Curriculum Vitae

NAME: Marzaro, Giovanni

POSITION TITLE: Associate Professor of Medicinal Chemistry

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Padova, (Padova, Italy)	M.S.	07/2005	Medicinal Chemistry and Pharmaceutical Technology
University of Padova, (Padova, Italy)	Ph.D.	03/2009	Medicinal Chemistry
University of Padova, (Padova, Italy)	Post Doc	08/2014	Medicinal Chemistry
University of Padova, (Padova, Italy)	Tenure Track Researcher	08/2017	Medicinal Chemistry

A. Personal Statement

I have a strong background in medicinal chemistry, with specific training and expertise in rational design, synthesis and characterization of bioactive molecules. My research focuses mainly on the screening, design and synthesis of kinase inhibitors, CFTR modulators, topoisomerase inhibitors, anti-fibrotic agents, small molecules inhibitors of EGF/EGFR interaction. To pursue my researches, I deepen my knowledge on molecular docking simulation, virtual screening approaches, homology modeling and structure-based design of bioactive compounds. I have been involved in several national and international research groups as PI and co-investigator. Consequently, I consider the frequent communication among project members and planning a realistic research project with well defined timeline and budget, as key aspects for reaching the final goal. Due to the emergency of the actual situation, the current application will capture all my work efforts. I believe that my skills fit with the aim and the urgency of this application, since virtual screening and rational design of compounds can boost the discovery and development of agents useful in blocking the COVID-19 outbreak.

1. Chilin, A.; Conconi, M. T.; Marzaro, G.; Guiotto, A.; Urbani, L.; Tonus, F.; Parnigotto, P., Exploring epidermal growth factor receptor (EGFR) inhibitor features: the role of fused dioxygenated rings on the quinazoline scaffold. J Med Chem 2010, 53 (4), 1862-6.
2. Marzaro, G.; Coluccia, A.; Ferrarese, A.; Brun, P.; Castagliuolo, I.; Conconi, M. T.; La Regina, G.; Bai, R.; Silvestri, R.; Hamel, E.; Chilin, A., Discovery of biarylaminoquinazolines as novel tubulin polymerization inhibitors. J Med Chem 2014, 57 (11), 4598-4605.
3. Gandin, V.; Ferrarese, A.; Dalla Via, M.; Marzano, C.; Chilin, A.; Marzaro, G., Targeting kinases with anilinopyrimidines: discovery of N-phenyl-N'-[4-(pyrimidin-4-ylamino)phenyl]urea derivatives as selective inhibitors of class III receptor tyrosine kinase subfamily. Sci Rep 2015, 5, 16750.

B. Positions and Honors

Positions and Employment

1997-1998 Employed as technician at the micro-pollutant analytical chemistry lab at the Consorzio Interunivrsitario la Chimica per l'Ambiente (INCA; Venice, Italy)

2006 Lecturer for the European Social Found

2006-2014 Assistant for practical courses on Analytical Medicinal Chemistry, Synthetic Medicinal Chemistry and Informatics at the Dept of Pharmaceutical and Pharmacological Sciences (University of Padova)

2009-2010 Junior Post-Doc student at the Dept of Pharmaceutical and Pharmacological Sciences (University of Padova)

2010-2014 Senior Post-Doc student at the Dept of Pharmaceutical and Pharmacological Sciences (University of Padova)

2014- Guest Editor, Current Topics in Medicinal Chemistry, Bentham Science

2014-2017 Tenure Track Researcher at the Dept of Pharmaceutical and Pharmacological Sciences (University of Padova)

2016- Member of Editorial Board for Scientific Reports, Nature Publishing Group

2017- Associate Professor at the Dept of Pharmaceutical and Pharmacological Sciences (University of Padova)

