Andrea Spinaci

PERSONAL

EDUCATION

31/03/2017
PhD in Chemical and Pharmaceutical Sciences and Biotechnology
University of Camerino, Camerino

07/03/2013
Master degree, Pharmaceutical Chemistry and Technology
University of Camerino, Camerino
Vote: 105/110

06/2007
High School Diploma – Liceo Scientifico
Liceo Scientifico "Galileo Galilei" Macerata

EMPLOYMENT

1/10/2017– Current
Research Fellowship in Medicinal Chemistry
"*Sintesi innovative di farmaci adenosinici per la terapia delle malattie neurodegenerative*."
University of Camerino, Camerino (Italy)

1/02/2017–31/07/2017
Post-Doc Fellowship in Medicinal Chemistry
University of Camerino, Camerino (Italy)

1/02/2017-31/07/2017
Internship in Laboratory of Forensic Toxicology and Forensic Medicine
University of Macerata, Macerata (Italy)

1/02/2014 – 31/01/2017
PhD in Chemical and Pharmaceutical Sciences and Biotechnology
Title of the thesis: "*Design, synthesis, and characterization of new p1 receptor ligands."*
University of Camerino, Camerino (Italy)

08/03/2013–07/07/2013
Post-graduate fellowship in Medicinal Chemistry
University of Camerino, Camerino (Italy)

05/03/2012–05/03/2013
Experimental Thesis in Medicinal Chemistry
Title of the thesis: "*Multitarget-ligands as advantageous tools in reducing the opiate withdrawal syndrome and related comorbidities*."
Università di Camerino, Camerino (Italy)

01/06/2011–30/01/2012
Apprenticeship in Pharmacy
Farmacia Cairoli, Fabrizio Buglioni, Macerata (Italy)

DIDACTICAL EXPERIENCE

Supervisor of Experimental Thesis
Master Degree in Pharmacy (LM-13); Experimental Thesis in Medicinal Chemistry *"Adenosine 2,N^6-disostituite come ligandi del recettore adenosinico a_3 umano con potenziale attivita' antitumorale"*
Graduate Student: Ludovica Mariani,
Supervisor: Prof. Rosaria Volpini, **Dr Andrea Spinaci** (a.a. 2017-2018)

Supervisor of Experimental Thesis
Master Degree in Pharmacy (LM-13); Experimental Thesis in Medicinal Chemistry *"Sintesi e caratterizzazione di analoghi dell'ATP come antagonisti del recettore P2X3"*
Graduate Student: Fabiola Paoletti,
Supervisor: Prof. Catia Lambertucci, **Dr Andrea Spinaci** (a.a. 2016-2017)

Supervisor of Experimental Thesis
Master Degree in Pharmacy (LM-13); Experimental Thesis in Medicinal Chemistry *"Derivati disostituiti della 9-etileadenina come nuovi antagonisti del recettore adenosinico A_{2A}"*
Graduate Student: Valeria Marcantoni,
Supervisor: Prof. Catia Lambertucci, **Dr Andrea Spinaci** (a.a. 2016-2017)

12/03/2019 –18/04/2019
Tutor in Medicinal Chemistry Lab
University of Camerino, Camerino (Italy)

13/04/2015 – 29/04/2015
Tutor in Drug Quantitative Analysis Course
University of Camerino, Camerino (Italy)

INTERNATIONAL EXPERIENCE

01/05/2016–11/09/2016
Mobility periods abroad
Institute of Medical Science (IMS)
Supervisor: Prof. Matteo Zanda
University of Aberdeen, Aberdeen (United Kingdom)

SKILLS

Language – Good: English, mother tongue: Italian

Computer Skills - Microsoft Office, TopSpin and CMC-A Software for NMR spectra analysis, ChemBioDraw, Acrobat Reader, Xcalibur LC/GC-MS Software, pKcsm Software

Synthetic Skills - Nucleophilic aromatic substitution, cross-coupling reaction (Sonogashira coupling, Suzuki reaction), Sandmeyer reaction, nucleoside and nucleotide synthesis, oxychlorination, allylic oxidation, protecting group reaction, glycosylation, reduction and oxidation.

