

# Carbohydrates in Portugal

## The past, the present and the future....

### The Portuguese Chemical Society Carbohydrate Group

**Amélia Pilar Rauter**

Centro de Química Estrutural, Faculdade  
de Ciências, Universidade de Lisboa

**17-01-23**





**It all started  
with a dream.....**

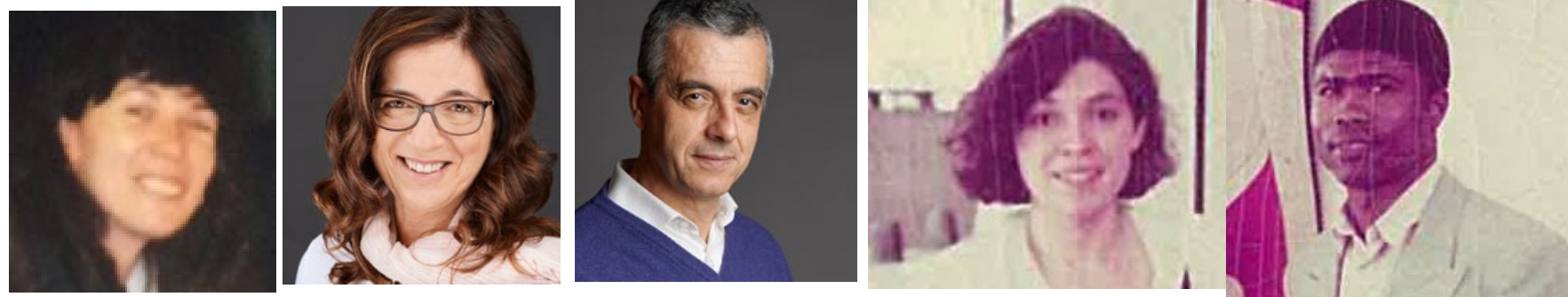
**and the dream came truth....**

**Institut für Organische Chemie, Technische Universität  
Graz Austria, 1978**

The 7th of May 1993



O Dia dos Glúcidos  
La Journée des Glucides  
Carbohydrates' Day



Meeting for the establishment of the Portuguese Chemical Society

**Carbohydrate Chemistry Group** with the signature of 40 future members

**1994**

*Synthesis of C-disaccharides, new tools in glycobiology*

Prof. Pierre Sinaÿ,

École Normale Supérieure, Paris



**1995**

**1<sup>st</sup> International Meeting of the Portuguese  
Carbohydrate Chemistry Group (Glupor 1)**

Fundação Calouste Gulbenkian, Lisboa

26 - 30 September

Chaired by Amelia Pilar Rauter





## Grupo da Química dos Glúcidos

1st. International Meeting of the Portuguese  
Carbohydrate Chemistry Group



Lisbon, Portugal  
26-30 September, 1995  
Fundação Calouste Gulbenkian



UNIVERSIDADE  
DE LISBOA  
FACULDADE  
DE CIÊNCIAS



SOCIEDADE  
PORTUGUESA  
DE QUÍMICA

Informations: Dr. A. P. Rauter, Departamento de Química e  
Bioquímica, Faculdade de Ciências, Universidade de Lisboa, Ed.  
C1-9,  
Campo Grande, 1700 Lisboa, Portugal  
Fax: 351-1-353 69 85 or 351-1-759 94 04

