

Curriculum



Nome Name:	ROSSELLA
Cognome Surname:	DE MARCO

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Sito WEB WEB site:	n.d.

POSIZIONE PROFESSIONALE ATTUALE / CURRENT PROFESSIONAL POSITION:

Posizione attuale Current position:	In Servizio
Qualifica Qualification:	Professore Associato (L. 240/10)
Ateneo/Ente/Azienda University/Institution/Company:	Università degli Studi di UDINE
Nazione Ateneo/Ente/Azienda University/Institution/Company Country:	ITA
Anno inizio Start Year:	2022
Anno fine End Year:	n.d.

PRECEDENTI ESPERIENZE LAVORATIVE (ULTIMI 10 ANNI) / PREVIOUS WORK EXPERIENCE (LAST 10 YEARS):

Qualifica Qualification:	Ricercatore a t.d. - t.pieno (art. 24 c.3-b L. 240/10)
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Ateneo/Ente/Azienda University/Institution/Company	Università degli Studi di UDINE
Posizione Sede Lavorativi (indicare Nazione e Città) Workplace Location (specify Country and City):	Udine, UD, Italia
Anno inizio Start Year:	2019
Anno fine End Year:	2022
Descrizione Description:	Ricercatore tempo determinato di tipo B

LINGUE / LANGUAGES:

Lingua Language:	Inglese
Scrittura Writing:	C1
Comunicazione Communication:	C1

AREA/SETTORE SCIENTIFICO-DISCIPLINARE / AREA/SECTOR SCIENTIFIC-DISCIPLINARY

Area scientifico-disciplinare Area scientific-disciplinary:	Scienze chimiche
Area scientifico-disciplinare codice Area scientific-disciplinary code:	03
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-Chimica organica
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-CHEM-05/A

DESCRIZIONE DEI PRINCIPALI RISULTATI SCIENTIFICI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 PUBBLICAZIONI) / DESCRIPTION OF THE MAIN SCIENTIFIC RESULTS ACHIEVED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 PUBLICATIONS):

Descrizione Description:	<i>Our research is the synthesis of peptidomimetics and new heterocycles. In the articles presented we discussed the synthesis of mimetics of natural peptide which shows low metabolic stability and bioavailability. We studied how it is possible to re-activate the apoptosis in cancer cells and overcome the chemoresistance. The synthesis of mimetic of the protein Smac/Diablo, a protein capable of activating the apoptosis in cancer cells by the inhibition of the protein IAP able to inhibit</i>
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	<p><i>caspase. We prepared a complex formed by a fluorescent PMO nanoparticle that carries the short sequences of Smac/DIABLO bound to the $\alpha\beta3$-integrin ligand. The DTP@PMO shows significantly higher toxicity in $\alpha\beta3$-positive HeLa cells with respect to $\alpha\beta3$-negative Ht29 cells. DTP@PMO exhibited synergistic effects in combination with oxaliplatin in a panel of $\alpha\beta3$-positive cancer cells, while its toxicity is overcome by XIAP overexpression or integrin $\beta3$ silencing (Frontiers in Pharmacology 2023, Nanomaterial 2020). The nanoparticles used are PMO stimuli responsive, in detail it is capable to release the drugs in presence of external stimuli such as the pH (Pharmaceutics journal 2024, J. Material Chemistry b 2019). We also describe analogs of the naturally occurring mixed κ/μ-ligand c[Phe-D-Pro-Phe-Trp]. From our synthesis, the μ-agonist c[β-Ala-D-Pro-Phe-Trp] was shown to elicit potent antinociception in a mouse model of visceral pain upon systemic administration (JMC 2016). EM2 has been studying to prepare mimetics with interesting affinities. We prepared a monomer and dimer obtained from SPPS. The monomer showed a potent and selective full agonist of MOR with sub-nanomolar affinity, while the dimer showed a significant mixed MOR/KOR affinity, acting as an agonist at the μ. Both cyclopeptides were shown to elicit strong antinociceptive activity after intraventricular injection but only cyclomonomer was able to cross the BBB (Biopolymers peptide science 2016). For the synthesis of new heterocycles, we developed analogues of β-Freidinger lactam. We prepared imidazolidinone by the cyclization of (S)- or (R)-α,β-dap residues. (S)-Imi peptides adopted a γ-turn conformation, while (R)-Imi induced the contemporary formation of a γ-turn and a rare 11-membered H-bonded structure in the 2\rightarrow4 opposite direction of the sequence, identified as a ϵ-turn (JOC 2019). A similar strategy was used to prepare 5-aminomethyloxazolidine-2,4-dione (Amo) dipeptide scaffolds starting from a Isoserina and we obtained similar results of Imi ring (EurJOC 2016). Amo ring was used to prepare analogues of endomorphin-1(EM1). Amo-EM1 is a new chemotype of highly stable, selective, partial KOR agonist inducing analgesia (JMC 2018). A new cyclo-mimetic of EM1 was prepared with a \square-Ala and Gly in the structure to give a more flexible structure. The molecule showed interesting agonist activity towards KOR while the parent molecule was an antagonist of MOR (Frontiers in Pharmacology 2020).</i></p>
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PUBBLICAZIONI / PUBLICATIONS:

Anno della pubblicazione Year of publication:	2024
Citazione Citation:	Pharmaceutics journal

Anno della pubblicazione Year of publication:	2023
Citazione Citation:	Frontiers in Pharmacology

Anno della pubblicazione Year of publication:	2020
Citazione Citation:	Nanomaterials

Anno della pubblicazione Year of publication:	2020
Citazione Citation:	Frontiers in Pharmacology

Anno della pubblicazione Year of publication:	2019
Citazione Citation:	Journal Material Chemistry B

Anno della pubblicazione Year of publication:	2019
Citazione Citation:	Journal of Organic Chemistry

Anno della pubblicazione Year of publication:	2018
Citazione Citation:	J. Med. Chem.

