Personal Information

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Education

Jan 2016	*Philosophiae Doctor* in Chemistry and Technology of Drugs (Department of Pharmaceutical Sciences, University of Perugia, Italy). Thesis: *"*Integrated chemical approaches for the generation of drug-like libraries and chiral building blocks*"*. Supervisor: Prof. Antimo Gioiello; Co-Supervisor: Prof. Antonio Macchiarulo
Oct 2012 – Oct 2015	PhD student (Department of Pharmaceutical Sciences, University of Perugia, Italy). Supervisor: Prof. Antimo Gioiello; Co-Supervisor: Prof. Antonio Macchiarulo
Jul 2014 – Dec 2014	Visiting PhD student (Institute of Applied and Synthetic Chemistry, Technische Universität Wien, Vienna, Austria). Supervisor: Prof. Mark D. Mihovilovic. Research topic: microbial and enzymatic-assisted reactions
Jul 2012	Certificate of confirmation of pharmacist professional qualification
Oct 2006 – Oct 2011	Master degree in Chemistry and Technology of Drugs (Department of Pharmaceutical Sciences, University of Perugia, Italy) *summa cum laude* and *academic kiss*. Thesis: *"*Synthesis of 3β,7α-dihydroxy-5-cholen-24-oic acid derivatives as chemical tools for the identification of inborn errors in the bile acid biosynthesis*"*. Supervisors: Prof. Roberto Pellicciari and Prof. Antimo Gioiello
Jun 2006	High School Diploma in Industrial Chemistry (IPSIA "G. Dorso", Lacedonia, Italy). Full marks: 100/100

Work Experiences

Nov 2022 – *Current*	Assistant Professor of Medicinal Chemistry (RTD-b) (Department of Pharmaceutical Sciences, University of Perugia, Italy)
Feb 2023 – Dec 2023	Consultant for Steroid S.p.A (Cologno Monzese, Italy). Main activities: Patent analysis, IP evaluation, synthetic routes scouting
Apr 2022 – Oct 2022	Head of chemical research. Employer: Steroid S.p.A (Cologno Monzese, Italy). Research topic: Coordination of a research team aimed at developing innovative synthesis of steroidal APIs
Nov 2020 – Apr 2022	Two-years post-Doctoral research fellowship (Department of Pharmaceutical Sciences, University of Perugia, Italy). Research topic: *"*Design, synthesis and process optimization of nuclear receptors ligands*"*
Sep 2018 – Sep 2020	Two years post-Doctoral research fellowship (Department of Pharmaceutical Sciences, University of Perugia, Italy). Research topic: *"*Synthesis and process optimization of biologically active steroids*"*
Sep 2017 – Aug 2018	Post-Doctoral research fellowship (Department of Pharmaceutical Sciences, University of Perugia, Italy). Research topic: *"*Synthesis of steroidal and bile acids derivatives of pharmaceutical interest*"*
Sep 2016 – Aug 2017	Post-Doctoral research fellowship (Department of Pharmaceutical Sciences, University of Perugia, Italy). Research topic: *"*Total synthesis of bile acids*"*

Dec 2015 – Aug 2016	Post-Doctoral researcher (Department of Pharmaceutical Sciences, University of Perugia, Italy). Employer: TES Pharma S.r.l (Corciano, Italy)
Oct 2013 – Jan 2014	Laboratory tutor for the course entitled "Extraction and synthetic preparation of drugs" (Department of Pharmaceutical Sciences, University of Perugia, Italy)
Nov 2011 – Oct 2012	Synthetic medicinal chemist (Department of Pharmaceutical Sciences, University of Perugia, Italy). Research topic: *"*Design and synthesis of potent and selective ligands for the TGR5 receptor*"*. Employer: TES Pharma S.r.l (Corciano, Italy)
May 2010 – Jan 2011	Internship (750 hours) in pharmacy (Farmacia di Elce, Perugia, Italy)
Oct 2009 – Jun 2010	Technical assistant for the courses entitled "Qualitative analytical chemistry" and "Quantitative analytical chemistry" (Department of Pharmaceutical Sciences, University of Perugia, Italy)

Research Areas

Medicinal chemistry, flow chemistry, drug discovery, multistep organic synthesis, steroids, bile acids, nuclear receptors, process optimization, natural products, biocatalysis.

