

Curriculum Vitae

Remo Guerrini

Education:

1989: Laurea in Chimica e Tecnologia Farmaceutiche (Degree in Chemical and Pharmaceutical Technologies), University of Ferrara

1991: Laurea in Farmacia (Degree in Pharmacy), University of Ferrara

1995: PhD in Medicinal Chemistry, University of Ferrara

Professional experience:

1991-1994: PhD student, Medicinal Chemistry, University of Ferrara (Ferrara, Italy)

1996-1998: Postdoctoral Research Fellow, Medicinal Chemistry, University of Ferrara (Ferrara, Italy)

1998-2014: Assistant Professor (Ricercatore Universitario) at the Department of Pharmaceutical Sciences, University of Ferrara

2014-2018: Associate professor of Medicinal Chemistry at the Department of Pharmaceutical Sciences, University of Ferrara

November 1, 2018-present: Full professor of Medicinal Chemistry at the Department of Pharmaceutical Sciences, University of Ferrara

Nov. 2018- XX Vice director of the Department of Pharmaceutical Sciences, University of Ferrara

Research activities:

My research activities were focussed on the structure activity relationship study (SAR) of bioactive peptides, mainly neuropeptides. These activities include the SAR study of ligands for 1) the classical delta (DOP), mu (MOP) and kappa (KOP) opioid receptors 2) the nociceptin/orphanin FQ receptor (NOP); and 3) the neuropeptide S receptor (NPSR). The major achievements obtained investigating these receptor systems are summarized below.

1) SAR studies of ligands for the classical opioid receptors.

At the beginning of my academic career, SAR study of molecules able to bind DOP and MOP opioid receptors were performed. In particular the Dmt-Tic pseudodipeptide (Dmt: 2',6'-dimethyl-L-tyrosine; Tic: 1,2,3,4-tetrahydroisoquinoline-3-carboxylic acid) was identified to act as a highly potent DOP selective antagonist (Temussi et al. 1994; Salvadori et al. 1995) also when introduced in N-terminal of classical endogenous opioid ligands such as dynorphin A and enkephalin (Guerrini et al. 1998). To prevent the formation of the Dmt-Tic diketopiperazine (Capasso et al. 1995) that behaved as a low potency DOP ligand (Balboni et al 1997; Bryant et al. 1997), the Dmt-Tic pseudodipeptide was dimethylated in the N-terminal (Salvadori et al. 1997) providing the stable DOP antagonists (CH₃)₂-Dmt-Tic-OH. Tic features were extensively investigated (Balboni et al 2000; Santagada et al. 2000) and these studies demonstrated the important role played by this nucleus for DOP receptor binding and selectivity. The C-terminal functionalization of Dmt-Tic with hydrophobic aliphatic moieties generated potent DOP antagonist/MOP agonist ligands (Salvadori et al 1999). Interestingly, C-terminal replacement with aromatic moieties produced a series of potent opioid receptor ligands in which the distance between the Dmt-Tic pharmacophore and a third aromatic nucleus is crucial in converting Dmt-Tic from a highly potent DOP antagonist into a potent DOP agonist or into ligands with mixed DOP/MOP properties (Balboni et al. 2002a; Balboni et al. 2002b; Bryant et al. 2002; Balboni et al. 2003; Balboni et al. 2004; Balboni et al. 2005). The potent DOP agonist identified in the frame of these SAR studies, coded as UFP-512, produced robust anxiolytic- and antidepressant-like effects after intracerebroventricular and intraperitoneal administration in rodents (Vergura et al. 2008), corroborating the evidence that DOP agonists can be developed as innovative anxiolytics and antidepressants. Recently a huge panel of Dmt-Tic analogues were employed to deeply investigate the activation mechanisms of both DOP and MOP receptors (Vezi et al.

2013). Finally, the development and pharmacological characterization of novel mixed MOP-DOP (Bird et al. 2015) and MOP-NOP (Bird et al. 2016) ligands have been performed.