Purification Skills – Gravimetric and flash chromatography, reversed

phase chromatography, ion exchange chromatography, HPLC, crystallization, liq-liq extraction, distillation, preparation of dry solvents.

Characterization Skills – ^{1}H-NMR and ^{13}C-NMR spectra analysis, IR-spectra analysis; UV-spectra analysis; polarimetric analysis; GC-mass analysis and HPLC-MS analysis.

Instrumentation Use Ability - Bruker AVANCE III 400/500 NMR spectrometer, ESI-MS, LC/GC-MS Agilent, Thermo Orbitrap LC-MS, BUCHI melting point, DSX™ Automated Four-Plate ELISA System

Biological data analysis – Interpretation of binding affinity data and functional activity at cells culture or ex vivo assay, Elisa data analysis, preliminary multi drug test analysis for drug abuse compounds (THC, amphetamine, morphine, cocaine, etc), alcoholemia misuration.

Sample Preparation – Preparation and extraction from biological material (blood, hair, urine, bile) of substances of abuse by liq-liq extraction, SPE column; silyl derivatization, acid or enzymatic glucuronide hydrolysis.

ATTENDED CONFERENCE AND SEMINAR

04-07/09/2019
1st European Purine Meeting
Universidad Santiago de Compostela, Spain

18/01/2019
Riunione Annuale del Purine Club Italiano
Università di Firenze - Firenze

5/10/2018
XXXVI CONVEGNO INTERREGIONALE TUMA 2018
Centro Congressi "Le Benedettine", Pisa

25-28/10/2017
38° Congresso nazionale società italiana di Farmacologia
Palacongressi Rimini

16/5/2017
LC-MS/MS: applicazioni per l'analisi di molecole endogene ed esogene.
SCIEX, SeePort Hotel, Ancona

15/1/2016
Riunione Annuale del Purine Club Italiano
Istituto Superiore della Sanità, Roma

29/06/2014–03/07/2014
Thematic course: European School of Medicinal Chemistry
University of Urbino Carlo Bo

26/06/2015-30/06/2015

Thematic course: European School of Medicinal Chemistry
University of Urbino Carlo Bo

27/10/2015
Sigma-Aldrich Young Chemists Symposium (SAYCS 2015) SCI
Società Chimica Italiana, Rimini

23-25/09/2015
TUMA XXXIV – Convegno delle sezioni Toscana Umbria Marche Abruzzo della Società Chimica Italiana
Società Chimica Italiana, Perugia

11/06/2015
Statistics and Data Management
Speaker: Mauro Angeletti
University of Camerino

16/10/2015
Innovation management: how to manage and develop innovative projects at industrial level
Speaker: Cristina Cristalli
University of Camerino

14/10/2015
Writing a grant proposal
Speaker: Ciro Franco
University of Camerino

15/10/2015
Job Hunt
Speaker: Micheal Zebrak
University of Camerino

12/10/2015
Proprietà intellettuale e comunicazione scientifica nella società dell'informazione
Speaker: Avv. Simone Alipardi
University of Camerino

10/02/2015
Farmaci per il trattamento delle malattie virali
Speaker: Romano Silvestri
University of Camerino

MEMBERSHIP

Società Chimica Italiana (SCI)
Sezione Chimica Farmaceutica

Purine Club Italiano

Rappresentante elettivo *degli assegnisti al consiglio della Scuola di Scienze del Farmaco e dei Prodotti della Salute*

PUBLICATIONS

1) Lambertucci, C.; **Spinaci, A**.; Buccioni, M.; Dal Ben, D.; Ngnintedem, M. A. N.; Kachler, S.; Marucci, G.; Klotz, K.-N.; Volpini, R., New A_{2A} adenosine receptor antagonists: A structure-based upside-down interaction in the receptor cavity. Bioorganic Chemistry **2019**, 92, art. no. 103183.
I.F. 3.926

