

PERSONAL INFORMATION

Ana Marta de Matos

PhD Student in Medicinal Chemistry



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Sex Female | Date of birth 28/03/1990 | Nationality Portuguese

WORK EXPERIENCE

From March 2017 to January 2018

Visiting PhD Student

CEDOC Chronic Diseases – Nova Medical School

- Chronic drug administration, manipulation and monitoring of diet-induced obese C57Bl/6 mice.
- Cell culture and insulin stimulation assays in differentiated L6-GLUT4-myc myoblasts.
- Cell culture and neuroprotective activity assays against $A\beta_{1-42}$ - and H_2O_2 -induced toxicity in human SHSY-5Y neuroblastoma cells (MTT reduction-based methodology).
- Preparation of organ extracts and analysis by Western Blot.
- Liver lipid extraction and quantification.
- Liver histology analysis.
- Isolation of Langerhans islets from mouse pancreas and insulin secretion assays.
- RNA extraction of liver samples, cDNA synthesis and q-RT PCR experiments.

Business or sector Drug Research and Development

February 2017

Visiting PhD Student

Pharmcenter – Institute of Molecular Pharmacy, University of Basel, Switzerland

- Parallel artificial membrane permeation assays for the determination of the effective permeability ($\log P_e$) of small molecule compounds.
- Partition coefficient ($\log D_{7.4}$) measurements.

Business or sector Drug Research and Development

From November 2016 to February 2017

1st Chem&BioChem Postgraduate Students Meeting @FCUL (Organising Committee Member)

Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal | <http://chembiochem.campus.ciencias.ulisboa.pt/>

Design and execution of the official Logo; creation of promotional posters and banners; organization of scientific sessions and invitation of round table guests; sponsorship recruitment and negotiation; reception of guests and invited speakers; logistic assistance and support through scientific sessions.

From February 2016 to July 2016

Trainee (Industrial Placement within the D3i4AD Marie Curie Project)

Eli Lilly & Co. Erl Wood Manor, Windlesham, GU20 6PH, United Kingdom

- Design, synthesis, purification and structural characterization of multitarget flavone analogues with therapeutic potential against Alzheimer's Disease
- Training: Croner – health and safety; Workstation Safety Plus – ergonomics; The Red Book – ethics and compliance program.
- Technical skills acquired: sample analysis by LC-MS, sample purification by preparative HPLC; catalytic hydrogenation.

Business or sector Pharmaceutical Industry

From March 2015 to April 2015

Food Chemistry Consultant

PERsonalised ICT Supported Service for Independent Living and Active Ageing (PERSSILAA) | <https://perssilaa.com/>

Participation in the video shooting entitled *Food and Health* for the promotion of healthy lifestyles based on chemical properties and benefits of functional food ingredients.

Business or sector European Research and Technological Development

From December 2014 to July 2015

19th European Symposium on Organic Chemistry (Organising Committee Member)

Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal | <http://esocxix.eventos.chemistry.pt/>

Design and execution of the official Logo, promotional posters, website banners and advertisements, exhibition panels and book of abstract's cover; sponsorship recruitment and negotiation; reception of guests and invited speakers; logistic assistance and support through scientific sessions.

Business or sector Event Organisation

From February 2014 to June 2015

Organic Chemistry I Practical Course Assistant

Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal

Teaching of basic laboratorial tasks in organic chemistry; evaluation of students' questionnaires and reports on practical classes.

Business or sector Education

From September 2013 to December 2013

Postgraduate Trainee

Institute of Pathology, Charité Campus Mitte, Humboldt University, Berlin, Germany

- Research project: *Diterpenes as lead compounds for overcoming multidrug resistance in cancer cells: P-glycoprotein modulators and antiproliferative agents* (PTDC/QUI-QUI/099815/2008)
- Developed skills: Basic cell culture techniques, cell proliferation assays based on sulforhodamine B staining, as well as apoptosis-induction assays on human multidrug resistant cells derived from gastric, pancreatic and colon carcinoma cells.