Anno della pubblicazione Year of publication:	2017
Citazione Citation:	Peptide Science

Anno della pubblicazione Year of publication:	2016
Citazione Citation:	Eur. JOC.

Anno della pubblicazione Year of publication:	2016
Citazione Citation:	J. Med. Chem.

DESCRIZIONE DEI PRINCIPALI PROGETTI DI RICERCA E PREMI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PRINCIPAL INVESTIGATOR O COORDINATORE LOCALE DI PROGETTI DI RICERCA COMPETITIVI NAZIONALI O INTERNAZIONALI, SIGNIFICATIVI PREMI CONSEGUITI PER LA PROPRIA ATTIVITÀ DI RICERCA)/ DESCRIPTION OF THE MAIN RESEARCH PROJECTS AND AWARDS AWARDED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 ACHIEVEMENTS, INCLUDING, FOR EXAMPLE, PRINCIPAL INVESTIGATOR OR LOCAL COORDINATOR OF NATIONAL OR INTERNATIONAL COMPETITIVE RESEARCH PROJECTS, SIGNIFICANT AWARDS AWARDED FOR YOUR RESEARCH ACTIVITY):

Descrizione Description:	
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DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SVILUPPO DI RETI E RELAZIONI SCIENTIFICHE NAZIONALI E INTERNAZIONALI (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PARTECIPAZIONE O ORGANIZZAZIONE DI CONVEGNI NAZIONALI E INTERNAZIONALI; CONTRIBUTI A CONSORZI DI RICERCA) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF DEVELOPMENT OF NATIONAL AND INTERNATIONAL SCIENTIFIC NETWORKS AND RELATIONS (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, PARTICIPATION OR ORGANIZATION OF NATIONAL AND INTERNATIONAL CONFERENCES; CONTRIBUTIONS TO RESEARCH CONSORTIA):

Descrizione Description:	
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Descrizione Description:	Participation to Italian Peptide Society-ItPS. "Synthesis of dual targeting peptide mimetics of the cytotoxic protein SMAC/Diablo for selective activation of the apoptosis in cancer cells". June 15th 2022, Naples, Italy with an Oral presentation
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Descrizione Description:	Participation to "Mix and Match" as invited speaker. Organized by "Technical University of Munich: The Entrepreneurial University - TUM" Science and Study Center Raitenhaslach, October 6-8, 2024, Munich, Germany.
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Descrizione Description:	Participation to "3rd European Congress on Biomedical Science and Engineering". June 19-20, 2025, Vienna, Austria. Invited speaker
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Descrizione Description:	Participation to Prescriptomics and Personalized Medicine congress 2025. May 25-27, 2025, Caparica, Portugal. With an oral presentation
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DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SUPPORTO ALLA COMUNITÀ SCIENTIFICA (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, RESPONSABILITÀ DI DIREZIONE DI COMITATI EDITORIALI; INCARICHI DI VALUTAZIONE DELLA RICERCA PRESSO ISTITUZIONI NAZIONALI O INTERNAZIONALI; RESPONSABILITÀ ISTITUZIONALI ALL'INTERNO DELL'ISTITUZIONE DI APPARTENENZA O DI ALTRE ISTITUZIONI) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF SUPPORT TO THE SCIENTIFIC COMMUNITY (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, MANAGEMENT RESPONSIBILITIES OF EDITORIAL COMMITTEES; RESEARCH EVALUATION ROLES AT NATIONAL OR INTERNATIONAL INSTITUTIONS; INSTITUTIONAL RESPONSIBILITIES WITHIN THE INSTITUTION OF AFFILIATION OR OTHER INSTITUTIONS):

Descrizione Description:	
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Descrizione Description:	2025-at today Guest Editor in Discover Medicine edited by Springer Nature
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Descrizione Description:	2023-at today Associate Editor in Frontiers in Chemistry-Medicinal and Pharmaceutical Chemistry
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Descrizione Description:	2022 Reviewer such as expert of the international program of the center national of the Polish Sciences
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Descrizione Description:	2018 Member of the organizing committee of the International Congress: "RiminiPeptides2018 - Peptides and conjugates for tumor targeting, therapy and diagnosis", treasurer with P.IVA, 16-19 June 2018, Rimini
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Descrizione Description:	2022-2024 member of Department Research Commission (CRD) Di4A, University of Udine
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DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI VALORIZZAZIONE DELLE CONOSCENZE (CON ANNESSO ELENCO DI MASSIMO 3 RISULTATI, RELATIVI ALLA PARTECIPAZIONE DEL CANDIDATO ALLE ATTIVITÀ DI VALORIZZAZIONE DELLE CONOSCENZE) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF KNOWLEDGE VALORIZATION (WITH ATTACHED LIST OF MAXIMUM 3 RESULTS, RELATING TO THE CANDIDATE'S PARTICIPATION IN KNOWLEDGE VALORIZATION ACTIVITIES):

Descrizione Description:	
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Informazioni aggiornate alla data di candidatura 20-05-2025

ROSSELLA DE MARCO

Il presente curriculum costituisce allegato e parte integrante dell'incarico sottoscritto