# 1<sup>st</sup> International Meeting of the Portuguese Carbohydrate Chemistry Group (Glupor 1)

**113 participants**

**14 Plenary lectures**

**12 Invited lectures**

**9 Oral communications**

**38 Poster presentations**

**Argentine, Brasil,**

**Canada, Costa Rica, France,**

**Germany, Italy, Japan,**

**Portugal, Spain, Sweden,**

**Switzerland, The**

**Netherlands, United Kingdom**



# 1st Iberian Carbohydrate Meeting



**Aveiro**

**September 1999**

**Chaired by Manuel Coimbra**

**Juan Carlos Palacios**

**Amélia Pilar Rauter**



# 1st Iberian Carbohydrate Meeting



**Aveiro**

**September 1999**



# 1999 Glupor 3 and 1<sup>st</sup> Iberian Carbohydrate Meeting

J. Fuentes

J. Fernandez-Bolaños

M. Martín-Lomas

S. Penadés

Gomez-Guillén

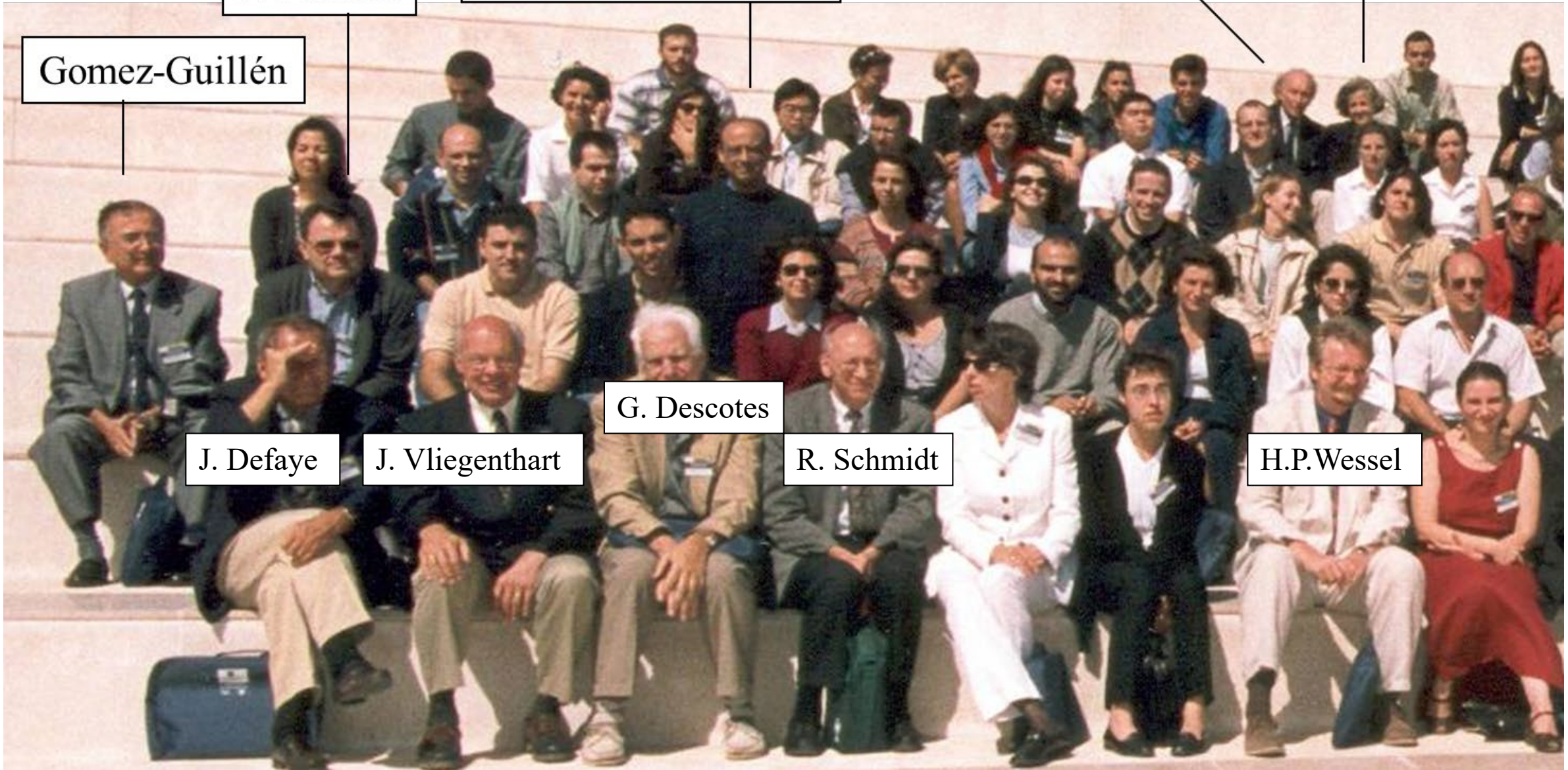
G. Descotes

J. Defaye

J. Vliegenthart

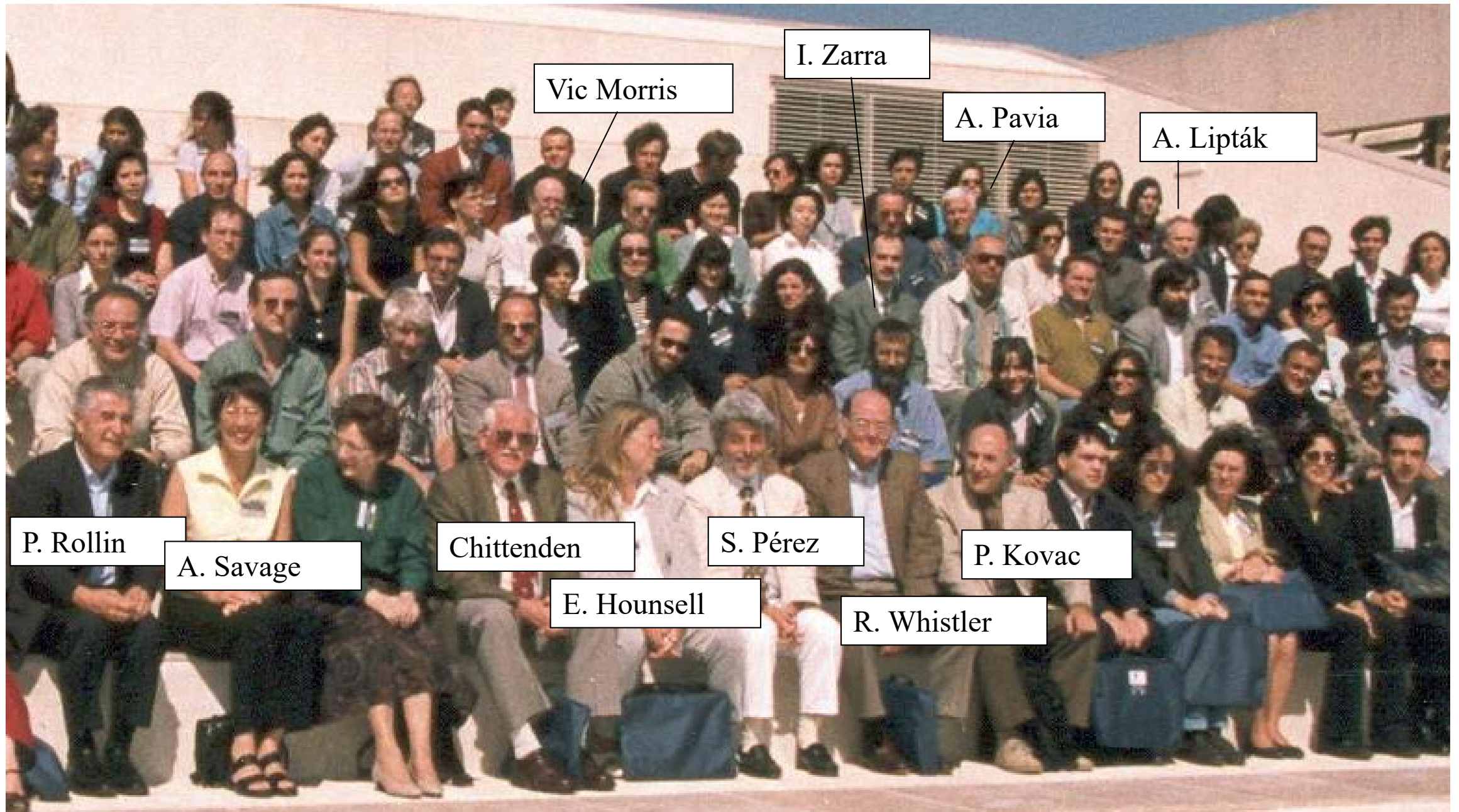
R. Schmidt

H.P.Wessel





# 1999 Glupor 3 and 1<sup>st</sup> Iberian Carbohydrate Meeting



Vic Morris

I. Zarra

A. Pavia

A. Lipták

P. Rollin

A. Savage

Chittenden

S. Pérez

P. Kovac

E. Hounsell

R. Whistler



S. Castellón

A. Pavia

J. García Fernández

C. Mellet Ortiz

J. Marco Contelles

A. Vasella

M. Monteiro

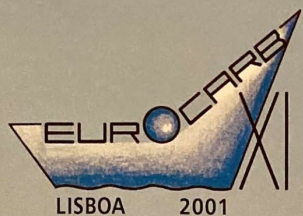
M. Mathlouthi

D. Horton

P. Garegg

A. Rauter

# 11<sup>th</sup> EUROPEAN CARBOHYDRATE SYMPOSIUM



Faculdade de Ciências da Universidade de Lisboa

Campo Grande | Lisboa | Portugal

September 2 - 7 2001

Topics focused on:

SYNTHESIS AND COMBINATORIAL CHEMISTRY  
STRUCTURE AND ANALYSIS  
BIOCHEMISTRY, BIOLOGY AND MEDICINAL CHEMISTRY  
BIOTECHNOLOGY AND INDUSTRY

VACCINES  
IMMUNE INFLAMMATORY RESPONSE  
DEVELOPMENT OF THERAPEUTIC SUBSTANCES  
FOOD APPLICATIONS  
WOOD CHEMISTRY  
PAPER AND FIBER BIOTECHNOLOGY

Symposium Secretariat

Ms. Helena Weinstein  
Email: [weinstein@fp.pt](mailto:weinstein@fp.pt)  
Phone: +351 21 4849779  
Fax: +351 21 4823140

Scientific Secretariat

Ms. Maria Leonor Rodrigues  
Email: [eurocarbxi@fc.ul.pt](mailto:eurocarbxi@fc.ul.pt)  
Phone: +351 21 7500894  
Fax: +351 21 7500892

Deadlines:

Early Registration	May 15, 2001
Abstract Submission	May 15, 2001
Accommodation	May 15, 2001
Social Programme	May 15, 2001

Webpage: <http://eurocarbxi.fc.ul.pt>

Additional information and application forms can be downloaded from the Webpage

The SPQ Carbohydrate Chemistry Group  
national representation at the  
European Carbohydrate Organisation  
was achieved in 1996

## XIth European Carbohydrate Symposium

### (EUROCARB XI) Faculdade de Ciências,

Universidade de Lisboa, 2001

Funded under EU FP5-LIFE QUALITY Program

(Grant agreement ID: QLK3-CT-2001-30035)

**617 participants, 13 plenary lectures, 55 invited lectures, 58 oral communications, 301 poster presentations**

Argentina, Australia, Austria, Belgium, Canada, Czech Republic, Cuba, Croatia, Denmark, Egypt, France, Germany, Hungary, Ireland, Japan, Israel, Italy, Korea, Norway, Poland, Russia, Slovakia, Sweden, Taiwan, The Netherlands, Ukraine, United Kingdom, USA, Uzbekistan Republic



# Glupor 5

07-10<sup>th</sup> September 2003 Covilhã



Coimbra

6<sup>TH</sup>

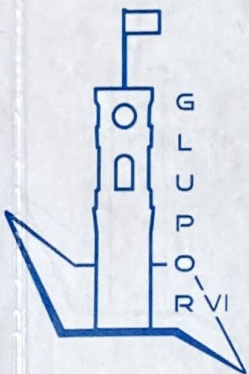
INTERNATIONAL MEETING  
OF THE PORTUGUESE  
CARBOHYDRATE GROUP

3<sup>RD</sup>

IBERIAN  
CARBOHYDRATE  
MEETING

11-15 SEPTEMBER 2005

HOTEL D. LUIS - COIMBRA - PORTUGAL



IV IBERIAN CARBOHYDRATE MEETING  
IX JORNADAS DE CARBOHIDRATOS  
10-12 September 2008, Santiago de Compostela, Spain





**CORM V**  
Lisbon - Portugal  
FCUL 20-23 JANUARY 2009



Carbohydrates as Organic Raw Materials  
Building a Sustainable Future



# BOOK OF ABSTRACTS

**CORM V** 20-23 January 2009  
Faculty of Sciences I University of Lisbon  
PORTUGAL

## 356 participants, 32 Invited Lectures, 16 Oral communications, 63 poster presentations

Austria, Belgium, Brasil, Canada, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Norway, Slovakia, Spain, Switzerland, The Netherlands, United kingdom

*Südzucker, Dionex (Germany), Fermentec (Brasil), Glycom A/S (Denmark), Hoffmann-La Roche (Switzerland) L'Oréal, Roquette (France)*