Teaching

Oct 2023 – *Current*	Co-Teaching (44 hours) in the course of "Extraction and synthetic preparation of drugs" (Department of Pharmaceutical Sciences, University of Perugia, Italy)
Oct 2013 – April 2022	Member of the examination committee and teaching assistant for the course entitled "Extraction and synthetic preparation of drugs" (Department of Pharmaceutical Sciences, University of Perugia, Italy)
Feb 2021 – Feb 2022	Co-supervisor of experimental master degree thesis. Student: Cecile Blondeau. Title: *"*Continuous flow synthesis and reactions of isocyanides*"*. Degree score: *Summa cum laude.*
Oct 2017 – May 2021	Co-supervisor of PhD thesis. Student: Anna Maria Lozza. Title: *"*Integrated strategies for bile acids process and medicinal chemistry*"*
Oct 2023 – June 2023	Co-supervisor of experimental master degree thesis. Student: Luigi Alfonso Pannone. Title: *"*Synthesis and characterization of mometasone furoate EP impurity C*"*. Degree score: 96/110
Apr 2019 – Jul 2020	Co-supervisor of experimental master degree thesis. Student: Martina Farfallini. Title: *"*From bile acids to 11-oxosteroid: development of a new synthesis of the hormone 11-ketoprogesterone, a synthetic precursor of steroidal drugs*"*. Degree score: 109/110
Apr 2017 – Jul 2018	Co-supervisor of experimental master degree thesis. Student: Shiva Tali Shandiz. Title: "Design, synthesis and characterization of atypical bile acids as FXR ligands". Degree score: *Summa cum laude.* Awarded with "Dott.ssa Anna Maria Piccioli" prize for the best Thesis of the Faculty of Pharmacy - University of Perugia

Lab tutor for experimental master degree thesis of 25 undergraduate students

Awards and Fellowships

May 2022	National scientific qualification as associate professor in the Italian higher education system, in the call second quarter 2021/2023 (Ministerial Decree n. 553/2021 and 589/2021) for the disciplinary field of 03/D1 - Medicinal, toxicological and nutritional chemistry and applied technologies (Academic

	Recruitment Field 03/D1 - Medicinal and food chemistry and applied technologies, according to the national classification). Validity up to 10/05/2032
Feb 2022	Runner-up "Premio Divisione" (Medicinal Chemistry Division of the Italian Chemical Society) for the best under 40 medicinal chemist in Italy.
May 2020	Runner-up "Premio Divisione" (Medicinal Chemistry Division of the Italian Chemical Society) for the best under 40 medicinal chemist in Italy.
Jul 2018	Scholarship from the Medicinal Chemistry Division of the Italian Chemical Society for the Italian-Spanish-Portuguese Joint meeting in Medicinal Chemistry (MedChemSicily2018), July 17th-20th 2018, Palermo (Italy). Selected for poster presentation
Sept 2017	Best PhD Thesis in Medicinal Chemistry 2016 in Italy. Award from the Medicinal Chemistry Division of the Italian Chemical Society. Invited oral communication for the 26th National Meeting in Medicinal Chemistry (NMMC), September 10th-14th 2017, Paestum (Italy)
Jul 2015	Scholarship from the Medicinal Chemistry Division of the Italian Chemical Society for the meeting SIMCC2015. Selected for oral communication
Jun 2015	Scholarship from the Erasmus+ mobility program
Jun 2014	Scholarship from the Medicinal Chemistry Division of the Italian Chemical Society for the meeting NPCF8. Selected for oral communication
Nov 2012	Best graduate student award for the academic year 2010-2011 (Faculty of Pharmacy, University of Perugia, Italy)

Beneficiary of scholarships for excellent academic results (academic years 2007/08, 2008/09, 2009/10 and 2010/11)

Personal Skills and Competences

Mother tongue	Italian
Foreign languages	English (written and spoken, C1 level)
Technical skills	Process optimization and development of novel eco-friendly synthetic methodologies by means of flow chemistry technologies (Vapourtec R2+/R4 system, Asia Syrris, ThalesNano H-Cube) supported by automation and statistical experimental design (DoE). Multistep organic synthesis of steroidal APIs and (pre)clinical candidates in medicinal chemistry programs
IT skills	European Computer Driving Licence (ECDL). Good knowledge of Microsoft Office, ACDLab, ChemOffice, SciFinder, Statistica, MestRec, R, Design of Experiment.

Posters and Communications

1) **Cerra, B.**, Mancino, V., Croci, F., Lozza, A. M., Sardella, R., Gioiello, A. **Oral communication:** "Integrated flow platform to streamline the synthesis of biologically-active steroids", XXVIII National Meeting in Medicinal Chemistry (NMMC), September 17th-20th, 2023, Chieti (Italy).