2) Betti, M.; Catarzi, D.; Varano, F.; Falsini, M.; Varani, K.; Vincenzi, F.; Pasquini, S.; Di Cesare Mannelli, L.; Ghelardini, C.; Lucarini, E. Dal Ben., D.; **Spinaci, A**.; Bartolucci, G.; Menicatti, M.; Colotta, V. Modifications on the amino-3,5-dicyanopyridine core to obtain multifaceted adenosine receptor ligands with antineuropathic activity. Journal of Medicinal Chemistry **2019**, 62 (15), 6894-6912.
I.F. 6.054

3) Buccioni, M.; Dal Ben, D.; Lambertucci, C.; Navia, A. M.; Ricciutelli, M.; **Spinaci, A**.; Volpini, R.; Marucci, G. New sensible method to quantize the intestinal absorption of receptor ligands. Bioorganic & Medicinal Chemistry **2019**, 27 (15), 3328–3333.
I.F. 2.802

4) Marucci, G.; Dal Ben, D.; Lambertucci, C.; Martí Navia, A.; **Spinaci**, **A.**; Volpini, R.; Buccioni, M. GPR17 receptor modulators and their therapeutic implications: review of recent patents. Expert Opinion on Therapeutic Patents **2019**, 29 (2), 85-95.
I.F. 3.699

5) Dal Ben, D.; Buccioni M.; Lambertucci, C.; Marucci, G.; **Spinaci, A**.; Marchenkova, A.; Abdelrahman, A.; Nistri, A.; Müller, C. E.; Volpini, R. Investigation on 2′,3′- O-Substituted ATP Derivatives and Analogs as Novel P2X3 Receptor Antagonists. ACS Medicinal Chemistry Letters **2019**, 10 (4), 493-498.
I.F. 3.737

6) Amenta, F.; Buccioni, M.; Dal Ben, D.; Lambertucci, C.; Martin Navia, A.; Ngouadjeu Ngnintedem, M. A.; Ricciutelli, M.; **Spinaci, A.;** Volpini, R.; Marucci, G. Ex-vivo absorption study of lysine R-lipoate salt, a new pharmaceutical form of R-ALA. European Journal of Pharmaceutical Sciences **2018**, 118, 200-207.
I.F. 3.532

7) Lambertucci, C.; Marucci, G.; Dal Ben, D.; Buccioni, M.; **Spinaci, A**.; Kachler, S.; Klotz, K.-N.; Volpini, R. New potent and selective A_1 adenosine receptor antagonists as potential tools for the treatment of gastrointestinal diseases. European Journal of Medicinal Chemistry **2018**, 151, 199-213.
I.F. 4.833

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8) Zanato, C.; Pelagalli, A.; Marwick, K. F. M.; Piras, M.; Dall'Angelo, S.; **Spinaci, A.;** Pertwee, R. G.; Wyllie, D. J. A.; Hardingham, G. E.; Zanda, M. Synthesis, radio-synthesis and in vitro evaluation of terminally fluorinated derivatives of HU-210 and HU-211 as novel candidate PET tracers. Organic and Biomolecular Chemistry **2017**, 15 (9), 2086-2096.
I.F. 3.490

9) Dal Ben, D.; Marchenkova, A.; Thomas, A.; Lambertucci, C.; **Spinaci, A.;** Marucci, G.; Nistri, A.; Volpini, R. 2′,3′-O-Substituted ATP derivatives as potent antagonists of purinergic P2X3 receptors and potential analgesic agents. Purinergic Signalling **2017**, 13 (1), 61-74.
I.F. 3.038

10) Dal Ben, D.; Buccioni M,; Lambertucci, C.; Marucci, G.; Santinelli, C.; **Spinaci, A**.; Thomas, A.; Volpini, R. Simulation and Comparative Analysis of Different Binding Modes of Non-nucleoside Agonists at the A_{2A} Adenosine Receptor. Molecular Informatics **2016**, 35, 403-413.
I.F. 2.375

11) Marucci, G.; Dal Ben, D.; Lambertucci, C.; Santinelli, C.; **Spinaci, A.;** Thomas, A.; Volpini, R.; Buccioni, M. The G Protein-Coupled Receptor GPR17: Overview and Update. ChemMedChem **2016**, 11(23), 2567-2574.
I.F. 3.016