TOPICS IN CURRENT CHEMISTRY

294

Volume Editors A.P. Rauter • P. Vogel • Y. Queneau

### Carbohydrates in Sustainable Development I

Renewable Resources for Chemistry and Biotechnology

Springer

TOPICS IN CURRENT CHEMISTRY

295

Volume Editors A.P. Rauter • P. Vogel • Y. Queneau

### Carbohydrates in Sustainable Development II

A Mine for Functional Molecules and Materials

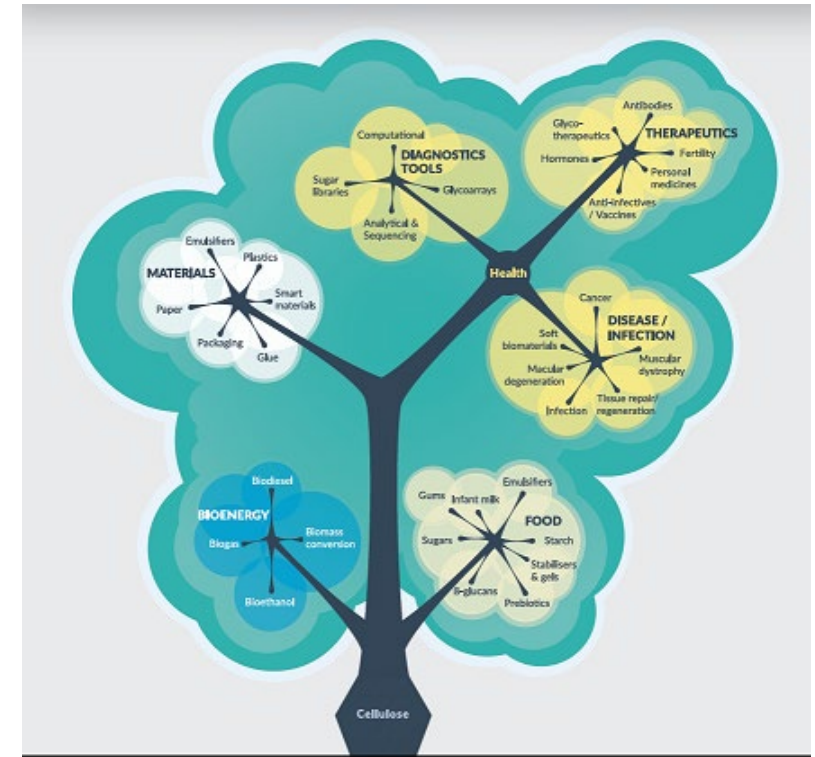
Springer





**EGSF Centers of Excellence  
from Portugal:  
Carbohydrate Chemistry Lab  
FCUL – Amelia P. Rauter  
Glyciology lab ITQB – Julia  
Costa**

- A road map for Glycoscience in Europe (2015)



- Rauter – Steering Committee member and the Executive for the EGSF Interest Group Glycochemistry
- Glycobiology and Glycochemistry course (starting 2015)
- 2nd Euroglycoforum Steering Committee Meeting (22-23 February 2010)
- Glycosciences in the International Year of Chemistry – Applications to human health and disease (8-10 September 2011)



# GLYCOBIOLOGY & GLYCOCHEMISTRY INTERNATIONAL E-LEARNING COURSE

**Coordination: Paula Videira (NMS/FCM, UNL); Amélia Pilar Rauter (CiênciasULisboa); Irene Tomé (FCSH/UNL)**



**2015 - 2021**

**Post-graduation course in  
Glycosciences (20 ECTS)**

## PROGRAM

**Module 1 - Carbohydrate Structure and Nomenclature**

**Module 2 - Biosynthesis, Metabolism of Carbohydrates**

**Module 3 - Glycan-binding Proteins**

**Module 4 - Glycans in Human Physiological Mechanisms**

**Module 5 - Glycans in Human Pathology**

**Module 6 - Methods in Glycosciences**

**Module 7 - Applications of Glycosciences**

**Module 8 - Glycochemistry in Medicine**

**Module 9 - Biosynthesis of disease related carbohydrate antigens**

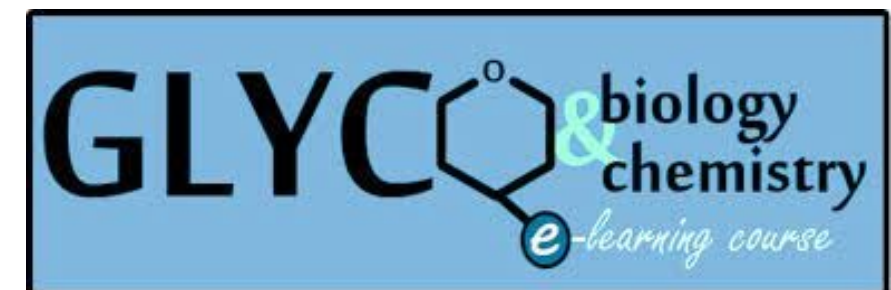
**Module 10- Glycomics**

## FUNDING

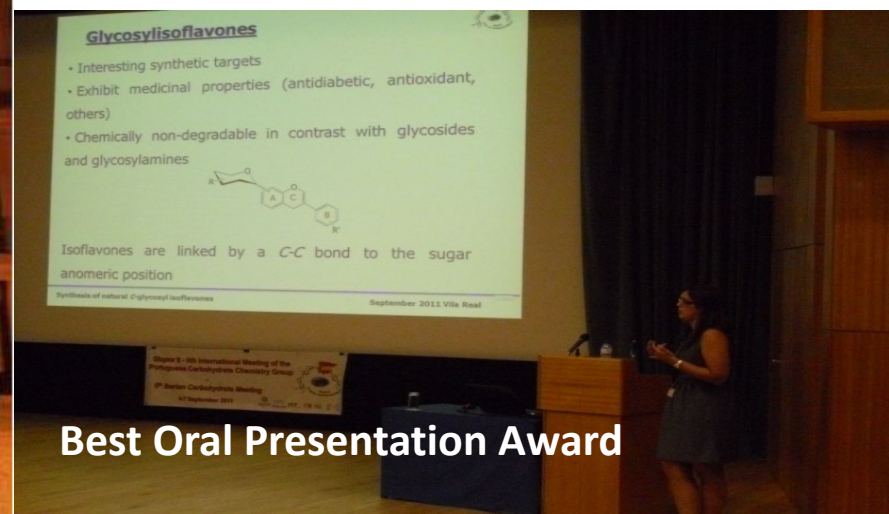
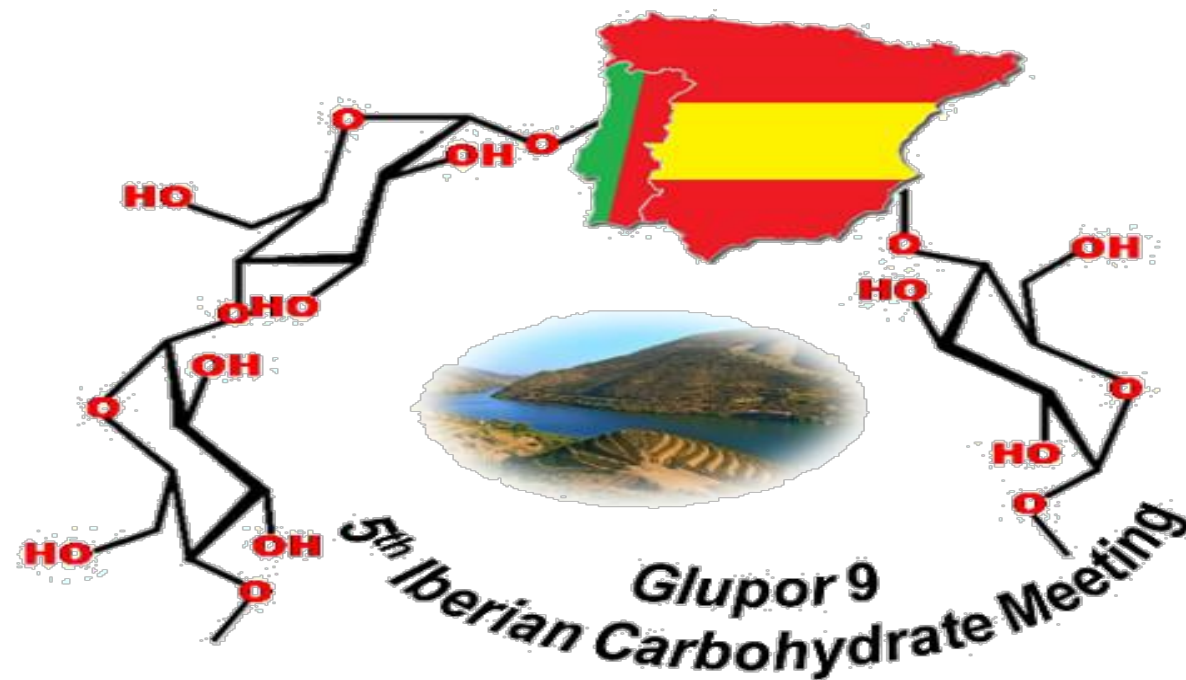
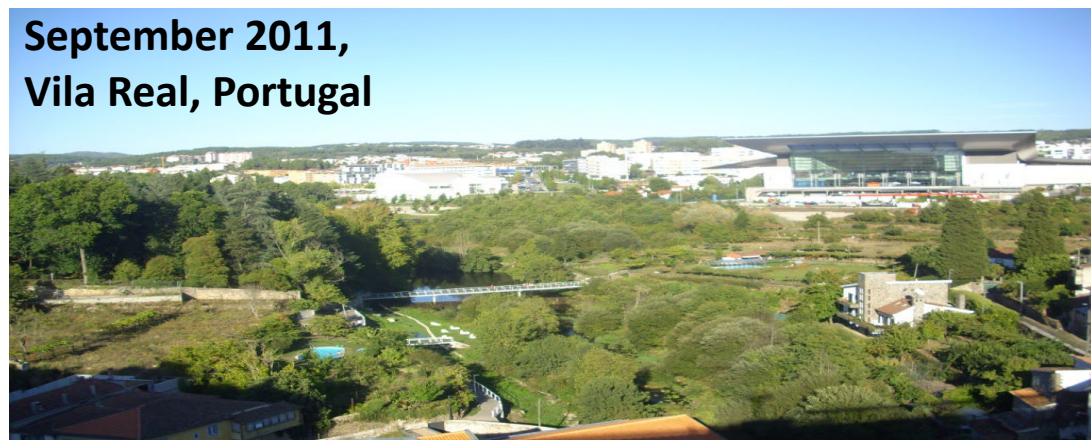
**Euroglycoforum**