2) *SAR studies of ligands for the NOP receptor.*

Nociceptin/orphanin FQ (N/OFQ) is a neuropeptide characterized by the following primary sequence: H-Phe-Gly-Gly-Phe-Thr-Gly-Ala-Arg-Lys-Ser-Ala-Arg-Lys-Leu-Ala-Asn-Gln-OH. N/OFQ modulates several biological functions at peripheral (respiratory, cardiovascular and renal, gastrointestinal, immune systems) and central (nociception, memory, food intake, locomotor activity, response to stress and anxiety) levels by selectively activating an opioid-like receptor named N/OFQ peptide (NOP) receptor. N/OFQ displays a primary sequence very similar to that of endogenous opioid peptides, however the presence of Phe in position 1 instead of Tyr makes this peptide highly selective for NOP over classical opioid receptors. Taking advantage from the previous knowledge accumulated with SAR studies of the classical endogenous opioid peptides, in the first SAR paper on N/OFQ (Guerrini et al. 1997) we demonstrated that (a) the entire sequence of N/OFQ may not be required for full biological activities, since N/OFQ(1-13)-NH₂ is as active as N/OFQ; (b) fragments of N/OFQ have however to be amidated as in N/OFQ(1-13)-NH₂ in order to be protected from degradation by proteases; (c) cationic residues (as Arg_{8,12}, Lys_{9,13}) appear to play a functional role, since their replacement with Ala in the sequence of N/OFQ(1-13)-NH₂ leads to inactivity; (d) the N-terminal tetrapeptide Phe-Gly-Gly-Phe is essential for activity: its full length and flexibility appear to be required for N/OFQ receptor activation and/or occupation; (e) Phe₄ and not Phe₁ appears to be the residue involved in receptor activation, since the replacement of Phe₁ with Leu has no effect, while that of Phe₄ leads to inactivity. Soon after, we identified the first NOP receptor antagonist (Guerrini et al 1998; Calo' et al. 1998). This peptide was generated by using N/OFQ(1-13)-NH₂ as template and reducing the Phe₁-Gly₂ peptide bond ([Phe₁Ψ(CH₂-NH)Gly₂]-N/OFQ(1-13)-NH₂). This molecule was extensively characterized in in vitro and in vivo pharmacological assays generating several collaborative papers. With the aim to increase the pharmacological properties of [Phe₁Ψ(CH₂-NH)Gly₂]-N/OFQ(1-13)-NH₂ the Phe₁-Gly₂ amide bond was replaced with a series of peptide bond isosters (Guerrini et al 2003). Unfortunately, this SAR study does not led to molecules with enhanced pharmacological properties compared to the reference peptide. On the contrary, the shift of the Phe₁ benzyl side chain from C-alpha to N-terminal nitrogen generated the compound [Nphe₁]N/OFQ(1-13)-NH₂ (Guerrini et al. 2000) that acted as pure NOP receptor antagonist. Also this molecule was pharmacologically investigated in a series of collaborative papers. In order to increase the potency of [Nphe₁]N/OFQ(1-13)-NH₂, Nphe was replaced with a series of linear and cyclic derivatives (Guerrini et al. 2001). The SAR study of Phe₄ (Guerrini et al. 2001) allowed us to demonstrate that NOP receptor agonism positively correlates with the electron withdrawal properties of the groups in the para position of Phe₄ and inversely with their size. In particular, [(pF)Phe₄]N/OFQ(1-13)-NH₂ was found 5-fold more potent than the reference peptide. Molecular modelling investigation and NMR analyses (Tancredi et al 2005) performed using N/OFQ analogues modified in C-terminal demonstrated that an increase of alpha helix structure together with an increase of positive charges promote an increase of biological activity. This information was employed for the design of highly potent NOP receptor ligands encompassing full and partial agonists as well as pure antagonists molecules (Guerrini et al. 2005; Arduin et al. 2007). Some interesting non peptide NOP ligands were also discovered (Trapella et al 2006; Trapella et al. 2009). Some of the molecules obtained in the frame of these SAR studies were employed in crystallization experiments. These experiments led to the structure of the NOP receptor in complex with a peptide mimetic (Thompson et al. 2012) and allow to investigate the binding mechanisms between NOP and non peptide antagonists (Miller et al. 2015). Recently, we found an innovative strategy for the synthesis of tetra branched derivatives of N/OFQ. These molecules were characterized by high potency and extraordinary long lasting effects in vivo

(Guerrini et al. 2014). Finally, the effect of ligand dimerization on NOP receptor binding and activation was investigated (Pacifico et al 2017)

3) SAR studies of ligands for the NPSR receptor.