12) Thomas, A.; Buccioni M,; Dal Ben, D.; Lambertucci, C.; Marucci, G.; Santinelli, C.; **Spinaci, A**.; Kachler, S.; Klotz, K.-N.; Volpini, R. The Length and Flexibility of the 2-Substituent of 9-Ethyladenine Derivatives Modulate Affinity and Selectivity for the Human A_{2A} Adenosine Receptor. ChemMedChem **2016**, 11, 1829-1839.
I.F. 3.016

13) Lambertucci, C.; Buccioni M.; Dal Ben D.; Kachler, S.; Marucci, G.; **Spinaci, A.**; Thomas, A.; Klotz, K.-N.; Volpini, R. New substituted 9-propyladenine derivatives as A_{2A} adenosine receptor antagonists. MedChemComm **2015**, 6, 963-970.
I.F. 2.394

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CONFERENCE PRESENTATIONS

Spinaci A., Lambertucci C., Dal Ben D., Buccioni M., Ngouadijeu M. A., Marti Navia A., Marucci G., Volpini R. "New 4'-tetrazolyl adenosine derivatives as potential agents for wound healing".
1st European Purine Meeting, Universidad Santiago de Compostela - Spain -04-07/09/2019

Spinaci A., Buccioni M., Dal Ben D., Lambertucci C., Marucci G, Marti Navia A., Ngouadijeu M. A, Volpini R. "New A_{2A} adenosine receptor agonists as potential agents for wound-healing".

Annual Reunion Purine Club – Firenze- 18/01/2019
(PERSONAL ORAL PRESENTATION)

Spinaci A., Lambertucci C., Graiff C., Buccioni M., Dal Ben D., Marucci G., Volpini R. "Synthesis and characterization of new triazolotriazinic derivatives as antagonists of A_{2A} adenosine receptor". *XXXVI CONVEGNO INTERREGIONALE TUMA 2018 – 5 October 2018 Centro Congressi "Le Benedettine", Pisa*
(PERSONAL ORAL PRESENTATION)

Ngouadjeu Ngnintedem M. A., **Spinaci A**., Lambertucci C., Buccioni M., Dal Ben D., Marucci G., Volpini R. *"Synthesis of new A_3 adenosine receptor antagonists". XXXVI CONVEGNO INTERREGIONALE TUMA 2018– 5 October 2018 Centro Congressi "Le Benedettine", Pisa*

Spinaci, A., Lambertucci, C., Buccioni, M., Dal Ben, D., Kachler, S., Marucci, G., Thomas, A., Klotz, K.-N., Volpini, R. "*Nucleotide derivatives as new ligands of the purinergic P2 Receptors"* 38° Congresso nazionale Società Italiana Farmacologia, Palacongressi di Rimini, Rimini (Italy) *October 28, 2017*
(PERSONAL ORAL PRESENTATION)

C. Lambertucci, D. Dal Ben, M. Buccioni, G. Marucci, **A. Spinaci**, K.-N. Klotz, R. Volpini *"A_{2A}R agonists/A_3R antagonists: design, synthesis, and biological evaluation of new ligands with dual activity"* 7th Joint Italian-German Purine Club Meeting – "Advances in basic and translational purinergic research", Rome. *July 20-22, 2017*

G. Marucci, M. Buccioni, D. Dal Ben, C. Lambertucci, **A. Spinaci**, M. P. Abbracchio, R. Volpini *"Pharmacological characterization of the GPR17 receptor dual profile"* XXIV National Meeting in Medicinal Chemistry -10th Young Medicinal Chemists' Symposium, Perugia. *September 11-14, 2016*

A. Thomas, D. Dal Ben, C. Lambertucci, A. Marchenkova, **A. Spinaci**, G. Marucci, A. Nistri, R. Volpini *"2',3'-Substituted ATP derivatives as nanomolar antagonists of the purinergic P2X3 receptors and potential analgesic agents"* XXIV National Meeting in Medicinal Chemistry -10th Young Medicinal Chemists' Symposium, Perugia. *September 11-14, 2016*