2) **Cerra, B.**, Blondeau, C., Cannalire, R., Giustiniano, M. T., Tali Shandiz, S., Gioiello, A. **Flash communication:** "Powering isocyanide-based chemistry by continuous flow technology: synthesis and telescoped reactions of isocyanides", 9th European Workshop in Drug Synthesis (EWDSy), May 21st-24th 2023, Certosa di Pontignano, Siena, Italy.

3) **Cerra, B. Invited oral communication:** "Speeding-up medicinal chemistry programs based on forbidden chemicals by continuous flow technology", Virtual meeting for the assignment of "Premio Divisione di Chimica Farmaceutica 2022", February 28th 2022.

4) Bianconi, E., Coletti, A., **Cerra, B.**, Gioiello, A. Macchiarulo, A. **Poster:** "Biophysical studies on binding and cooperativity of fatty acid binding protein-6 (FABP-6) ligands", Recent Developments in Pharmaceutical Analysis (RDPA 2021), September 6th-8th 2021, Modena (Italy).

5) **Cerra, B.**, Albertini, B., Blasi, P., Gioiello, A. **Invited oral communication:** "Size-tuneable flow synthesis of functional nanoparticles for biomedical applications", Italian Young Medicinal Chemistry Virtual Meeting (I-YMC-VMeet), July 22nd-24th 2020.

6) Tali Shandiz, S., **Cerra, B.**, Carotti, A., Passeri, D., De Franco, F., Pellicciari, R., Gioiello, A. **Poster and flash communication:** "Exploring FXR selectivity: design, synthesis and characterization of C19-OH-chenodeoxycholic acid", Merck Young Chemists' Symposium 2019, November 25th-27th 2019, Rimini (Italy).

7) Lozza, A. M., Venturoni, F., Sadeghpour, B. M., **Cerra, B.**, Pellicciari, R. **Poster:** "Scale-up synthesis of INT-767, a potent dual FXR/TGR5 agonist advanced in clinical study", 6th EFMC Young Medicinal Chemist Symposium (EFMC-YMCS), September 5th-6th 2019, Athens (Greece).

8) **Cerra, B.**, Mosca, G., Tali Shandiz, S., Ricci, M., Schoubben, A., Gioiello, A. **Oral communication:** "Flow nanoprecipitation of size-controlled D-leucine nanoparticles as excipient for spray-drying formulations", XXVI National Meeting in Medicinal Chemistry (NMMC), July 16th-19th 2019, Milan (Italy).

9) Gioiello, A., **Cerra, B.**, Tali Shandiz, S., Pellicciari, R. **Oral communication:** "Expanding the bile acid chemical space: synthetic strategies for lead discovery and development", XXI European Symposium on Organic Chemistry (ESOC2019), July 14th-18th 2019, Vienna, (Austria).

10) Mosca, G., **Cerra, B.**, Gioiello, A., Ricci, M., Schoubben, A. **Poster:** "Flow production of D-leucine particles as excipient in powders for inhalation", European Federation for Pharmaceutical Sciences Annual Meeting - Personalized Medicines, Targeted Therapies and Precision Drug Delivery, March 6th-8th 2019, Frankfurt (Germany).

11) **Cerra, B.**, Mostarda, S., Passeri, D., Carotti, A., Colliva, C., Benicchi, T., Macchiarulo, A., Pellicciari, R., Gioiello, A. **Poster:** "Investigating the pathophysiological relevance of bile acid glucuronidation: synthesis and characterization of bile acids 3-glucuronides", Italian-Spanish-Portuguese Joint meeting in Medicinal Chemistry (MedChemSicily2018), July 17th-20th 2018, Palermo (Italy).

12) Mancino, M., Piccinno, A., Lozza, A. M., **Cerra, B.**, Gioiello, A. **Oral communication:** "Development of a continuous flow synthesis of 16-dehydropregnenolone acetate: a powered entry into steroids from plants", Italian-Spanish-Portuguese Joint meeting in Medicinal Chemistry (MedChemSicily2018), July 17th-20th 2018, Palermo (Italy).

13) Lozza, A. M., Blasi, F., **Cerra, B.**, Tali Shanidz, S., Cossignani, L., Gioiello, A. **Poster:** "Continuous flow synthesis and enzymatic resolution of 3-hydroxy-ɣ-butyrolactone (3-BHL): a key building block for synthesis and drugs", VII European Workshop in Drug Design (VII EWDSY), May 20th-24th 2018, Siena (Italy).

