



## BIOGRAPHICAL SKETCH

<b>NAME</b> Ana Rita Jesus	<b>POSITION TITLE</b> PhD Student
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**EDUCATION / TRAINING** (Begin with baccalaureate or other initial professional education, include postdoctoral training and others)

INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Escola Profissional de Educacao para o Desenvolvimento	Diploma	07/2004	Tecnological Chemistry
Faculdade de Ciências/Universidade de Lisboa	BSc	11/2010	Chemistry
Faculdade de Ciências/Universidade de Lisboa	MSc	09/2008	Chemistry
Faculdade de Ciências/Universidade de Lisboa	PhD	2015	Chemistry

### Research Interests

*Organic Chemistry, Medicinal Chemistry, Molecular Biology, cell-based assays*

Development of new antidiabetic drugs using simple, new and efficient synthetic methods.

Currently focused on the discovery of new sodium-glucose co-transporter inhibitors for the treatment of type 1 and type 2 diabetes.

### Research Activity

January 2012 – present: PhD research fellowship focused on the synthesis of new sugar-based sodium-glucose co-transporters inhibitors at Faculdade de Ciências, Universidade de Lisboa, Portugal, and cell-based assays of the synthesized candidates carried out at New York University at Abu Dhabi, UAE. Thesis entitled “New potential Sodium-Glucose Co-Transporters Sugar-Based Inhibitors for the Treatment of Diabetes”.

May 2009 – December 2011: Researcher in the Project “New anti diabetic agents from *Genista tenera*: isolation, structural characterization, synthesis and mechanisms of action” from FCT (Foundation for Science and Technology, Portugal PTDC/QUI/67165/ 2006). During this project 4 months were spend at Leiden University performing NMR-based metabolomics studies with the rat urine resulted from the in vivo studies of 8-β-D-glucosylgenistein.

September 2009 – December 2010: Master Thesis entitled “Investigação da Síntese de Agentes Antidiabéticos Derivados de C-glicosilflavónoides”

November 2007 – September 2008: BSc project entitled “Acoplamento de Fenóis à Glucose mediado pelo zeolite HY”

April 2004-July 2004 – Internship at TeQualim optimizing food quality methods.

## **Exchange Student:**

September 2011 – December 2011: Leiden University, The Netherlands (rat urine NMR-based metabolomic studies)

September 2012 – December 2012: Eshelman School of Pharmacy, University of North Carolina at Chapel Hill, USA (enzymatic synthesis of di-, tri- and tetra saccharides, enzymes expression)

September 2013 – Present: New York University at Abu Dhabi, UAE (Cell-based assays of new potential sodium-glucose co-transporters inhibitors for the treatment of Diabetes)

## **Projects**

“New anti diabetic agents from *Genista tenera*: isolation, structural characterization, synthesis and mechanisms of action” (FCT, Portugal PTDC/QUI/67165/ 2006).

## **Publications**

### Papers in peer reviewed journals

Stefan Schwarz, Bianka Siewert, Nuno M. Xavier, Ana R. Jesus, Amélia P. Rauter, René Csuk, A “natural” approach: Synthesis and cytotoxicity of monodesmosidic glycyrrhetic acid glycosides, *European Journal of Medicinal Chemistry*, 2014, 72, 78–83

R. G. Santos, A. R. Jesus, J. M. Caio, A. P. Rauter, Fries-type Reactions for the C-glycosylation of Phenols, *Cur Organic Chemistry*, 2011, 15, 128-148

### Book Chapters

Ana Rita Jesus, Amélia Rauter, Jian Liu, Recent advances in enzymatic synthesis of heparin, *Carbohydrate Chemistry*, 2013, 39, 38–57

## **Patents**

A. P. Rauter, A. Jesus, A. Martins, C. Dias, Rogério Ribeiro, M.- P. Macedo, J. Justino, H. Mota-Filipe, R. Pinto, B. Sepodes, M. Medeiros, J. Barbero, C. Airoidi, F. Nicotra, New C-glycosylpolyphenol antidiabetic agents, effect on glucose tolerance and interaction with beta-amyloid. Therapeutic applications of the synthesized agent(s) and of *Genista tenera* ethyl acetate extracts containing some of those agents, PT106202, submission 2012

## **Conferences (communications, participation, organization)**

### Oral Communications (“presenting author”)

8-β-D-Glucosylgenistein: Application in Diabetes and Alzheimer’s Disease (International Carbohydrate Symposium, Madrid, Spain, 2012)

Synthesis of natural C-glycosylisoflavones (5th Iberian Carbohydrate Meeting e 9th International Meeting of the Portuguese Carbohydrate Chemistry Group, Vila Real, Portugal, 2011)

Structural characterization of 1-[2-acetoxi-3-(2,3,4,6-tetra-O-benzil- $\beta$ -D-glucopiranosil)-4,6-dibenziloxifenil]-3-(4-benziloxifenil)prop-2-en-1-ona (Modern Methods of Structure Elucidation , Lisbon, Portugal, 2010)

### Poster Communications

Ana Rita Jesus, Amélia Pilar Rauter; Microwave Assisted vs Conventional Synthesis of Chalcones, Dihydrochalcones and Flavanones as new potential SGLTs inhibitors for the treatment of diabetes – 10th National Meeting of Organic Chemistry (Lisbon, Portugal, 2013)

