal (tickets: €1.70) (see map at <http://www.metrovalencia.com>). The journey takes around 25 minutes.

Detailed information on travel to and airport can be found at <http://www.valencia-cityguide.com/tourist-information/transport/transport-from-the-airport-to-the-city.html>.

**Alicante International Airport** is also served by many flights from most European cities including low cost airlines such as Bmibaby or Easyjet. A taxi from Alicante Airport to the train station (cost ~15 €) is recommended. Then, Euromed train has to be taken from Alicante to Valencia (cost. ~30 €, 1.30 hours trip)

**Barcelona International Airport El Prat** is also served by many flights from most European cities including low cost airlines. A direct train from El Prat Airport to Barcelona Sans Train station, there the Euromed train has to be taken from Barcelona to Valencia (cost. ~50 €, 3 hours trip)

## **By Train**

There are trains every hour from Madrid (Atocha) or Barcelona (Sans Estación) Train Station to Valencia Estación del Norte. The journey time is 3.30 h from Madrid and 3 h from Barcelona (it is highly recommended to book and buy your train tickets in advance, electronic tickets available at <http://www.renfe.es>).

There are also trains every hour from Alicante train station to Valencia Estación del Norte (journey time ~ 1 h).

## **Weather**

Valencia in spring is very pleasant. It has a Mediterranean climate, which is mainly sunny and with temperatures usually between 20- 25 °C.

## **Accommodation**

There are many hotels within 10-15 minutes' walk of the conference (CIPF) all price ranges. Delegates are requested to book their own accommodation. Below are some suggestions. PLEASE book your accommodation early as possible as Valencia hosts many International events and rooms availability can be limited.

## **Suggested Hotels (see map)**



**These are some of the closest hotels surrounding the institute**

1. **NH Express Las Artes** 3\* Instituto Obrero de Valencia, 26, Valencia. Price: per room/night including breakfast from 75 €.
2. **Barceló Valencia** 4\* Av. Francia 11, Valencia. Price: per room/night including breakfast from 110 €.
3. **Tryp Oceanic** 4\* Pintor Maella 35, Valencia. Price: per room/night including breakfast from 90 €.

4. **Hotel Valencia Center** 4\* Avda. de Francia, s/n, Valencia. Price: per room/night including breakfast from 125 €
5. **Abba Acteón** 4\* Escultor Vicente Beltrán Grimal, 2, Valencia. Price: per room/night including breakfast from 95 €
6. **Confortel Aqua 4** 4\* Luis Garcia Berlanga 19-21, Valencia. Price: per room/night including breakfast from 105 €
7. **Holiday Inn Valencia** 4\* Paseo De La Alameda, 38, Valencia. Price: per room/night including breakfast from 90 €.
8. **Confortel Aqua 3** 3\* Menorca, S/N, Valencia. Price: per room/night including breakfast from 85 €
9. **Beatriz Rey Don Jaime** 4\* Avenida de Baleares 2, Valencia. Price: per room/night including breakfast from 90 €
10. **Hotel Husa Serrano** 3\* General Urrutia, 48, Valencia. Price: per room/night including breakfast from 75 €



**CIPF**

More hotel/hostel suggestions could be found at:

<http://www.valencia-cityguide.com/accommodation/hotels-accommodation.html>

## PROVISIONAL LIST OF SPEAKERS (further names to be added)

### Plenary Lectures

- **Lawrence Mayer** (Celator Pharmaceuticals, Canada) CombiPlex®: Anticancer drug combinations, preclinical development and clinical status
- **Alexander Kabanov** (University of Nebraska Medical Center, USA) Polymer genomics - 10 years on
- **Tony Ryan** (Sheffield University, UK) Making polymers swim
- **Robert J. Miller** (Genzyme, USA) Developing hyaluronan as functional polymer for treatment of osteoarthritis