14) **Cerra, B. Invited oral communication:** "Integrated chemical approaches for the generation of drug-like libraries and chiral building blocks", XXV National Meeting in Medicinal Chemistry (NMMC), September 10th-14th 2017, Paestum (Italy).

15) **Cerra, B.**, Mangiavacchi, F., Santi, C., Lozza, A. M., Gioiello, A. **Poster and flash communication:** "Synthesis of hydroxy lactones by selenium-mediated oxidation/cyclization of alkenoic acids under eco-flow conditions", 4th EFMC Young Medicinal Chemist Symposium (EFMC-YMCS), August 31st - September 1st 2017, Vienna (Austria).

16) Dolciami D., Scalisi, G., **Cerra, B.**, Gargaro, M., Viola, S., Tuberti, M., Fallarino, F., Macchiarulo, M. **Poster:** "Casting lights on the binding mode of ITE to AHR",4th EFMC Young Medicinal Chemist Symposium (EFMC-YMCS), August 31st - September 1st 2017, Vienna (Austria).

17) Dolciami, D., Scalisi, G., **Cerra, B.**, Gargaro, M., Servillo, G., Della Fazia, M. A., Puccetti, P., Fallarino, F., Macchiarulo, A. **Poster:** "Integrated approaches for the identification of ITE binding mode to AhR", XI European Workshop in Drug Design (EWDD), May 21st-26th 2017, Siena (Italy).

18) Gatticchi, L., **Cerra, B.**, Scarpelli, P., Sebastiani, B., Gioiello, A., Roberti, R. **Oral communication:** "Intracellular trafficking of labelled BODIPY-FF-MAS reveals nuclear lipid droplets localization", XIV Congress of the Italian Federation of Life Sciences (FISV), September 20th-23rd 2016, Rome (Italy).

19) **Cerra, B.**, Mancino, V., Passeri, D., De Franco, F., Macchiarulo, A., Pellicciari, R., Gioiello, A. **Poster:** "Identification of a novel class of pregnane x receptor (PXR) ligands: flow synthesis and preliminary biological activity of tetrahydroquinolines", 24th National Meeting in Medicinal Chemistry (NMMC), September 11th-14th 2016, Perugia (Italy).

20) Gioiello, A., **Cerra, B.**, Zhang, W., Pellicciari, R., Setchell, K. D. R. **Oral communication:** "Atypical bile acids as chemical probes for diagnosis and therapy monitoring in patients with HSD3B7 deficiency", 24th International Symposium on Medicinal Chemistry (EFMC-ISMC), August 28th - September 1st, Manchester (UK).

21) Gioiello, A., Mostarda, S., **Cerra, B.**, Mancino, V., Filipponi, P., Pellicciari, R. **Poster:** "Speeding-up early phase of drug discovery: DoE-driven synthetic optimization of chemical processes in flow systems", 24th International Symposium on Medicinal Chemistry (EFMC-ISMC), August 28th - September 1st 2016, Manchester (UK).

22) Mangiavacchi, F., **Cerra, B.**, Mancino, V., Santi, C., Mostarda, S., Gioiello, A. **Poster:** "Selenium-mediated oxidation of alkenoic acids under flow conditions", 13th International Conference on the Chemistry of Selenium and Tellurium (ICCST-13), May 23rd-27th 2016, Gifu (Japan).

23) Gioiello, A., Mostarda, S., Filipponi, P., **Cerra, B.**, Colliva, C., Pellicciari, R. **Poster:** "Synthesis and characterization of 3α,7α,11α-trihydroxy-5β-cholan-24-oic acid a natural bile acid from sunfish *Mola mola*", Frontiers in Medicinal Chemistry (FMC), September 14th-16th 2015, Antwerp (Belgium).

24) Albertini, B., **Cerra, B.**, Ricci, M., Blasi, P., Gioiello, A. **Poster:** "Flow synthesis of gold nanoparticles", Spanish-Italian Medicinal Chemistry Congress (SIMCC), July 12th-15th 2015, Barcelona (Spain).

25) **Cerra, B.,** Mostarda, S., Pellicciari, R., Macchiarulo, A., Gioiello, A. **Oral communication:** "Combining flow chemistry with multicomponent Povarov reaction: stereoselective synthesis and characterization of tricyclic tetrahydroquinolines", Spanish-Italian Medicinal Chemistry Congress (SIMCC), July 12th-15th 2015, Barcelona.