Jesus, A. R, Martins, A. , Dias, C.A. ; Ribeiro, R.T.; Macedo, M.P; Goulart, M., Justino, J.; Airoidi, C.; Nicotra, F.; Barbero, J.; Rauter, A.P., 8- $\beta$ -D-Glucosylgenistein, a promising molecular entity against Diabetes type 2 and Alzheimer's Disease – 6th Spanish, Portuguese and Japanese Organic Chemistry Symposium (Lisbon, Portugal, 2012)

Ana Assunção, Ana R. Jesus, Ana P. Carvalho, Amélia P. Rauter, Application the zeolites HY in catalysis of phenols glycosylation – 6th Spanish, Portuguese and Japanese Organic Chemistry Symposium (Lisbon, Portugal 2012)

C. Airoidi, A. R. Jesus, C. Dias, A. Martins, A. P. Rauter, F. Nicotra, J. Jiménez-Barbero, NMR characterization of the binding of Genista tenera ethyl acetate extract and its major component to  $\alpha\beta$ 1-42 peptide – XLI National Congress on Magnetic Resonance (Pisa, Italy, 2012)

A. R. Jesus, P. Serra, A. A. Arantes, M. M. Santos, A. P. Carvalho, A. P. Rauter, F. R. Ribeiro, M. Guisnet, Hy zeolite as a new environmentally friendly catalysts for phenols glycosylation – Glycosciences in the International Year of Chemistry, Applications to Human Health and Disease (Lisbon, Portugal, 2011)

S. Schwarz; B. Siewert; R. Csuk; N. M. Xavier; A. R. Jesus; A. P. Rauter, Antitumour activity of some Glycyrrhetic acid glycosides – 16th European Carbohydrate Symposium (Sorrento, Italy, 2011)

A. R. Jesus, A. P. Rauter, Efficient methodologies towards the synthesis of C-glycosylisoflavones 16th European Carbohydrate Symposium (Sorrento, Italy, 2011)

A. A. Arantes, A. R. Jesus, M. M. Santos, A. P. Carvalho, A. P. Rauter, F. R. Ribeiro, M. Guisnet, New environmentally friendly techniques for phenols glycosylation using HY zeolite as catalysts – XXII SPQ Meeting (Braga, Portugal, 2011)

A. R. Jesus, A. P. Rauter, New Approaches in the Synthesis of 8- $\beta$ -C-glycosylgenistein – 2nd Ibero-American Organic Chemistry Symposium (Santiago de Compostela, Spain, 2010)

A. Martins, A. Brazao, Y. Montoto, A. P. Rauter, F. R. Ribeiro, M. Guisnet, Phenols Glycosylation Catalysed by Acid Zeolites – 18th Conference on Organic Synthesis (Bergen, Noruega, 2010)

A. R. Jesus, A. P. Rauter, New Approach towards Isoflavone C-glycosylation – 8th International Meeting of the Portuguese Carbohydrate Group (Braga, Portugal, 2009)

A. R. Jesus, M. M. Santos, A. P. Rauter, Phenols Glycosylation Promoted by Acid Zeolite HY – 8th national Meeting of Organic Chemistry (Aveiro, Portugal, 2009)

A. R. Jesus, M. M. Santos, A. P. Carvalho, A. P. Rauter, F. R. Ribeiro, M. Guisnet, Phenols Glycosylation promoted by zeolite HY – 1st Portuguese Young Chemists Meeting (Lisbon, Portugal, 2008)

M. M. M. Santos, A. R. Jesus, S. D. Lucas, A. P. Carvalho, J. P. Marques, M. Guisnet, F. R. Ribeiro, A. P. Rauter, Acid Zeolites as Environmental benign promoters for Carbohydrates key transformations – 1st Portuguese Young Chemists Meeting (Lisbon, Portugal, 2008)

### Seminars

July 2010 – A. R. Jesus, “A new approach on the synthesis of 8- $\beta$ -C-glucosylgenistein, Chemistry and Biochemistry Center, Faculty of Sciences, University of Lisbon, Portugal

September 2009 – A. R. Jesus, “Glycosylation of phenols promoted by HY zeolite”, Chemistry and Health workshop, Faculty of Sciences, University of Lisbon, Portugal

### **As member of the local organizing committee**

- 6<sup>th</sup> Spanish-Portuguese-Japanese Organic Chemistry Symposium – 6th SPJOCS, FCUL (Faculdade de Ciências da Universidade de Lisboa), Lisbon, Portugal, July 2012;
- Glycosciences in the International Year of Chemistry Applications to Human Health and Disease, FCUL, (Faculdade de Ciências da Universidade de Lisboa), Lisbon, Portugal, September 2011;
- CORM V, (carbohydrates as organic raw materials, building a sustainable future), FCUL (Faculdade de Ciências da Universidade de Lisboa), Lisbon, Portugal, January 200

### **Awards**

Best Oral Presentation - Synthesis of natural C-glycosylisoflavones (5th Iberian Carbohydrate Meeting and 9th International Meeting of the Portuguese Carbohydrate Chemistry Group, Vila Real, Portugal, 2011)

### **Languages**

English, Portuguese