**FLAD**

**French Embassy**



September 2011,  
Vila Real, Portugal





# 6<sup>TH</sup> SPANISH-PORTUGUESE-JAPANESE ORGANIC CHEMISTRY SYMPOSIUM

18-20 July 2012, Ciências ULisboa





# EUROCARB 17

**17<sup>th</sup> European Carbohydrate Symposium**

Tel-Aviv, Israel, July 7-11, 2013



May 2014



# Glycobiology and glycochemistry: Applications to human health and disease

26 – 30 May 2014 | Lisbon, Portugal





6<sup>th</sup> - 10<sup>th</sup> SEPTEMBER 2015  
VISEU - PORTUGAL



11<sup>th</sup> International Meeting  
of the Portuguese Carbohydrate  
Chemistry Group

6<sup>th</sup> Iberian Carbohydrate Meeting



SOCIEDADE PORTUGUESA DE QUÍMICA



The SPQ Carbohydrate Chemistry Group national representation at the International Carbohydrate Organisation was achieved in 1997.

Portugal has participated in all meetings since then and has given the following major contributions:

- Proposed the creation of the **ICO Young Researcher Award**, which started in 2014 (27th International Carbohydrate Symposium, India) and continued since then.

Ceremony to award  
Dr Daniel Kracher with the  
ICO Young Researcher Award 2020



- Organized the 29th International Carbohydrate Symposium in 2018.



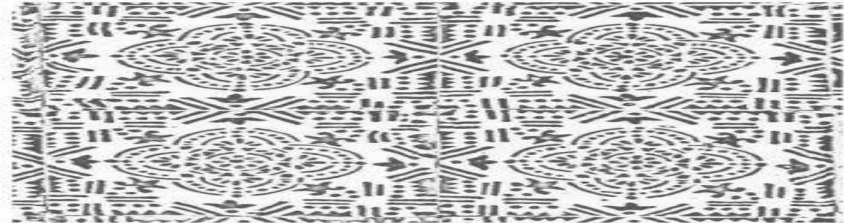


Amélia P. Rauter\*, Nikolay Nifantiev and Francesco Nicotra

ICS-29: The 29th International Carbohydrate Symposium

<https://doi.org/10.1515/pac-2019-0815>

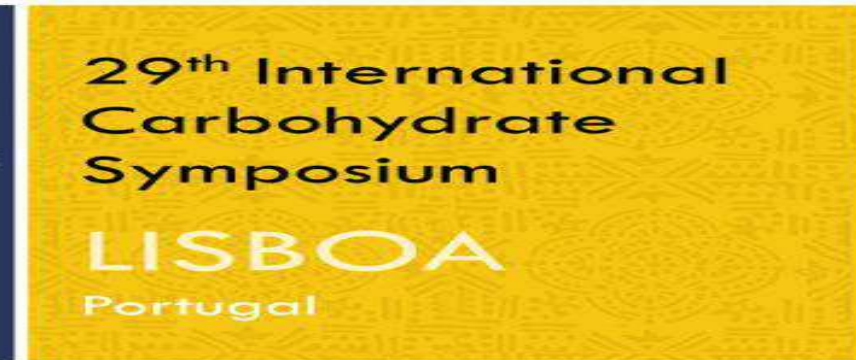
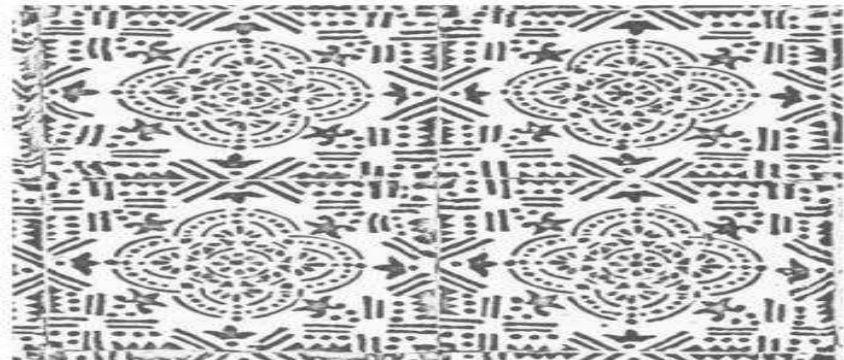
The carbohydrate community met at the Universidade de Lisboa and at its Faculdade de Ciências, in Portugal, for the 29th International Carbohydrate Symposium, held from the 15th to the 19th of July 2019, an event under the auspices of the International Carbohydrate Organisation. **In issues 7 and 9 of Pure and Applied Chemistry volume 91 (2019), papers covering glycoscience topics discussed in this meeting are presented.**



ICS 2018

29<sup>th</sup> International Carbohydrate Symposium  
LISBOA  
Portugal

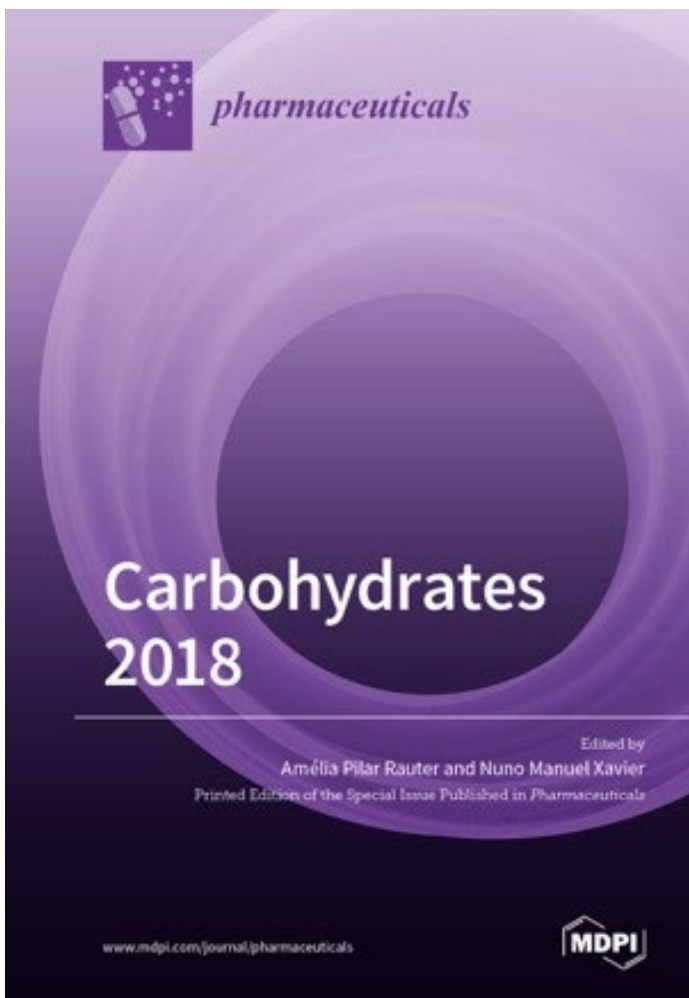




**ICS Iberian Day** – 13 Invited lectures; 6 Oral communications; 17 Flash communications  
**ICS Young Researcher Workshop** – 2 Plenary lectures; 25 Flash communications  
**International Carbohydrate Symposium** – Plenary session + 9 parallel sessions covering:  
21 Plenary lectures including the 2 Award lectures;  
61 Invited Lectures; 134 Oral communications; 31 Flash communications; 338 Posters  
850 Participants