Neuropeptide S (NPS) is the last neuropeptide identified via reverse pharmacology techniques as the endogenous ligand of the NPSR receptor. Biological functions modulated by the NPS/NPSR system include anxiety, arousal, locomotion, food intake, memory, and drug addiction. The primary sequence of NPS (in humans SFRNGVGTGMKKTSTFQRAKS) is highly conserved among vertebrates especially at the N-terminus. Ala- and D-scan studies (Roth et al. 2006) demonstrated that this part of the molecule is crucial for biological activity. Focused structure–activity studies performed on Phe2 (Camarda et al. 2008), Arg3, and Asn4 (Camarda et al. 2008) confirmed this indication and revealed the chemical requirements of these positions for NPSR binding and activation. The sequence Gly5-Val6-Gly7 seems to be important for shaping the bioactive conformation of the peptide (Tancredi et al. 2007). Structure–activity studies on Gly5 allowed us to identify the first generation of peptidergic NPSR pure antagonists including [D-Cys(tBu)5]NPS, [D-Val5]NPS (Guerrini et al. 2009a), [tBu-D-Gly5]NPS and [D-Pen5]NPS (Guerrini et al. 2009b) whose antagonist properties were confirmed in vivo (Camarda et al., 2009; Ruzza et al., 2012). Medicinal chemistry as well as biological knowledge in the field of NPS have been summarized in a review article (Guerrini et al 2010). In addition, the synthesis, chromatographic separation, and pharmacological evaluation of the two enantiomers of the non peptide NPSR antagonist (9R/S)-3-oxo-1,1-diphenyl-tetrahydro-oxazolo[3,4-a]pyrazine-7-carboxylic acid 4-fluoro-benzylamide (SHA 68) was performed (Trapella et al. 2011). Recently, the chemical features required in position 5 for generating potent and pure NPS receptor antagonists were further investigated (Ruzza et al. 2014; Pela' et al. 2014). Finally, an overview of the patent literature covering NPS receptor ligands with non peptide structure has been published (Ruzza et al. 2017).

Research funds:

1996-2010: the research activities of R. Guerrini were funded with grant (**FAR**) from the University of Ferrara in the frame of projects focussed on SAR studies of bioactive peptides (PI prof. Severo Salvadori).

1997: Prin 24 months, Sintesi di peptidi bioattivi e di loro analoghi strutturali (PI R. Tomatis).

1999: Prin (9905091432_001), 24 months, pharmacology of the N/OFQ – NOP receptor system (PI prof. D. Regoli)

2001: FIRB (RBAU01CCSE_001), novel ligands for the NOP receptor (PI prof. D Regoli)

2002: Prin (2002058325_001), 24 months, pharmacology of the N/OFQ – NOP receptor system (PI prof. D. Regoli).

2003:NIH grant (RO1HL71212), 60 months, pharmacology and cardiovascular effects of N/OFQ, (PI D Kapusta, New Orleans, US).

2004: Prin (2004055475_001), 24 months, pharmacology of the N/OFQ – NOP receptor system, (PI D. Regoli).

2006: Prin 24 months, The Nociceptin/OFQ-NOP receptor: basic and clinical studies, (PI D.Regoli). During the last period of the prin 2006 project R. Guerrini acted as National Coordinator.

2006: Firb IT/USA 36 months, Nociceptin/orphanin FQ receptor ligands in the treatment of Parkinson's disease, (PI of the Italian RU R. Guerrini)

2009: Fondazione Compagnia di San Paolo 36 months, Neurobiology and pharmacology of the neuropeptide S / NPSR receptor system (PI L. Raiteri).

2011:University of Ferrara research grant (FAR), 12 months, Design, synthesis and biological characterization of peptides and pseudopeptides (PI R. Guerrini).