### Invited Lectures

- **Harm-Anton Klok** (EPFL, Switzerland) Polymer conjugates containing coiled coils: Innovative linkers and innovative therapeutics
- **Nicholas A. Peppas** (The University of Texas at Austin, USA) Engineering design and molecular dynamics of mucoadhesives: Developing systems for targeting
- **Andreas Bernkop-Schnurch** (ThioMatrix, Austria) Thiomers for promotion of oral delivery
- **Eric Simanek** (Texas A & M University, USA) Optimising melamine dendrimers for drug delivery
- **Penny Bryant** (PolyTherics Inc., UK) Improved techniques for polymer-protein conjugation
- **Giuseppe Battaglia** (Sheffield University, UK) Polymersomes as possible theranostic strategy
- **Karel Ulbrich** (IMC, Czech Republic) Challenges for synthesis and characterisation of HPMA copolymers conjugates designed for combination therapy
- **Ronit Satchi-Fainaro** (Tel-Aviv University, Israel) Designing combination therapy for the treatment of cancer
- **Eduardo Fernandez-Megia** (Univ Santiago de Compostela, Spain) Synthesis and biomedical applications of clicked GATG dendrimers
- **Peter C. Griffiths** (Cardiff University, UK) Physico-chemical techniques for analysis of structure and rates of diffusion in biological systems
- **Rudolf Zentel** (Univ. Mainz, Germany) Developing HPMA copolymers for PET imaging.
- **Doron Shabat** (Tel Aviv University, Israel) Self-immolative polymers -novel linkers and delivery systems
- **Robert Fram** (Mersana Therapeutics, USA) XMT-1001, a novel polymeric camptothecin pro-drug in clinical development for patients with advanced cancer
- **Kai Licha** (Mivenion, Germany) Novel approaches towards polymeric imaging probes for molecular diagnostics
- **Twan Lammers** (Utrecht University, The Netherlands) Image guided polymer conjugates for radiochemotherapy
- **Hamid Ghandehari** (University of Utah, USA) Dendritic biomaterials for oral delivery of chemotherapeutics
- **David Thomas** (Cardiff University, UK) Polymer therapeutics for wound repair
- **Elena V. Batrakova** (University of Nebraska Medical Center, USA) Polymer therapeutics for treatment of Parkinson's Disease

### Discussion leaders will include

- Ruth Duncan (Cardiff Univ., UK)
- Cameron Alexander (Univ. Nottingham, UK)
- Steve Brocchini (London School Pharmacy, UK)
- Francesco Veronese (Padua Univ., Italy)
- Rogerio Gaspar (Univ. Lisbon, Portugal)
- Julio San Roman (CSIC, Spain)
- Jack Singer (CTI, USA)
- Pradeep Dhal (Genzyme, USA)
- Rodrigo J. Carbajo (CIPF, Spain)
- Antonio Pineda-Lucena (CIPF, Spain)
- Francesca Greco (Univ. Reading, UK)

## 8th International Symposium on Polymer Therapeutics:

### From Laboratory to Clinical Practice

**Monday 24th May – Wednesday 26th May 2010**

- Participation is limited to 250 delegates and registration **can only be accepted** with full payment. No refunds will be made after March 31st 2010.
- Abstract Submission **must be** accompanied by *registration* and *payment*
- All recipients of Travel Grant Awards will be notified by February and will be paid by **cheque at The Symposium**

The registration fee includes a copy of the Symposium Proceedings, tea/coffee, the Welcoming Dinner on Monday evening and lunches on Tuesday and Wednesday.

*Please tick*

I wish to attend to the Welcoming Dinner on Monday 24<sup>th</sup> May

Registration Fee	Before 15th March	After 15th March
Industry	650 €	750 €
Academic	550 €	650 €
Postgraduate Student <sup>†</sup>	175 €	250 €


<sup>†</sup> Postgraduate student applications must be supported by letter from their supervisor confirming student status

<sup>†</sup> I wish to be considered for a **Travel Grant Award** and enclose an **Abstract, Supporting Letter from my Supervisor and/or Head of Department**, and the **Registration Fee**

**Please Print or Type**

**Name:**

**Address:**

**Passport number:**

**Please indicate University/Industry VAT number:**

**Tel:**

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**Amount paid**

€

**Form of payment:** All payments must be made by **bank transfer**. Bank account in **BANCAJA**.

**Concept:** 8<sup>th</sup> Int. Symp. Polymer Therapeutics (person name)

**Bank Transfer:** 2077-0024-04-3103006610

**International Bank Transfer. IBAN:** ES56; **Swift code:** CVALESVVXXX

**Account Number:** 2077-0024-04-3103006610

Signed .....

Date .....

**Please send registration form and proof of bank transfer to:**

Dr María J. Vicent,

Polymer Therapeutics Lab. 8<sup>th</sup> ISPT: LtoC.

Centro de Investigación Príncipe Felipe

Av. Autopista del Saler 16

E-46012 Valencia, Spain

Fax: +34963289701 or E-mail: [mjvicent@cipf.es](mailto:mjvicent@cipf.es)