Poster Awards	Oral Communications Awards	Flash Presentation Awards
Pharmaceuticals Poster Prize	Tokyo Chemical Industry Oral Communication Prize	Tokyo Chemical Industry Flash Presentation Prize
Carbohydrate Polymers Poster Prize	J. Pereira da Cruz Innovation Award	Megazyme Prize for the Best Flash Presentation
	CarboSynth Oral Communication Prize	2 World Scientific Flash Presentation Prizes

## Edition of Books in carbohydrate topics

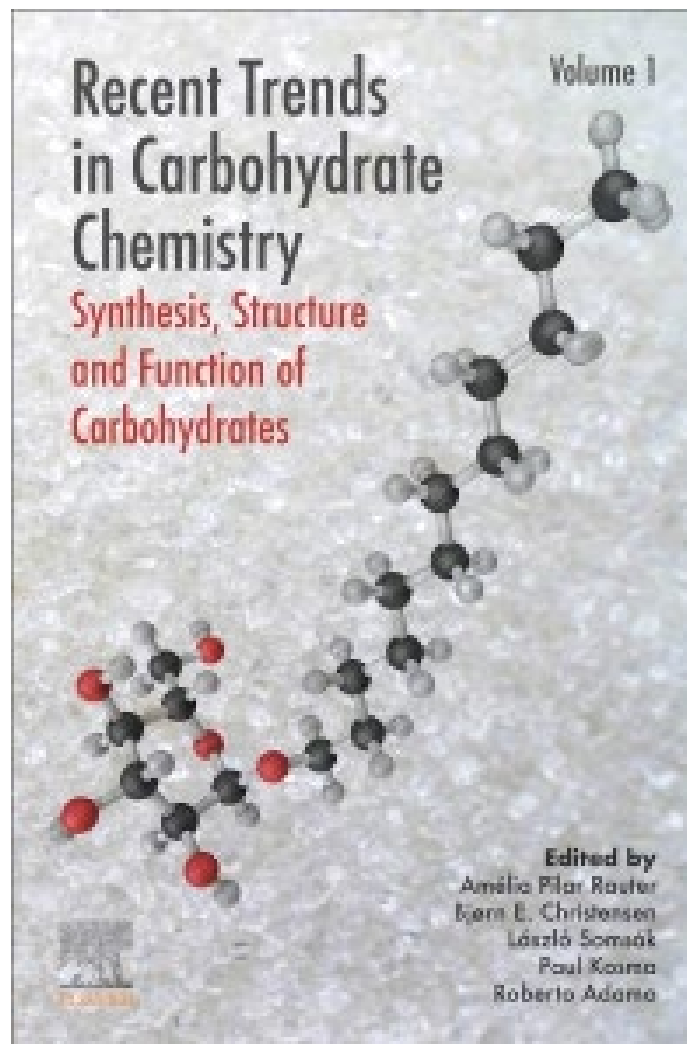


Open Access

ISBN 978-3-03928-316-3 (Pbk);

ISBN 978-3-03928-317-0 (PDF)

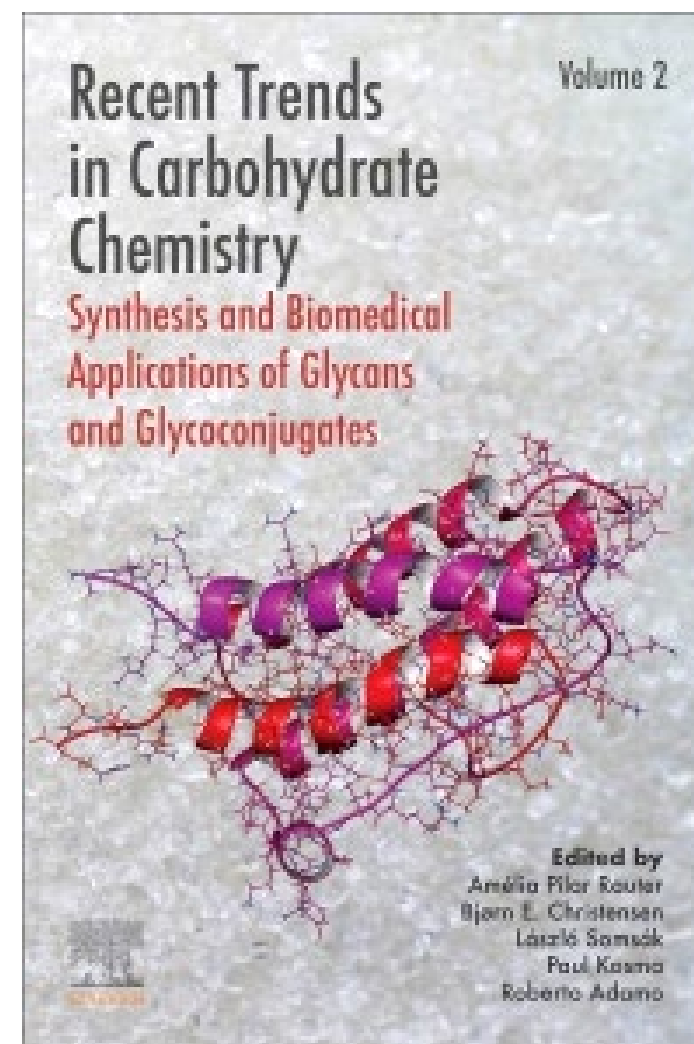
MDPI 2020



eBook ISBN: 9780128174685

Paperback ISBN: 9780128174678

Elsevier 2020



eBook ISBN: 9780128209554

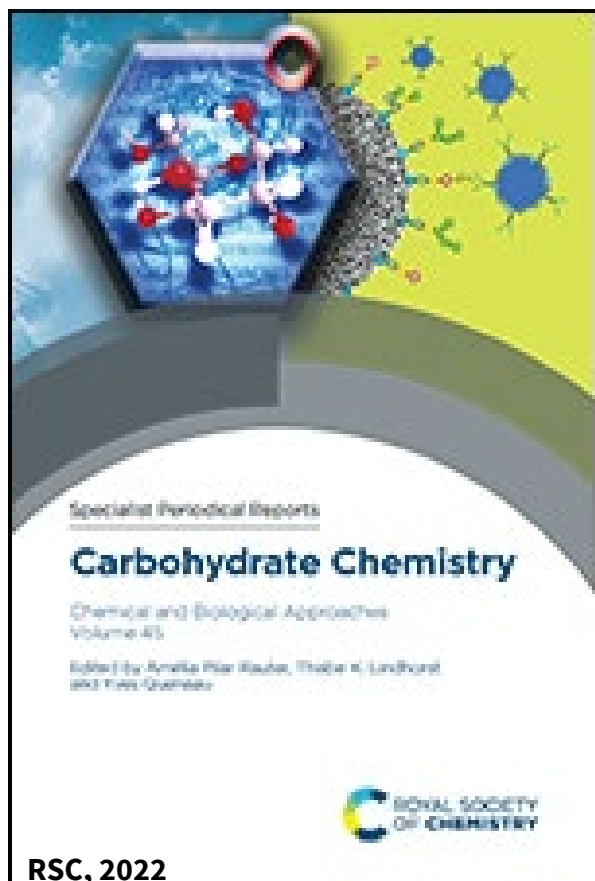
Paperback ISBN: 9780128209547

Elsevier 2020

# Edition of Books in Carbohydrate topics

The Book Series entitled:

**Carbohydrate Chemistry - Chemical and Biological Approaches**  
(relaunched in 2008 with this new title)



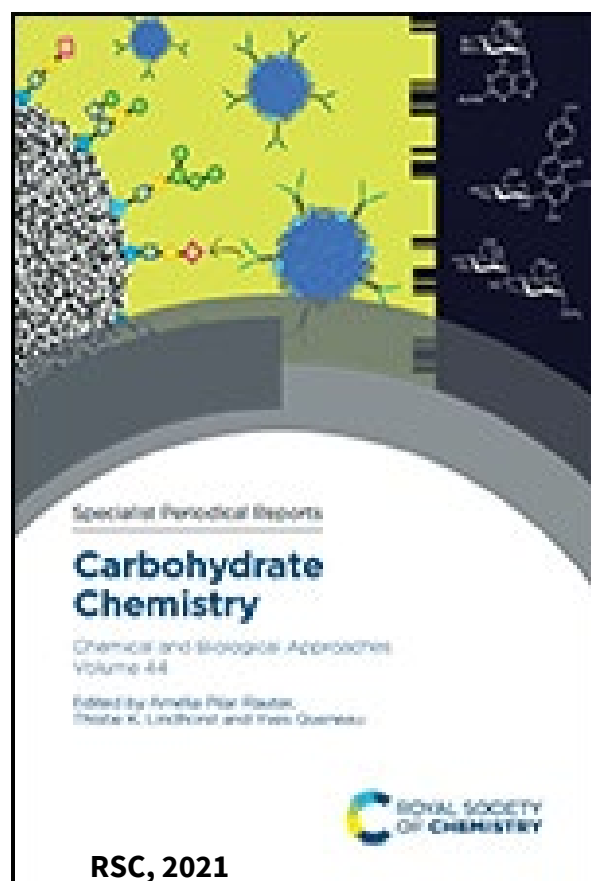
RSC, 2022

PDF eISBN

978-1-83916-453-8

ePub eISBN

978-1-83916-454-5



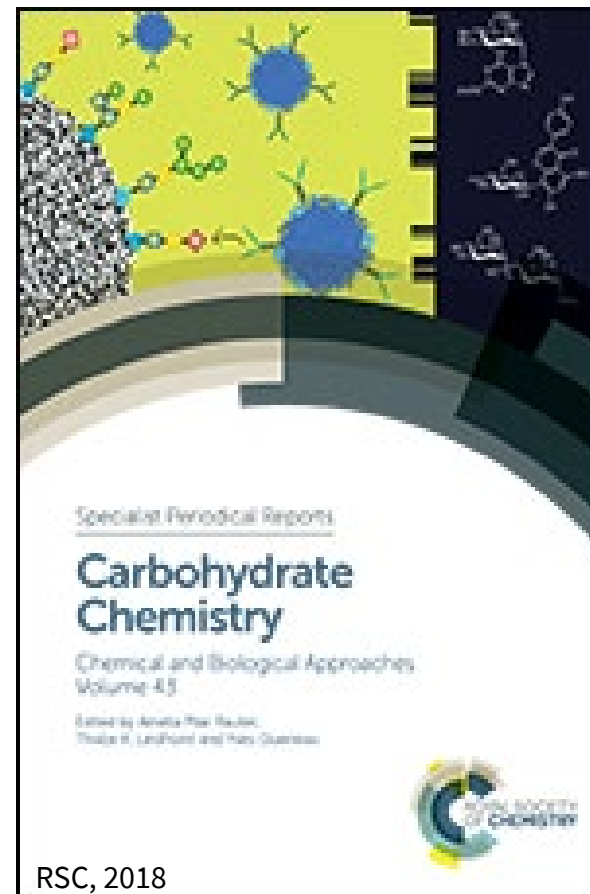
RSC, 2021

PDF eISBN

978-1-78801-386-4

ePub eISBN

978-1-78801-924-8



RSC, 2018

PDF eISBN

978-1-78801-064-1

EPUB eISBN

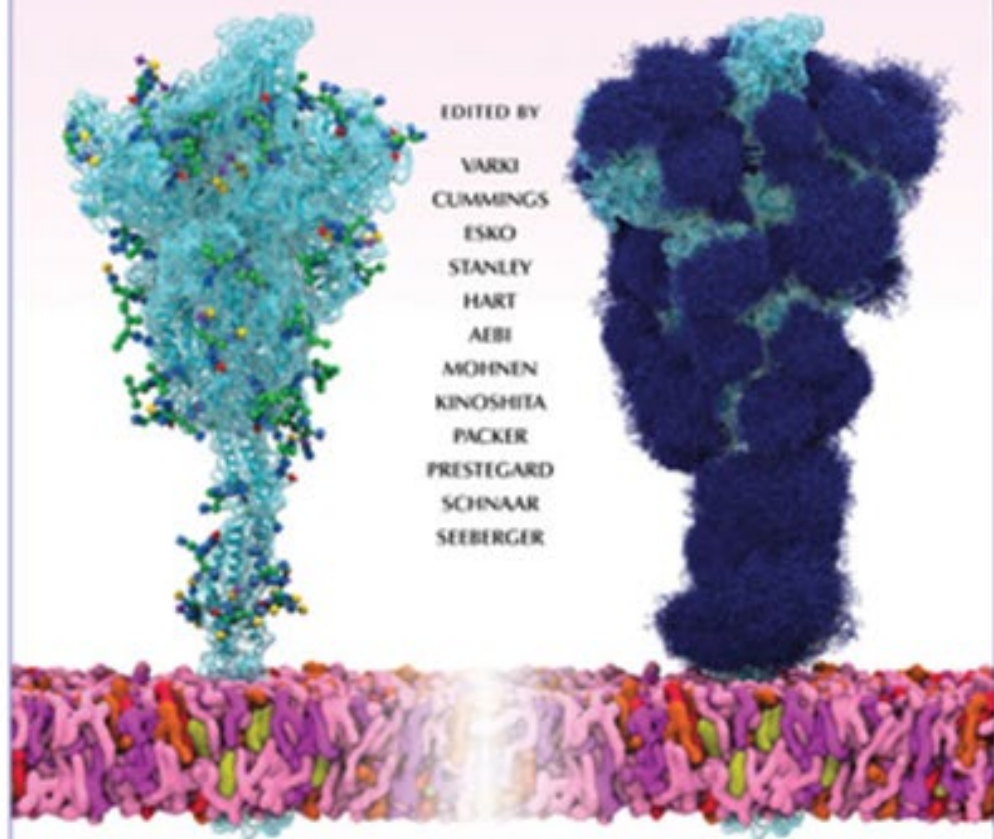
978-1-78801-409-0

# Essentials of Glycobiology

FOURTH EDITION

EDITED BY

VARKI  
CUMMINGS  
ESKO  
STANLEY  
HART  
AEBI  
MOHLEN  
KINOSHITA  
PACKER  
PRESTEGARD  
SCHNAAR  
SEEBERGER



47

## Glycosylation Changes in Cancer

Susan L. Bellis, Celso A. Reis, Ajit Varki, Reiji Kannagi,  
and Pamela Stanley

HISTORICAL BACKGROUND, 431

GLYCOSYLATION CHANGES IN CANCER ARE NONRANDOM, 432

ALTERED BRANCHING AND FUCOSYLATION OF N-GLYCANS, 432

ALTERED MUCIN EXPRESSION AND TRUNCATED O-GLYCANS, 433

ALTERED SIALIC ACID EXPRESSION, 435

INCREASED SELECTIN LIGAND EXPRESSION, 436

ALTERED EXPRESSION OF BLOOD GROUPS, 437

ALTERED EXPRESSION OF GLYCOSPHINGOLIPIDS, 437

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CHANGES IN HYALURONAN, 438

CHANGES IN SULFATED GLYCOSAMINOGLYCANS, 438

CHANGES IN CYTOPLASMIC AND NUCLEAR O-GlcNAc, 440

MECHANISMS OF ALTERED GLYCAN EXPRESSION, 441

GLYCAN CHANGES IN CANCER STEM CELLS AND DURING EMT, 443

CLINICAL SIGNIFICANCE, 443

ACKNOWLEDGMENTS, 443

FURTHER READING, 443

Altered glycosylation is a universal feature of cancer cells, and certain glycans are well-known markers of tumor progression. This chapter discusses glycan biosynthetic pathways that are altered in cancer cells; correlations between altered glycosylation, diagnosis, and clinical prognosis; the genetic bases of some of these changes; and the functional role of glycans in cancer biology and pathogenesis.

### HISTORICAL BACKGROUND

The earliest evidence of altered glycosylation as a hallmark of cancer was that some plant lectins show enhanced binding and agglutination of tumor cells. Next, it was found that transformation of cultured cells is frequently accompanied by a general increase in the size of glycopeptides of cell-surface glycoproteins. With the advent of monoclonal antibody technology, many "tumor-

## Some european projects....



D3I4AD (Diagnostic and Drug Discovery Initiative for Alzheimer's Disease, Industry-Academia Partnerships and Pathways (IAPP), FP7-PEOPLE-2013-IAPP, grant agreement 612347 2014-2018



*Diagnostic  
and  
Drug Discovery  
Initiative  
for  
Alzheimer's Disease*

PERSSILAA (Personalised ICT Supported Service for Independent Living and Active Ageing, FP7-ICT-2013-10, grant agreement 610359 2013-2016



Synthèse de molécules biologiquement importantes á partir de glucides, [FP2-SCIENCE - Programme](#) plan (EEC) to stimulate the international cooperation and interchange needed by European research scientists (SCIENCE), Grant agreement ID: SC1\*0723 1992-1994

## Carbohydrates in Portugal in the near future....



**BrownBin - Household food waste new life under sustainable cities: a feasibility study (2022-2023)**

SMART-ER Seed Projects, The European Consortium of Innovative Universities (ECIU)

Coordination – Manuel A. Coimbra, University of Aveiro, Portugal

Other participants: Kaunas University of Technology (KTU), Lithuania; Universitat Autònoma de Barcelona (UAB), Spain; University of Trento (UNITN), Italy.