Other Experience and Professional Memberships

2005- Member of Italian Chemical Society

2017 Habilitation as Associate Professor in Medicinal Chemistry

Honors

2012 Winner of the Young Researchers Award, University of Padova

C. Contribution to Science

1. In 2006 I discovered a novel chemical reaction for the synthesis of quinazoline nucleus. Starting from this finding, I developed a useful strategy for the synthesis of 4-anilinoquinazoline based kinase inhibitors. These findings allowed me to synthesize some biarylaminoquinazolines endowed with broad kinase inhibitory activity spectrum, marked activity in several cancer cell lines and antiangiogenic properties. The compounds were patented as potential anticancer agents (WO2012/127012: Biphenyl tricyclic quinazoline compounds, 2012) Further studies revealed that biphenylaminoquinazolines possess also anti-tubulin properties, whereas the introduction of heteroatoms in the biaryl portion led to compounds active only against tubulin polymerization. My research on kinase inhibitors has then moved to 4-anilinopyrimidines, with the identification of N-phenyl-N'-[4- (pyrimidin-4-ylamino)phenyl]urea derivatives as selective inhibitors of class III receptor tyrosine kinase subfamily. These compounds showed marked activity in several cancer cell lines, lower cytotoxicity in human normal cell lines than sunitinib (a marketed kinase inhibitor) and higher activity in animal model than cis-platin. Further investigation led to the development of 4-anilinopyridines as promising RET inhibitors endowed with FLT3 inhibitory activity. I was the primary investigator in most of these studies, dealing with the project design, virtual screening, rational design and synthesis of the compounds and management of the research group.

a. Marzaro, G.; Chilin, A.; Pastorini, G.; Guiotto, A., A novel convenient synthesis of benzoquinazolines. Organic Letters 2006, 8 (2), 255-256.
b. Chilin, A.; Conconi, M. T.; Marzaro, G.; Guiotto, A.; Urbani, L.; Tonus, F.; Parnigotto, P., Exploring epidermal growth factor receptor (EGFR) inhibitor features: the role of fused dioxygenated rings on the quinazoline scaffold. J Med Chem 2010, 53 (4), 1862-6.
c. Conconi, M. T.; Marzaro, G.; Urbani, L.; Zanusso, I.; Di Liddo, R.; Castagliuolo, I.; Brun, P.; Tonus, F.; Ferrarese, A.; Guiotto, A.; Chilin, A., Quinazoline-based multi-tyrosine kinase inhibitors: synthesis, modeling, antitumor and antiangiogenic properties. Eur J Med Chem 2013, 67, 373-83.
d. Gandin, V.; Ferrarese, A.; Dalla Via, M.; Marzano, C.; Chilin, A.; Marzaro, G., Targeting kinases with anilinopyrimidines: discovery of N-phenyl-N'-[4-(pyrimidin-4-ylamino)phenyl]urea derivatives as selective inhibitors of class III receptor tyrosine kinase subfamily. Sci Rep 2015, 5, 16750.
e. Mologni, L.; Dalla Via, M.; Chilin, A.; Palumbo, M.; Marzaro, G., Discovery ofwtRET andV804MRET Inhibitors: From Hit to Lead. ChemMedChem 2017, 12 (16), 1390-1398.

2. With respect to kinase inhibition and in addition to the above described activities, I also investigated the possibility to impair the binding between EGF and EGFR by using small molecules (i.e., using small molecules for protein-protein interaction inhibitors). By means of combining virtual screening approach with biochemical and in vitro assay, me and my collaborators identified some compounds able to impair the binding between the moieties (submitted paper). I am the primary investigator of this study, dealing with the project design, virtual screening of the compounds and management of the research group.

3. I have also deal with compounds for Cystic Fibrosis treatment. The research started with the evaluation of psoralens and angelicines as anti-inflammatory agents targeting NF-kB and able to reduce the expression of IL-8. These studies led to the discovery of a molecule (trimethylangelicin) able to act as anti-inflammatory agent, CFTR enhancer and CFTR modulator. The research activity moved then on the design and development of analogues with improved potency and that retained only one of the mentioned activities. I was the primary investigator or co-investigator in all these studies, dealing with the rational design of the compounds, the synthesis and the rationalization of activity by means of molecular docking simulation.