Business or sector Drug Research and Development

From September 2011 to May 2012

FCT Research Fellow

Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal

- Research project: *From Design to Synthesis of New Anti-Tubercular Agents* (PTDC/QUI/67933/2006)
- Developed skills: assessment of compound lipophilicity through a comparative evaluation of partition coefficients, K_p (micelle/water), measured by differential spectrophotometry, and $\log P_{o/w}$, determined by the classical shake-flask method; experimental evaluation of critical micelle concentrations (CMC) and molar volumes (V_m) by tensiometric titration and density measurements, respectively.

Business or sector Drug Research and Development

From September 2010 to September 2011

University of Lisbon and Amadeu Dias Research Fellow

Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal

- Research project: *The role of Commensal Bacteria in the spread of antibiotic resistance genes* (PTDC/BIA-BDE/66180/2006)
- Developed skills: basic microbiology techniques including conjugative transfer of bacterial plasmids between strains of *Escherichia coli*; data analysis using Statistica and SPSS software.

Business or sector Basic Scientific Research

EDUCATION AND TRAINING

- From March 2017 to the present **Course «Nutrition, Environment and Health»**
Faculdade de Ciências, Universidade de Lisboa
Nutrition in the first 1000 days of life; the importance of fish in diet – advantages and possible concerns; allergens and allergies; food certification systems; nutrients and health; functional food ingredients; antioxidants and their importance in disease prevention; diet and gut microbiota.
- From November 15 to November 17 2016 **Intensive Course on Pharmacovigilance**
Unidade de Farmacovigilância de Lisboa e Vale do Tejo | FMUL
Drug safety monitoring methods; adverse drug reactions in cardiology, nephrology, neurology, neuropsychiatry, dermatology, hepatology and haematology medical specialties; pharmacoepidemiology; risk-benefit evaluation.
- From November 10 to November 11 2016 **Eli Lilly Drug Discovery Workshop**
Eli Lilly & Co. | Windlesham, UK
Principles of drug discovery; introduction to computational chemistry; introduction to ADMET and toxicology studies; patents; lead optimization case study.
- From October 9 to October 14, 2016 **12th Swiss Course on Medicinal Chemistry**
Division of Medicinal Chemistry and Chemical Biology | Swiss Chemical Society | Leysin, Switzerland
Drug discovery targeting epigenetic enzymes and receptor domains; application of bio-isosteric concepts in lead finding and optimization; phenotypic screening and personalized medicine; aspects of thermodynamics and kinetics involved in the process of molecular recognition; high-resolution crystallography and fragment-based lead generation; ring-distortion strategies to unlock the chemical space around natural products for medicinal chemistry applications.
- From February 2014 to October 2018 (predicted date) **PhD Student in Medicinal Chemistry**
Carbohydrate Research Group, CQB – Faculdade de Ciências, Universidade de Lisboa
Scientific Project: *From a multitarget antidiabetic glycosyl isoflavone towards new molecular entities against diabetes and Alzheimer's disease: generation of lead series and target assessment* (PhD grant SFRH/BD/93170/2013 awarded by Fundação para a Ciência e Tecnologia), Research Seminar I, II III and IV, Introduction to Teaching Practice.
- From May 2013 to July 2013 **Visiting MSc Student**
Department of Medical Microbiology and Immunobiology, University of Szeged, Hungary
 - Research project: *Diterpenes as lead compounds for overcoming multidrug resistance in cancer cells: P-glycoprotein modulators and antiproliferative agents* (PTDC/QUI-QUI/099815/2008)
 - Developed skills: Basic cell culture techniques, MTT cytotoxicity and antiproliferative assays, MTT drug combination assays and Rhodamine-123 accumulation assays on mouse multidrug resistant T-lymphoma and human colon adenocarcinoma cells; evaluation of compound cytotoxicity on mouse embryonic fibroblasts; data analysis using GraphPad Prism and Compusyn software.
- From October 2011 to September 2013 **MSc in Medicinal Chemistry (18/20)**
Faculdade de Farmácia, Universidade de Lisboa, Portugal
 - Introduction to Pharmaceutical Sciences, Organic Chemistry, Medicinal Chemistry I and II, Radiopharmaceutical Chemistry, Molecular Modelling, Drug Synthesis, Structural Identification, Toxicology, Natural Products, Drug Stability.
 - Scientific Project: *Development of a small library of macrocyclic diterpenes through molecular derivatization.*