26) **Cerra, B**. **Poster:** "Tetracyclic tetrahydroquinolines as steroid-responsive receptors modulators: design, flow synthesis and preliminary biological evaluation", European School of Medicinal Chemistry (ESMEC), June 28th - July 3rd 2015, Urbino (Italy).

27) Mangiavacchi, F., Filipponi, P., **Cerra, B.**, Mostarda, S., Santi, C., Gioiello, A. **Oral communication:** "Benzenseleninic acid-promoted cyclization of alkenoic acids under flow conditions: a facile stereoselective approach to β-hydroxy γ-butyrolactones,", 4th Scientific Workshop of the multidisciplinary group SeS Redox and catalysis (WSeS-4), April 20th-21st 2015, Perugia (Italy).

28) Filipponi, P., Ostacolo, C., **Cerra, B.**, Mostarda, S., Novellino, E., Pellicciari, R., Gioiello, A. **Poster:** "Continuous flow synthesis of thieno[2,3-c]isoquinolin-5(4H)-one (TIQ-A) scaffold: a valuable source of PARP-1 inhibitors", 3rd Working Group Meeting Chemical Approaches to Targeting Drug Resistance in Cancer Stem Cells (COST Action CM1106), March 26th-27th 2015, Athens (Greece).

29) **Cerra, B.**, Custodi, C., Macchiarulo, A., Gioiello, A. **Oral communication:** "Multicomponent flow synthesis for ring-fused tetrahydroquinoline library construction", 8th Meeting Nuove Prospettive in Chimica Farmaceutica (NPCF8), June 9th-11th 2014, Parma (Italy).

30) Custodi, C., **Cerra, B.**, Carotti, A., Gioiello, A., Marinozzi, M., Pellicciari, R., Macchiarulo, A. **Poster:** "Random forest: a walk in the FXR modulation", 3rd Meeting Computationally Driven Drug Discovery (CDDD), March 4th-6th 2014, Verona (Italy).

31) Zhang, W., Wolfe, B., Jha, P., Gioiello, A., **Cerra**, **B.**, Vallerini, G. P., Pellicciari, R., Setchell, K. D. R. **Poster:** "Application of untargeted and targeted metabolomics to the study of liver disease caused by a deficiency in 3β-hydroxy-Δ^5-C27-steroid oxidoreductase (HSD3B7) in the pathway for the metabolism of cholesterol to bile acids-diagnosis and response to therapy", Mass Spectrometry: Application to Clinical Lab (MSACL) Congress, March 1st-5th 2014, San Diego (USA).

32) **Cerra, B**. **Oral communication:** "On the way to novel bile acid receptor modulators: design and synthesis of bile acid-mimicking heterocycles by multicomponent DoE-assisted flow approach", 7th Summer School on Drug Design-Europin Project, September 15th-20th 2013, Vienna (Austria).

33) **Cerra, B.**, Setchell, K. D. R., Pellicciari, R., Gioiello, A. **Poster:** "Synthesis of 3β,7α-dihydroxy-Δ^5-cholenoic acid derivatives: atypical bile acid metabolites and useful biomarkers to detect 3β-HSDH deficiency", 7th Meeting Nuove Prospettive in Chimica Farmaceutica (NPCF7), May 29th-31st 2013, Savigliano (Italy).

34) Custodi, C., **Cerra, B.**, Gioiello, A., Macchiarulo, A. **Poster:** "A voyage to chart properties of bile acids and their analogues in the chemical space", IX European Workshop in Drug Design (EWDD), May 19th-25th 2013, Siena (Italy).

Peer-Reviewed Publications

1) Ronchetti, R., Pannone, L. A., **Cerra, B.,** Camaioni, E., Lopopolo, G., Attolino, E., Gioiello, A. Multi-gram scale synthesis and characterization of mometasone furoate EP Impurity. *Tetrahedron* **2023**, *submitted* (IF 2022: *2.1*, cit.: 0)

2) Rosatelli, E.,* Carotti, A.,* **Cerra, B.**, De Franco, F., Passeri, D., Pellicciari, R., Gioiello, A. Chemical exploration of TGR5 functional hot-spots: synthesis and structure-activity relationships of C7- and C23-substituted cholic acid derivatives. *Eur. J. Med. Chem.* **2023**, *submitted* (IF 2022: *6.7*, cit.: 0)

3) Filipponi, P., **Cerra, B.,** Piccinno, A., Camaioni, E., Gioiello, A. Continuous flow-enabling synthesis of the PARP-1/2 inhibitor HYDAMTIQ. *Org. Process Res. Dev.* **2023**, *submitted* (IF 2022: *3.4*, cit.: 0)