# Carbohydrates in Portugal in the near future....



**INOVFARMER**  
Better fruit from smart business



**Improving Mediterranean supply chain through innovative agro-food business models to strengthen small-scale farmers competitiveness, using prickly pear and fig as case study**

**Leader: Dulcineia Ferreira Wessel, Polytechnic Institute of Viseu**



INOVFARMER.MED  
Grant Agreement No:1733

**Starting of the project 1st May 2022**

**Duration foreseen 36 months**

**Overall budget 892 543 €**

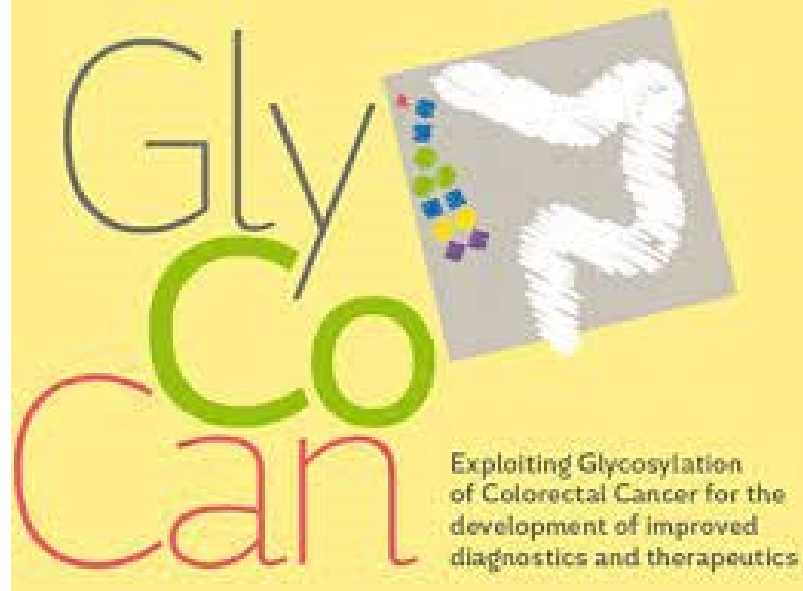
1 IPV (Leader)	Dulcineia Wessel	Instituto Politécnico de Viseu	Portugal
2 UA	Manuel A. Coimbra	Universidade de Aveiro	Portugal
3 Chatron	Carlos Brandão	Chatron Lda	Portugal
4 F4S	Ricardo Chagas	Food4Sustainability	Portugal
5 ENSV	Ben-Mahdi Meriem Hind	Ecole Nationale Supérieure Vétérinaire	Algeria
6 INRAE	Carine Le Bourvellec	Institut National de la Recherche Agronomique - Centre de recherche Provence Alpes Côte d'Azur	France
7 ACICT	Essam Abdel-Mawla	Arab Company for Information and Communication Technology (ACICT)	Egypt
8 TA	Pedro Costa	Pais da Costa & Esteves Pereira – Consultoria Lda	Portugal
9 UIZ	Aissam El Finiti	Universidade de Ibnou Zoh	Morocco



**INOVFARMER**

Better fruit from smart business

**9 Partners  
5 Countries**



**Marie Curie International Training Network**

**GLYCOMICS A NEW FRONTIER IN DRUG DELIVERY**



**European joint program on rare diseases**



**Paula Videira, FCT-UNL**



**ITN – Towards a system biology approach to gastric cancer**

**December 2022 to November 2025**

**GLYCOTwinning**

**Twinning Action: Building NETworks to Excel in Glycoscience**



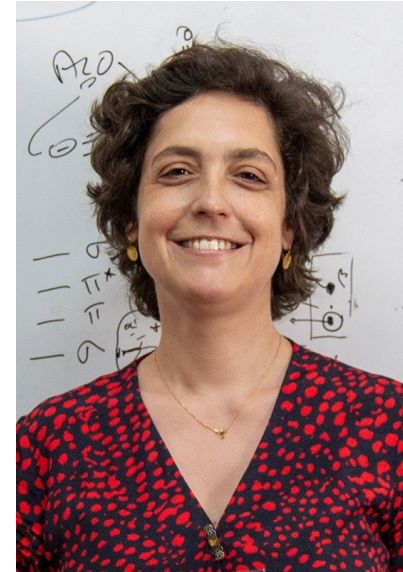
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n° 101079417 (GLYCOTwinning)

## Innogly Cost Action

Biocatalytic synthesis of oligoarabinosides for the study of drug targets and development of novel anti-tuberculosis drugs - **FCT Project**  
PTDC/BIA-BQM/4056/2020, 2021-2024

# FCT

Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



**Rita Ventura, ITQB**



Nuno Manuel Xavier  
Centro de Química Estrutural,  
Faculdade de Ciências, Universidade de Lisboa

Awarded a grant within and **Individual Call to Scientific Employment Stimulus** by the Portuguese Foundation for Science and Technology

Nucleos(t)ide and Carbohydrate Medicinal Chemistry, development of novel molecules of therapeutic interest towards **cancer** or **bacterial infections**.

**R&D Exploratory project** funded and focussed on the development of **novel antibacterial agents** based on **nucleoside and nucleotide analogs**.

**FCT**

Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

## One of our Young Researchers' project....

Development of antibiotic prodrugs towards membrane disruption in multidrug-resistant Gram-negative bacteria

CEEC Estimulo ao Emprego Cientifico Individual  
2022-2028

Ana Marta Matos  
Centro de Quimica Estrutural, Faculdade de Ciências, Universidade de Lisboa

ANTIMICROBIAL RESISTANCE





2023

## GLYCO e-learning course: From basic to applied Glycobiology



[» Home](#) [» Ensino](#)

Postgraduate Programme in Glyco e-learning course: From basic to applied Glycobiology

# GLYCOMICS A NEW FRONTIER IN DRUG DELIVERY

2012



**CDG & Allies – PPAIN**  
CDG & Allies - Professionals and Patient  
Associations International Network

## Creation of Congenital Disorders of Glycosylation Patient and Professional Association International Network

- **Clinicians, Researchers and  
Patients/Caregivers worldwide**

**World Conference on CDG – July 21-23, 2023, Caparica**



COST Action CA18132



FUNCTIONAL GLYCONANOMATERIALS FOR THE  
DEVELOPMENT OF DIAGNOSTICS AND TARGETED  
THERAPEUTIC PROBES

**1<sup>ST</sup> MEETING**  
COST ACTION CA18132  
CAPARICA  
18-20<sup>TH</sup> Nov.



2019-2023



**Celso Reis, IPATIMUP**

*Cancer glycobiology*

WG 1 - Glycan-based correlations in developmental and cancer biology.

Discussion and exchange of knowledge and know-how between INNOGLY participants will be focused on the concept that cell behaviour and processes that are indispensable for embryonic development are also essential for cancer progression.

- Investigate correlations between the glycosylation pattern changes in cancer and embryonic development.
- Promote the development of novel and improved biosensors for detection and characterization of glycan biomarkers, and identification of new targets of protein glycosylation.
- Promote the development of smart tools and innovative techniques for tracking glycosylation pathways.