M. A. Ngouadjeu, M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, A. Thomas, R. Volpini *"Versatile synthesis of 2,5-disubstituted triazolotriazine derivatives as A_{2A} adenosine receptor antagonists"* 33rd Camerino-Cyprus Symposium - Receptor Chemistry: Reality and Vision, Camerino. *May 15-19, 2016*

A. Thomas, M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, M. A. Ngouadjeu, A. Nistri, C. Santinelli, **A. Spinaci**, R. Volpini *"Constrained ribose ATP derivatives as new potent antagonists for the purinergic P2X3 receptors"* 33rd Camerino-Cyprus Symposium - Receptor Chemistry: Reality and Vision, Camerino. *May 15-19, 2016*

A. Thomas, M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, M.

A. Ngouadjeu, C. Santinelli, **A. Spinaci**, S. Kachler, K.-N. Klotz, Rosaria Volpini *"Probing the 2-position of 9-ethyladenine for potent and selective A2A adenosine receptor antagonists"* 33rd Camerino-Cyprus Symposium - Receptor Chemistry: Reality and Vision, Camerino. *May 15-19, 2016*

Spinaci, A., Lambertucci, C., Buccioni, M., Dal Ben, D., Kachler, S., Marucci, G., Thomas, A., Klotz, K.-N., & Volpini, R. *New Adenine Nucleoside as ligands with dual activity at the adenosine receptors.* Italian Purine Club 2015, Istituto Superiore della Sanità, Roma (Italy) *January 16, 2016*
(PERSONAL ORAL PRESENTATION)

A. Spinaci, M. Buccioni, D. Dal Ben, C. Lambertucci, C. Santinelli, A. Thomas, G. Marucci, R. Volpini *"Design, synthesis, and pharmacological characterization of 2,N^6-disubstituted adenosine analogues of adenosine receptor ligands"* Purinergic Signaling, Vancouver (Canada). *January 24–28, 2016*

A. Thomas, M. P. Abbracchio, M. Buccioni, D. Dal Ben, C. Lambertucci, C. Martini, G. Marucci, C. Santinelli, **A. Spinaci**, R. Volpini *"Design, synthesis, and biological evaluation of new GPR17 ligands"* SAYCS 2015, Rimini. *October 27-29, 2015*

Spinaci, A., Lambertucci, C., Buccioni, M., Dal Ben, D., Kachler, S., Marucci, G., Thomas, A., Klotz, K.-N., & Volpini, R. *New substituted 9-propyladenine derivatives as A2A adenosine receptor antagonists.* XXXIV Convegno delle Sezioni Toscana, Umbria, Marche e Abruzzo 2015 SCI - Società Chimica Italiana, Perugia (Italy) *September 24, 2015*
(*PERSONAL ORAL PRESENTATION*)

Spinaci, A., Thomas, A., Buccioni, M., Dal Ben, D., Lambertucci, C., Marucci, G., Santinelli, C., Klotz, K.-N. & Volpini, R. *"New N^6-substituted adenosine derivatives as ligands with dual activity at adenosine receptors*." Sigma-Aldrich Young Chemists Symposium (SAYCS 2015) SCI - Società Chimica Italiana, Rimini (Italy) *October 28, 2015*

M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci,** A.Thomas, K.-N. Klotz, R. Volpini *"New N^6- substituted adenosine derivatives as ligands with dual activity at adenosine receptors"* XXIII Congresso National Meeting in Medicinal Chemistry (NMMC), Salerno. *September 6-9, 2015*

M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, A. Thomas, M. P. Abbracchio, R. Volpini *"Characterization of the GPR17 receptor dual pharmacological profile"* XXIII Congresso National Meeting in Medicinal Chemistry (NMMC), Salerno. *September 6 - 9 2015*

D. Dal Ben, M. Buccioni, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, A. Thomas, S. Kachler, R. Volpini *"9-Propyladenine derivatives as A2A adenosine receptor antagonists"* XXIII Congresso

National Meeting in Medicinal Chemistry (NMMC), Salerno. *September 6 - 9 2015*

A. Thomas, M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, M. P. Abbracchio, R. Volpini *"Stable nucleotide analogues as potent ligands for the purinergic P2Y and P2Y-like receptors"* XXIII Congresso National Meeting in Medicinal Chemistry (NMMC), Salerno. *September 6 - 9 2015*