From September 2008 to July 2011

BSc in Biochemistry (17/20)

Faculdade de Ciências, Universidade de Lisboa, Portugal

Linear Algebra, Cell Biology, Infinitesimal Calculus I and II, General Chemistry, General Physics, Organic Chemistry Biochemistry I and II, Computer Skills, Perspectives in Research and Development, Data analysis in Chemistry and Biochemistry, Analytical Biochemistry, Physical Chemistry, Experimental Biochemistry I, II, III and IV, Computational Biochemistry, Inorganic Biochemistry, Microbiology, Redox Processes in Biochemistry, Molecular Biology, Enzymology, Spectroscopy, Physiology, Immunology, Biochemical Regulation, Biochemical Simulation.

PERSONAL SKILLS

Mother tongue(s) Portuguese

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
Certificate in Advanced English with Grade A (C2 level) -University of Cambridge ESOL examinations (2013)					
Spanish	C1	C2	C1	C1	B1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills

- Good communication skills gained through oral and poster communications at national and international scientific conferences and through the writing scientific papers and book chapters.

Organisational / managerial skills

- Good time-management skills; great sense of organization, self-motivation and perseverance acquired during my MSc and PhD.

Job-related skills

- Good command of Microsoft Office™ tools (Word™, Excel™ and PowerPoint™), Inkscape.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent User	Proficient User	Independent User	Independent User	Basic User

Levels: Basic user - Independent user - Proficient user
[Digital competences - Self-assessment grid](#)

Other skills

- Volunteer worker at Instituto Zoófilo Quinta Carbone animal shelter
- Trained acoustic guitar player; abstract painting skills, self-taught graphic design skills (applied in the design of the European Carbohydrate Organisation, Chem&BioChem, ICS2018 and ESOC XIX official logos)
- Traditional Reiki (level I certificated by the Portuguese School of Reiki) and mindfulness meditation practitioner

Driving licence B

Matos AM, Blazquez-Sanchez MT, Rauter AP. Exploring Anti-Prion Glyco-Based and Aromatic Scaffolds: A Chemical Strategy for the Quality of Life. *Molecules*, 2017, 22(6): 864.

Matos A.M., Cristóvão J.S., Yashunsky D.M., Nifantiev N.E., Viana A.S., Gomes C.M., Rauter A.P. Synthesis and effects of flavonoid structure variation on amyloid- β aggregation. *Pure Appl. Chem.*, 2017, 89(9), DOI: <https://doi.org/10.1515/pac-2017-0201>.

Matos A.M., Macedo M.P., Rauter A.P. Bridging type 2 diabetes and Alzheimer's disease: assembling the puzzle pieces in the quest for the molecules with therapeutic and preventive potential. *Med. Res. Rev.*, 2018, 38(1):261-324.

Matos A.M., Dias C., Rauter A.P. Chemical approaches toward neurodegenerative disease prevention: the role of coupling sugars to phenolic biomolecular entities. *Coupling and Decoupling of Diverse Molecular Units in Glycosciences*. Springer, 2016. In press.

Vizetto-Duarte C., Custódio L, Henrique J., Lago G, Dias C., Matos A.M., Neng N., Nogueira J.M.F., Barreira L., Albericio F., Rauter A.P., Varela J. Isololiolide, a carotenoid metabolite isolated from the brown alga *Cystoseira tamariscifolia*, is cytotoxic and able to induce apoptosis in hepatocarcinoma cells through caspase-3 activation, decreased Bcl-2 levels, increased p53 expression and PARP cleavage. *Phytomedicine*, 2016, 23(5):550-557.

Matos A.M., Nunes R., Dias C, Rauter A.P. Cyclic acetals for regioselective protection in carbohydrate synthesis: a comparative experiment. *Comprehensive Organic Chemistry Experiments for the Laboratory Classroom*. The Royal Society of Chemistry, 2016. In press.

Matos A.M., Reis M., Duarte N., Spengler G, Molnár J., Ferreira M.J.U. Epoxyethylol derivatives: Modulation of ABCB1-Mediated Multidrug Resistance in Human Colon Adenocarcinoma Cells. *J. Nat. Prod.*, 2015, 78(9): 2215-2228.