a. Marzaro, G.; Guiotto, A.; Borgatti, M.; Finotti, A.; Gambari, R.; Breveglieri, G.; Chilin, A., Psoralen derivatives as inhibitors of NF-κB/DNA interaction: Synthesis, molecular modeling, 3D-QSAR, and biological evaluation. Journal of Medicinal Chemistry 2013, 56 (5), 1830-1842.
b. Lampronti, I.; Manzione, M. G.; Sacchetti, G.; Ferrari, D.; Spisani, S.; Bezzerri, V.; Finotti, A.; Borgatti, M.; Dechecchi, M. C.; Miolo, G.; Marzaro, G.; Cabrini, G.; Gambari, R.; Chilin, A., Differential Effects of Angelicin Analogues on NF- κ B Activity and IL-8 Gene Expression in Cystic Fibrosis IB3-1 Cells. Mediators of Inflammation 2017, 2017.
c. Marzaro, G.; Lampronti, I.; D'Aversa, E.; Sacchetti, G.; Miolo, G.; Vaccarin, C.; Cabrini, G.; Dechecchi, M. C.; Gambari, R.; Chilin, A., Design, synthesis and biological evaluation of novel trimethylangelicin analogues targeting nuclear factor kB (NF-kB). European Journal of Medicinal Chemistry 2018, 151, 285-293.

Complete List of Published Work in MyBibliography: https://www.research.unipd.it/simple-search?query=giovanni+marzaro#.Xoxd5Igza01

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

MARZ_SID16_01 Marzaro (PI)
01/01/2017 - ongoing
New selective class III receptor tyrosine kinase inhibitors for cancer treatment.
The goal of this study is to design and develop novel kinase inhibitors with specific selectivity and to load the compounds in liposomes through the conjugation with a cholesterol based pH-sensitive hydrazone bond in order to reduce the catabolism
Role: PI

commercial research contract
02/10/2020 – ongoing
Synthesis and development of a novel formulation endowed with physic-mechanical action able to counteract the formation of bacterial biofilm.
The goal of this study is to identify and synthesize new molecules able to counteract the bacterial proliferation by dehydrating the biofilm
Role: PI

FFC#22/2019 Lampronti (PI)
01/09/2019 – 08/31/2020
Multi-task evaluation of TMA analogues as anti-inflammatory treatment for CF lung disease.
The goal of this study is to enhance the anti-inflammatory potency of TMA analogues by designing and synthesizing novel compounds on the basis of the results obtained in previous project (see FFC#1/2016 above)
Role: co-investigator

CHIL_SID18_01 Chilin (PI)
11/06/2018 – 11/05/2020
Preclinical characterization of new TMA analogues as CFTR modulators.
The goal of this study is study the TMA analogues endowed with potent CFTR modulating effects in animal models, determining the modality of administration, the biodistribution and the systemic toxicity of compounds
Role: co-investigator

Completed Research Support

MARZ_PRGR_P13_01 Marzaro (PI)
01/01/2013-12/31/2015
Small molecules protein-protein interaction inhibitors (SMPPIIs) for EGFR inhibition: the grain of sand that block the gear of cancer
The goal of this project was to identify by means of virtual screening approach, biochemical and in vitro assay small molecules able to impair the binding of EGFR to its physiologic ligand EGF.
Role: PI

FFC#1/2016 Chilin (PI)
09/01/2016 – 08/31/2018
New generation trimethylangelicin (TMA) analogues for selective modulation of defective CFTR or inflammation.
The goal of this study was to develop novel TMA analogues that selectively bear anti-inflammatory properties or the ability to modulate CFTR activity, without genotoxic potential, for the treatment of cystic fibrosis.
Role: co-investigator

GAND_PRAT_P13_01 Gandin (PI)
01/01/2013-12/31/2015
Novel organoselenium derivatives as multicancer drugs
The goal of this project was to rationally design, synthesize and evaluate novel Selenium containing small molecules as potential anticancer compounds, with tyrosine kinases and thioredoxinreductase as main biological targtes.
Role: co-investigator

CHIL_PRAT_P09_01 Chilin (PI)
01/01/2008 – 12/31/2010
Rational design, synthesis and biological evaluation of novel tyrosine kinases inhibitors
The goal of this project was to rationally design, synthesize and evaluate novel small molecules as potential anticancer and antifibrotic compounds, with tyrosine kinases as main targets.
Role: co-investigator