A. Thomas, M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, K.-N. Klotz, R. Volpini. *"Upside-down adenine scaffold for the design of A_{2A} adenosine receptors ligands"* XXIII Congresso National Meeting in Medicinal Chemistry (NMMC), Salerno. *September 6 - 9 2015*

G. Marucci, M. Buccioni, D. Dal Ben, C. Lambertucci, C. Santinelli, **A. Spinaci**, A. Thomas, K.-N.Klotz, R. Volpini *"Synthesis and biological characterization of 9-propyladenine derivatives as ligands for adenosine receptors"* 6th Joint Italian-German Purine Club Meeting, Hamburg (Germany). *July 23-25, 2015*

C. Lambertucci, M. Buccioni, G. Marucci, D. Dal Ben, A. **Spinaci, A**. Thomas, K.-N. Klotz, R. Volpini *"New ligands for adenosine receptors"* 6th Joint Italian-German Purine Club Meeting, Hamburg (Germany). *July 23-25, 2015*

C. Lambertucci, M. Buccioni, G. Marucci, D. Dal Ben, A. **Spinaci, A**. Thomas, A. Nistri, R. Volpini *"New purine derivatives as antagonists of P2X3 receptors"* 6th Joint Italian-German Purine Club Meeting, Hamburg (Germany). *July 23-25, 2015*

R. Volpini, M. Buccioni, D. Dal Ben, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, A. Thomas *"New ligands for the dual receptor GPR17"* XXV National Congress of the Italian Chemical Society SCI 2014, Arcavacata di Rende. *September 7-12, 2014*

D. Dal Ben, M. Buccioni, C. Lambertucci, G. Marucci, C. Santinelli, **A. Spinaci**, A. Thomas, R. Volpini *"Molecular modeling studies on A2B adenosine receptor and its ligands"* XXV National Congress of the Italian Chemical Society SCI 2014, Arcavacata di Rende. *September 7-12, 2014*

C. Lambertucci, M. Buccioni, D. Dal Ben, G. Marucci, C. Santinelli, **A. Spinaci**, A. Thomas, R. Volpini *"P1 Receptor Ligands: Design, Synthesis, and Biological Activity of New Adenosine Analogues"* XXV National Congress of the Italian Chemical Society SCI 2014, Arcavacata di Rende. *September 7-12, 2014*

D. Dal Ben, M. Buccioni, C. Lambertucci, G. Marucci, **A. Spinaci**, A. Thomas, R. Volpini *"Development of structural models of purinergic P2X receptors and analysis of interaction with agonists and antagonists"* Purines 2014 – International Conference on Nucleotides, Nucleosides and Nucleobases, Bonn (Germany). *July 23-27, 2014*

D. Dal Ben, M. Buccioni, C. Lambertucci, G. Marucci, **A. Spinaci**, A. Thomas, K.-N. Klotz, R. Volpini *"Different efficacy of adenosine and NECA derivatives at the human A3 adenosine receptor: molecular modeling analysis and insight into the receptor activation switch"* Purines 2014 – International Conference on Nucleotides, Nucleosides and Nucleobases, Bonn (Germany). *July 23-27, 2014*

A. Thomas, M. Buccioni, C. Lambertucci, D. Dal Ben, G. Marucci, C. Santinelli, **A. Spinaci**, R. Volpini *"Design, synthesis, and pharmacological characterization of 2,N^6-disubstituted adenosine analogues as P1 receptor ligands"* Purines 2014 – International Conference on Nucleotides, Nucleosides and Nucleobases, , Bonn (Germany). *July 23-27, 2014*

C. Lambertucci, M. Buccioni, D. Dal Ben, G. Marucci, A. **Spinaci, A.** Thomas, R. Volpini *"Upside-down adenine derivatives as new antagonists for A_{2A} receptors"* Purines 2014 – International Conference on Nucleotides, Nucleosides and Nucleobases, Bonn (Germany). *July 23-27, 2014*

Camerino, 3 settembre 2019