Jesus A.R., Dias C., Matos A.M., Almeida R.F.M., Viana A.S., Marcelo F., Ribeiro R.T., Macedo M.P., Airoldi C., Nicotra F., Martins A., Cabrita E.J., Jimenez-Barbero J., Rauter A.P. Exploiting the therapeutic potential of 8- β -D-glucosylgenistein: Synthesis, antidiabetic activity and molecular interactions with islet amyloid peptide and amyloid β -peptide 1-42. *J. Med. Chem.*, 2014, 57(22): 9463-9472.

Matos A.M., Francisco A.P. Targets, structures, and recent approaches in malignant melanoma chemotherapy. *ChemMedChem*, 2013, 8(11): 1751-1765.

Oral Communications

"The Potential of Natural Flavonoids and Synthetic Flavone Analogues against Type 2 Diabetes and Alzheimer's Disease." University of Lisbon Innovation Week. Lisbon, May 4, 2017.

"Tuning C-glucosyl flavonoid analogues into new CNS-targeted molecules against A β ₁₋₄₂-induced neurodegeneration." Chem&BioChem Postgraduate Students Meeting 2017. Faculdade de Ciências, Universidade de Lisboa, February 9, 2017.

"C-Glucosyl flavonoid analogues with neuroprotective effects: rational design and synthesis of new CNS-targeted drug-like leads against Alzheimer's disease". 28th International Carbohydrate Symposium. New Orleans, Louisiana, July 18, 2016.

"Innovation for Alzheimer's disease prevention in Diabetes: the role of *Genista tenera*". Workshop NUTRIAGEING workshop: Nutrition literacy for a healthy ageing. Faculdade de Ciências, Universidade de Lisboa, December 15, 2015.

"C-glucosylphenols as precursors of rationally designed antidiabetic 8- β -D-glucosylgenistein analogues". Flash poster presentation at the 11th International Meeting of the Portuguese Carbohydrate Chemistry Group/6th Iberian Carbohydrate Meeting. Polytechnic Institute of Viseu, September 7, 2015.

"*Genista tenera* as a source of functional foods with new mechanisms of action against diabetes and related amyloid diseases". Workshop Moving to a Healthy Life and an Active Ageing: Science and

Policy towards Innovative Solutions, sponsored by PERSSILLA. Faculdade de Ciências, Universidade de Lisboa, September 24, 2014.

"The role of Commensal Bacteria in the spread of antibiotic resistance genes." Amadeu Dias Fellowships Forum. University of Lisbon, October 12, 2011.

Poster Communications

Matos A.M., Martins A., Man T., Walter M., Colabufo N., Dätwyler P., Ernst B, Rauter A.P. Combining sugars with flavonoid analogues: an approach towards non-pains with neuroprotective potential. EUROCARB. 2-6 July 2017 / Barcelona, Spain.

Matos A.M., Rauter A.P. Exploiting the Potential of C-Glucosyl Flavonoid Analogues against Diabetes and Alzheimer's Disease. CQB day 2017, May 2017, Lisbon, Portugal.

Matos A.M., Martins A., Dias C., Rauter A.P. Genista tenera, a Portuguese plant with antidiabetic effect and anti-ageing potential. 12th European Geriatric Medicine Society Congress. 5-7 October, 2016 / Lisbon, Portugal.

Matos A.M., Rauter A.P. New nature-inspired multitarget leads against type 2 diabetes and Alzheimer's disease. Encontro com a Ciência e Tecnologia em Portugal. 4-6 July, 2016 / Lisbon, Portugal.

Matos A.M., Man T., Evans D., Walter M., Rauter A.P. Rational design and synthesis of CNS-targeted flavonoid analogues with potential neuroprotective effect. Eli Lilly Scientific Poster Session 2016. June 23, 2016 / Windlesham, United Kingdom.

Matos A.M., Rauter A.P. C-glycosylation reactions in the synthesis of new sugar-liked molecules with potential anti-amyloid activity. CQB Day 2015. September 15, 2015 / Lisbon, Portugal.