WG Leader

**Prof Celso REIS**  
celsor@ipatimup.pt  
+351225570753

Ipatimup – Institute of Molecular  
Pathology and Immunology of  
the University of Porto  
Rua Júlio Amaral de Carvalho 45  
Porto  
Portugal  
Porto

# PACKAGING, FILMS AND NEXT GENERATION DISPLAYS



## RETHINKING

PACKAGING FOR CIRCULAR AND SUSTAINABLE FOOD SUPPLY CHAINS OF  
**THE FUTURE**  
[www.circul-a-bility.org](http://www.circul-a-bility.org)



Cláudia Nunes  
Management Committee Member  
(2020-2024)

Organization at University of Aveiro  
of a Training school - Life Cycle Assessment applied to food  
packaging

October 24-27<sup>th</sup> October 2022

# Next meetings...

XXIX

## PORTO CANCER MEETING

GLYCOSYLATION IN TUMOUR BIOLOGY  
AND ITS CLINICAL IMPLICATIONS:  
THE CANCER BITTERSWEET PORTRAIT



11 MAY 2023

9:00 – 9:20 Welcome Session

Manuel Sobrinho-Simões, Claudio Sunkel and Celso Reis

SESSION 1: GLYCOSYLATION IN CANCER

Chairs: Fátima Carneiro (CHSJ/FMUP/i3S) & Henrique Duarte (i3S)

9:20 – 9:50 Celso Reis, IPATIMUP/i3S University of Porto, Portugal

KEYNOTE TALK

9:50 – 10:30 Susan Bellis, Comprehensive Cancer Center, University of Alabama, USA

10h30-11h00 Coffee break

KEYNOTE TALK

Chairs: Catarina Gomes (i3S)

11:00 – 11:40 Sofie Groux-Degroote, Unité de Glycobiologie Structurale et Fonctionnelle, University of Lille, France

11:40 – 12:10 SELECTED TALKS

12:10 – 12:40 SPEED TALKS

12:40 – 14:15 Lunch break

SESSION 2: GLYCANS IN CANCER MOLECULAR AND CELL BIOLOGY

Chairs: Rui Henrique (IPO, ICBAS) & Ana Magalhães (ICBAS/i3S)

KEYNOTE TALK

14:15 – 14:55 Robert Haltiwanger, Complex Carbohydrate Research Center, USA

14:55 – 15H25 – SELECTED TALK

15:25 – 15H55 – SELECTED TALK

16:00 – 16h30 Coffee break

SPECIAL SESSION

Chair: Celso A Reis (i3S)

16h30 – 17:20 Gabriel Rabinovich, Instituto de Biología y Medicina Experimental, CONICET and University of Buenos Aires, Argentina

20:00 Meeting Dinner

12 MAY 2023

SESSION 3: GLYCOSYLATION IN TUMOR MICROENVIRONMENT AND IMMUNE MODULATION

Chairs: Maria Oliveira (i3S) & Joana Gomes (i3S)

KEYNOTE TALK

9:00 – 9:40 Nikos Karamanos, Department of Chemistry, University of Patras, Greece

KEYNOTE TALK

9:40 – 10:30 Heinz Läubli, University Hospital Basel, Switzerland

10:30 – 11:00 Coffee break

11:00 – 11:30 SELECTED TALK

11:30 – 12:00 SELECTED TALK

12:00 – 12:30 SPEED TALKS

12:40 – 14:15 Lunch break

SESSION 4: TRANSLATIONAL RESEARCH AND GLYCAN-BASED CLINICAL APPLICATIONS

Chairs: Salomé Pinho (i3S) & Júlio Oliveira (IPOP)

KEYNOTE TALK

14:15 – 14:55 Paula Videira, Glycoimmunology Group, Nova University Lisbon, Portugal & CellmAbs Biopharmaceuticals

14:55- 15:25 SELECTED TALK

KEYNOTE TALK

15:25 – 16:05 Mattias Belting, Department of Clinical Sciences of Lund University, Sweden

16:05 – 16:15 Closing session

Chair: Celso A Reis & André Albergaria (i3S)

Porto Cancer Meeting 2023  
Glycosylation in tumour biology  
and its clinical implications: The  
cancer bittersweet portrait  
**11-12 May 2023 | i3S, Porto**

Registration and more information at

<https://portocancermeeting.i3s.up.pt/>

# 15<sup>th</sup> Jenner Glycobiology and Medicine Symposium

14-16 June 2023 | Porto,  
Portugal



## 15<sup>TH</sup> JENNER GLYCOBIOLOGY & MEDICINE

SYMPOSIUM  
2023 | PORTO

### *Confirmed speakers:*

#### **Robert Sackstein**

Herbert Wertheim College of Medicine, Florida  
International University, USA

#### **Sandra van Vliet**

Amsterdam UMC , Universitair Medische  
Centra, Netherlands

#### **Max Crispin**

Molecular and Cellular Biosciences, University  
of Southampton, United Kingdom

#### **Katrine T Schjoldager**

Department of Cellular and Molecular  
Medicine, University of Copenhagen, Denmark

#### **Lucy Crouch**

Institute for Cell and Molecular Biosciences,  
Newcastle University, United Kingdom

#### **Romain Vivès**

Institut de Biologie Structurale, Université  
Grenoble Alpes, France

#### **Christian Bull**

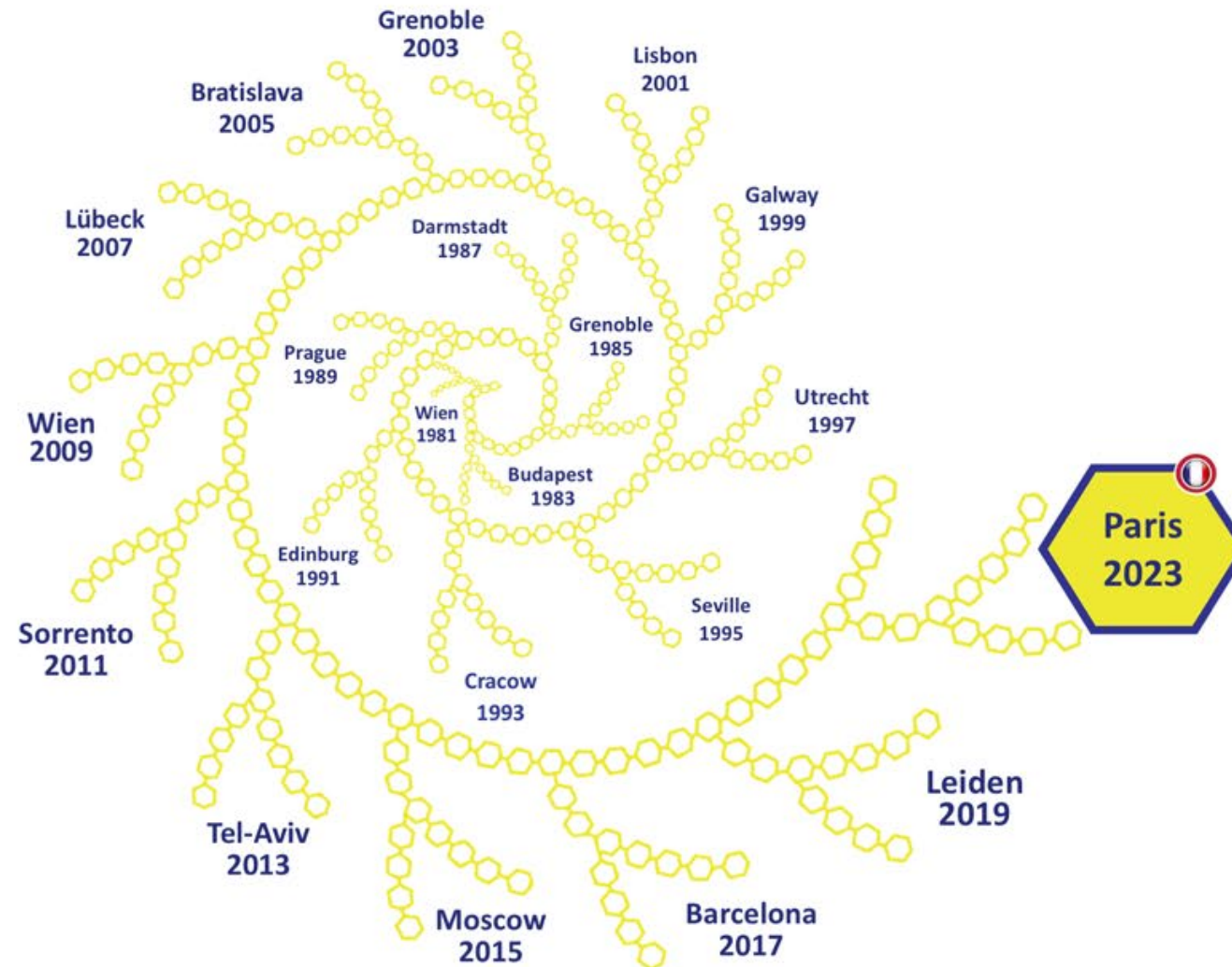
Institute for Molecules and Materials, Radboud  
University, Netherlands

#### **Professor Sir Roy Anderson**

Faculty of Medicine, School of Public Health,  
Imperial College, London, United Kingdom

[jennerglyco2023.i3s.up.pt](http://jennerglyco2023.i3s.up.pt)

# The 21st European Carbohydrate Symposium in Paris from 9 to 13<sup>th</sup> July 2023!







## Shanghai: Classical and Modern



**Yu Garden**



**Chinese Pavilion**



**Zhujiailao**



**Nanjing Road**

Água mole em pedra dura, tanto bate até que fura...

**Never give up....**

**Love what you do.....and do what you love....**

**Be happy and you will succeed!**