4) Ballarotto, M., **Cerra, B.**, Temperini, A. Multicomponent and metal-free Diels–Alder/aromatization approach to the stereospecific synthesis of *E*-(hetero)stilbenes and diarylacetylenes. *Eur. J. Org. Chem.* **2023**, *in press* (DOI: 10.1002/ejoc.202300552, IF 2022: *2.8*, cit.: 0)

5) Tomarelli, E., **Cerra, B.**, Mutti, F. G., Gioiello, A. Merging continuous flow technology, photochemistry and biocatalysis to streamline steroid synthesis. *Adv. Synth. Catal.* **2023**, *365*, 1-26 (DOI: 10.1002/adsc.202300305, IF 2022: *5.4*, cit.: 1)

6) Bianconi, E., Riccio, A., Ruta, L., Bigiotti, C., Carotti, A., Moretti, S., **Cerra, B.**, Gioiello, A., Ferlin, S., Puxeddu, E., Macchiarulo, A. Turning a tumor microenvironment pitfall into opportunity: discovery of benzamidoxime as PD-L1 ligand with pH-dependent potency. *Int. J. Mol. Sci.* **2023**, *24*, 5535 (DOI: 10.3390/ijms24065535, IF 2022: *5.6*, cit.: 0)

7) **Cerra, B.**, Blondeau, C., Cannalire, R., Giustiniano, M. T., Tali Shandiz, S., Gioiello, A. Isocyanide chemistry enabled by continuous flow technology. *React. Chem. Eng.* **2023**, *8*, 656-660 (DOI: 10.1039/D2RE00454B, IF 2022: *3.6*, cit.: 0)

8) Cannalire, R., Russo, C., Luciano, P., **Cerra B.,** Gioiello, A., Brunelli, F., Tron, G. C. Giustiniano, M. Domino synthesis of 5-aminoimidazoles from Strecker multicomponent adducts *via* ytterbium-promoted isocyanide insertion/5-exo-dig cyclization. *Mol. Div.* **2023**, *27*, 511-515 (DOI: 10.1007/s11030-022-10418-4, IF 2022: *3.364*, cit.: 0)

9) Ianni, F., **Cerra, B.**, Moroni, G., Varfaj, I., Di Michele, A., Gioiello, A., Carotti, A., Sardella, R. Combining molecular modeling approaches to establish the chromatographic enantiomer elution order in the absence of pure enantiomeric standards: a study case with two tetracyclic quinolines. *Sep. Sci. Plus* **2022**, 1-9 (DOI: 10.1002/sscp.202200073, IF 2022: *3.614*; cit.: 1)

10) **Cerra, B.**,* Venturoni, F.,* Souma, M., Ceccarelli, G., Lozza, A. M., Passeri, D., De Franco, F., Baxendale, I. R., Pellicciari, R., Macchiarulo, A., Gioiello, A. Development of 3α,7α-dihydroxy-6α-ethyl-24-nor-5β-cholan-23-sulfate sodium salt (INT-767): process optimization, synthesis and characterization of metabolites. *Eur. J. Med. Chem*. **2022**, *242*, 114652 (DOI: 10.1016/j.ejmech.2022.114652, IF 2022: *7.088*, cit.: 0)

11) **Cerra, B.**, Gioiello, A. Future medicinal chemists experience flow chemistry: optimization by experimental design of the limiting synthetic step to the antifungal drug econazole nitrate. *J. Flow. Chem.* **2021**, *11*, 67-73 (DOI: 10.1007/s41981-020-00136-z , IF 2021: *3.264*, cit.: 1).

12) Riccio, A., Coletti, A., Dolciami, D., Mammoli, A., **Cerra, B.**, Moretti, S., Gioiello, A., Ferlin, S., Puxeddu, E., Macchiarulo, A. The stone guest: how does pH affect binding properties of PD-1/PD-L1 inhibitors? *ChemMedChem*, **2021**, *16*, 568-577 (DOI: 10.1002/cmdc.202000760, IF 2021: *3.540*, cit.: 7).

13) Ianni, F.,* **Cerra, B.**,* Tali Shandiz, S., Di Michele, A., Saluti, G., Galarini, R., Gioiello, A., Sardella, R., Carotti, A. Integrating experimental and computational techniques to study chromatographic enantioresolutions of chiral tetrahydroindazole derivatives. *J. Chromatogr. A* **2020**, *1625*, 461310 (DOI: 10.1016/j.chroma.2020.461310, IF 2020: *4.759*, cit.: 4).