Matos A.M., Rauter A.P. C-glycosylphenols as precursors of rationally designed antidiabetic 8- β -D-glucosylgenistein analogues. 11th International Meeting of the Portuguese Carbohydrate Chemistry Group/6th Iberian Carbohydrate Meeting. September 6-9, 2015 / Viseu, Portugal.

Matos A.M., Reis M., Duarte N., Spengler G., Molnár J., Ferreira M.J.U. Exploring epoxylythyrane derivatives to overcome ABCB1-mediated multidrug resistance in human colon adenocarcinoma cells. 63rd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research. August 23-27, 2015 / Budapest, Hungary.

Matos A.M., Martins A., Rauter A.P. Genista tenera as a source of innovative molecular leads against diabetes and related amyloid disorders: phytochemistry, synthesis and mechanism of action. 19th European Symposium on Organic Chemistry. July 12-16, 2015 / Lisbon, Portugal.

Matos A.M., Thai L., Jesus A.R., Rauter A.P. Synthesis of the antidiabetic lead 8- β -D-glucosylgenistein and glucosylflavanone analogue. 7th Spanish-Portuguese-Japanese Organic Chemistry Symposium. June 23-26, 2015 / Seville, Spain.

Matos A. M., Jesus A. R., Ribeiro R., Macedo M.P., Rauter A.P. Synthesis of 8- β -D-glucosylgenistein recognized as a lead compound against type 2 Diabetes mellitus. CQB Day 2014. July 9, 2014 / Lisbon, Portugal.

Matos, A.M., Jesus, A.R., Ribeiro, R., Macedo, M.P., Rauter, A.P. Rational design and synthesis of 8- β -D-glucosylgenistein analogues with activity against Diabetes and Alzheimer's disease. 4th Portuguese Young Chemists Meeting. April 29 – May 1, 2014 / Coimbra, Portugal.

Matos, A.M., Neto S., Duarte N., Ferreira M.J.U. A Small Library of Lathyrane Diterpenes Through Molecular Derivatization. 1^o Simpósio Luso-Brasileiro de Química Orgânica. September 4-6, 2013 / Lisbon, Portugal.

Matos A.M., Reis M., Miranda V., Santos L., Santos S., Martins F., Santos M.S. Lipophilicity of some active Mycobacterium tuberculosis isoniazid derivatives: a comparative study between octanol-water

(log $P_{o/w}$) and micelle-water (log K_o) partition coefficients. 22nd International Symposium on Medicinal Chemistry. September 2-6, 2012 / Berlin, Germany.

Thesis

Matos, A.M. Development of a small library of macrocyclic diterpenes through molecular derivatization. MSc thesis, Faculty of Pharmacy, University of Lisbon, September 2013.

Awards Best Poster Prize, awarded by the evaluation panel of CQB for the poster entitled *Exploiting the Potential of C-Glucosyl Flavonoid Analogues against Diabetes and Alzheimer's Disease* (May 2017)

MedChemComm Poster Prize, awarded by the Royal Society of Chemistry for the poster entitled *Genista tenera as a source of innovative molecular leads against diabetes and related amyloid disorders: phytochemistry, synthesis and mechanism of action* (July 2015)

Best Oral Presentation, awarded by the University of Lisbon and Amadeu Dias Foundation for *The role of Commensal Bacteria in the spread of antibiotic resistance genes* project (October 2011)

Best 1st Year Students, awarded by FCUL Foundation (June 2010)

Merit Scholarship relative to the first and second years as a BSc student in Biochemistry, awarded by the Faculty of Science, University of Lisbon (July 2009 and July 2010)

Certificates

Participation with Honours and Distinction in the EMBO workshop Glycobiology and glycochemistry: applications to human health and disease, being worth 2 ECTS (May 2014)
Lisbon, Portugal

Attendance to the workshop Beating the Blood-Brain & Other Blood Barriers (February 2013)
Lisbon, Portugal

Attendance to the workshop Carbohydrates Bridging Bioorganic and Medicinal Chemistry (May 2011)
Lisbon, Portugal

Attendance to the post-graduation Industrial Drug Research course, lectured by Dr. Hans Peter Wessel (May 2010)
Lisbon, Portugal

Attendance to the course Protein Folding, Misfolding and Disease, promoted by the Portuguese Biophysical Society (October 2009)
Santarém, Portugal