14) Bartolini, D., De Franco, F., Torquato, P., Marinelli, R., **Cerra, B.**, Ronchetti, R., Schon, A., Fallarino, F., De Luca, A., Bellezza, G., Ferri, I., Sidoni, A., Walton, W. G., Pellock, S. J., Redinbo, M. R., Sridhar, M., Pellicciari, R., Gioiello, A.,

Galli, F. Garcinoic acid is a natural and selective agonist of pregnane x receptor. *J. Med. Chem.* **2020**, *63*, 3701-3712 (DOI: 10.1021/acs.jmedchem.0c00012, IF 2020: *7.446*, cit.: 30).

15) Gioiello, A., Piccinno, A., Lozza, A. M., **Cerra, B**. The medicinal chemistry in the era of machines and automation: recent advances in continuous flow technology. *J. Med. Chem.* **2020**, *63*, 6624-6647 (DOI: 10.1021/acs.jmedchem.9b01956, IF 2020: *7.446*, cit.: 91).

16) **Cerra, B.**, Macchiarulo, A.; Carotti, A., Camaioni, E., Varfaj, I., Sardella, R., Gioiello, A. Enantioselective HPLC analysis to assist the chemical exploration of chiral imidazolines. *Molecules*, **2020**, *25*, 640-651 (DOI: 10.3390/molecules25030640, IF 2020: *4.411*, cit.: 9).

17) Mancino, V., Croci, F., Lozza, A. M., **Cerra, B.**, Gioiello, A. Streamlined synthesis of the neurosteroid 3β-methoxypregnenolone assisted by statistical experimental design and automation. *React. Chem. Eng.* **2020**, 5, 300-307 (DOI: 10.1039/C9RE00353C, IF 2020: *4.239*, cit.: 3).

18) **Cerra, B.**, Mosca, G., Ricci, M., Shoubben, A., Gioiello, A. Flow nanoprecipitation of size-controlled D-leucine nanoparticles for spray-drying formulations. *React. Chem. Eng.* **2019**, *4*, 1861-1868 (DOI: 10.1039/C9RE00242A, IF 2019: *3.441*, cit.: 2).

19) Mostarda, M., Gür Maz, T., Piccinno, A., **Cerra, B.**, Banoglu, E. Optimisation by design of experiment of benzimidazol-2-one synthesis under flow conditions. *Molecules*, **2019**, *24*, 2447-2456 (DOI: 10.3390/molecules24132447, IF 2019: *3.267*, cit.: 6).

20) **Cerra, B.**, Carotti, A., Passeri, D., Sardella, R., Moroni, G., Di Michele, A., Macchiarulo, A., Pellicciari, R., Gioiello, A. Exploiting chemical toolboxes for the expedited generation of tetracyclic quinolines as a novel class of PXR agonists. *ACS Med. Chem. Lett.* **2019**, *10,* 677-681 (DOI: 10.1021/acsmedchemlett.8b00459, IF 2019: *3.975*, cit.: 25).

21) Franco, P., Porru, E., Fiori, J., Gioiello, A., **Cerra, B.**, Roda, G., Caliceti, C., Simoni, P., Roda, A. Identification and quantification of oxo-bile acids in human feces with HPLC-ES-MS/MS: a potent tool for human gut acidic sterolbiome studies. *J. Chromatogr. A* **2019**, 70-81 (DOI: 10.1016/j.chroma.2018.11.038, IF 2019: *4.049*, cit.: 32).

22) Venturoni, F., **Cerra, B.**, Marinozzi, M., Camaioni, E., Gioiello, A., Pellicciari, R. $BF_3{\cdot}Et_2O$-Promoted decomposition of cyclic α-diazo-β-hydroxy ketones: novel insights into mechanistic aspects. *Catalysts*, **2018**, *8*, 600-611 (DOI: 10.3390/catal8120600, IF 2018: *3.444*, cit.: 2).

23) Nocentini, A., Bonardi, A., Gratteri, P., **Cerra, B.**, Gioiello, A., Supuran, C. T. Steroids interfere with human carbonic anhydrase activity by using alternative binding mechanisms. *J. Enz. Inhib. Med. Chem.* **2018**, *33*, 1453-1459 (DOI: 10.1080/14756366.2018.1512597, IF 2018: *4.027*, cit.: 72).

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Books, Chapters and Monographs

1) Gioiello, A., Moroni, G., **Cerra B. Book chapter:** Integrated Systems for Continuous Synthesis and Biological Screenings *in Flow and Microreactor Technology in Medicinal Chemistry*, **2022**, first ed., Ed.: E. Alza, Publisher: Wiley-VCH Verlag GmbH & Co. KGaA (ISBN: 978-3-527-34689-9).

2) Gioiello, A., Marinozzi, M., **Cerra, B.**, Custodi, C., Pellicciari, R., Macchiarulo, A. **Book chapter:** The systems biology of transporters – Targeting the regulatory system for transporters (FXR/RXR) *in Transporters as drug targets*, **2017**, first ed., Eds.: G. F. Ecker, R. P. Clausen, H. H. Sitte, Publisher: Wiley-VCH Verlag GmbH & Co. KGaA, pp. 201-232 (ISBN: 978-3-527-33384-4).

3) Mangiavacchi, F., **Cerra, B.**, Santi, C., Gioiello, A. 'Bio-logical' flow synthesis. *La Chimica e l'Industria*, **2016**, 36-37 (DOI: 10.17374/CI.2016.98.1.36).

Total citations: 542 (Google Scholar), 461 (Scopus); 416 (Web of Sciences); **Citations *per* year:** 46.22-60.22; **Citations *per* document:** 13.42-17.48; ***H-index:*** 12; ***Total IF:*** 139.63 (based on bioxbio); ***Mean IF:*** 4.107 (based on bioxbio).
5 reviews (15%) and 29 original papers (85%);
17 papers (50%) Q1 for Medicine, Drug discovery, Pharmaceutical Sciences or Pharmacology, Toxicology and Pharmaceutics.
2 papers (6%) Q1 for Biochemistry, Molecular Biology or Cell BIology.
10 papers (29%) Q1 for Chemical Engeneering, Chemistry, Organic Chemistry, Flow Chemistry.
5 papers (15%) Q2 per Catalysis, Chemistry.
8 first name (24%), 2 second name contributed equally (6%), 2 corresponding author (6%), 1 last name not corresponding author (3%).

Other Activities

Reviewer for: Journal of Medicinal Chemistry, Bioorganic & Medicinal Chemistry, Reaction Chemistry & Engineering, Molecules, Marine Drugs, Molbank, International Journal of Molecular Sciences, Applied Sciences, Scientia Pharmaceutica, Separation (54 verified reviews on Publons since 2017)

Guest co-Editor special issue "Enabling Chemical Technologies in Medicinal Chemistry", *Molecules* (MDPI, IF 2019: *3.267*, https://www.mdpi.com/journal/molecules/special_issues/enabling_chem)

Member of the Medicinal Chemistry Division of the Italian Chemical Society (SCI) since 2012 (n° 18717)

Member of the American Chemical Society (26/08/2020 - 25/08/2021, n° 31720519)

Organizer and teacher for a workshop on "Continuous flow chemistry in drug discovery and development" for the European School of Medicinal Chemistry (ESMEC), July 1st-5th 2018, Urbino (Italy) (http://eventi.uniurb.it/esmec/)

Research Grants and Collaborations

1) **Fondazione Cassa di Risparmio di Perugia 2018** (*Participant*): Private Foundation; Project title: "Development and application of flow technologies for the synthesis of chemical compounds libraries". **Ricerca di base 2015** (*Participant*). Project title: "Controlled crystallization of leucine nanoparticles to improve the aerosolization of inhalable powders".
2) **Fondazione Cassa di Risparmio di Perugia 2014** (*Participant*): Private Foundation; Project code: 2014.0100.021; Project title: "Novel heterogeneous catalysts for the development of green synthetic processes under flow conditions".
3) **Intercept Pharmaceuticals, Inc.** (*Participant*): 2014-*Current*, Private Founding; Project title: "Synthesis and process optimization of biologically active steroids".
4) **TES Pharma S.r.l.** 2011-*Current*. "Design and synthesis of biologically-active steroids"
5) **Steroid S.p.A** (*Participant*): "Ricerca ed ottimizzazione su scala di laboratorio della sintesi del principio attivo farmaceutico Estetrol (CAS n. 15183-37-6)".
6) **Fondo Ricerca di Ateneo 2022. W.P. 1.3 (*Participant*).** "Development of a nose-to-brain delivery system to target nuclear receptor-mediated mechanisms of neuroprotection in non-communicable and rare brain diseases (IN2-Brain)"

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Perugia, September 6th 2023