2011: AIRC grant 36 months, Targeting ovarian cancer drug resistance, (PI M.P. Costi).
2011: Firb (RBFR109SBM_001), 36 months, studies on mixed NOP/MOP agonists, (PI C. Trapella)
2012-2017:University of Ferrara research grant (FAR), Design, synthesis and biological characterization of peptides and pseudopeptides (PI R. Guerrini).
2015: University of Ferrara research grant (PRIA), Chemical Library of UniFe (CheLiFe) generation, management and high throughput screening for the discovery of lead compounds for biomedical applications (PI R. Guerrini).
2016: Prin 36 months, NOP receptor biased agonists as innovative drugs (PI of the med. Chem. RU , R. Guerrini).
2016: In the frame of the project “**ONCOPENTA**” financed by Regione Emilia Romagna, R. Guerrini was granted with a 3-years PhD project titled “Sviluppo di chelanti per Zirconio-89 applicabili nella teranostica oncologica”

Technology transfer:

In December 2002 together with pharmacology colleagues R. Guerrini submitted a project to the Spinner organization (FSE funds) for the feasibility study of an academic spinoff. This project has been funded and in June 2003 the University of Ferrara spinoff company UFPeptides s.r.l. was constituted. UFPeptides provides products and services to pharma companies. UFPeptides activities are focused to the identification and development of molecules interacting with G-protein coupled receptors; these proteins regulate several important biological functions and are implicated in a large variety of human diseases. UFPeptides collaborated with pharma companies for the development of research projects (2004-09), performed a proprietary research project partially funded by a PRRIIT grant (FSE funds, 2006-07, project title “*identificazione e caratterizzazione di nuovi farmaci ad azione antidepressiva e analgesica*” total cost of the project euro 247.500; PI R. Guerrini), and made an agreement with two companies for the preclinical development of the agonopin (NOP agonists for urinary incontinence) project (2006). For this project an exclusive option license agreement has been signed by UFPeptides and Recordati in 2009 and a license agreement in 2011. The Fase I study of the agonopin project has been successfully concluded and Fase II study will start in the middle of 2017.

Patents:

- 1) Analogs of Nociceptin. Guerrini R, Calo' G, Salvadori S, Regoli D. Number: **EP 1422240**
- 2) Identificazione di un antagonista del recettore NOP a struttura 1,2,3,6-tetraidropiridinica. Trapella Claudio, Guerrini Remo, Calo' Girolamo, Regoli Domenico, Salvadori Severo. Number: **FE2004A000013**
- 3) Identificazione di un antagonista del recettore UT. Guerrini Remo, Salvadori Severo, Calo' Girolamo, Regoli Domenico, Lambert David. Number: **FE2004A000014**
- 4) Agonisti pieni e parziali ed antagonisti del recettore per nocicettiva/orfanina FQ ad elevata potenza. Guerrini Remo, Calo' Girolamo, Regoli Domenico, Salvadori Severo. Number: **FE2005A000003**
- 5) Preparation of analogues of the Dmt-Tic pharmacophore for identifying δ and μ opioid receptors. Lazarus Lawrence H, Salvadori Severo, Balboni Gianfranco, Guerrini Remo. Number: **US 2005-280752**
- 6) Identificazione di un agonista parziale del recettore per il neuropeptide S. Guerrini Remo, Calo' Girolamo, Regoli Domenico, Salvadori Severo. Number: **FE2006A000003**
- 7) Antagonisti del recettore UT e loro usi terapeutici. Gavioli Elaine Cristina, Guerrini Remo, Calo' Girolamo, Regoli Domenico, Salvadori Severo. Number: **FE2006A000007**

- 8) Highly potent full and partial agonists and antagonists of the nociceptin/orphanin FQ receptor. Guerrini Remo, Calo' Girolamo, Regoli Domenico, Salvadori Severo. Number: **PCT/EP2006/050958**
- 9) Biologically potent analogues of the Dmt-Tic pharmacophore and methods of use. Lazarus Lawrence H.; Salvadori Severo; Balboni Gianfranco; Guerrini Remo. Number: **US 2006-0104907**
- 10) Analoghi dermaseptinici ad attivita' antimicrobica. Guerrini Remo, Calo' Girolamo, Regoli Domenico, Salvadori Severo, Erika Marzola, Dianella Savoia. Number: **FE2006A000014**
- 11) Identificazione di antagonisti puri di elevata potenza del recettore per il neuropeptide S. Guerrini Remo, Calo' Girolamo, Regoli Domenico, Rainer K Reinscheid, Salvadori Severo. Number: **FE2008A000028**.
- 12) Composizioni cosmetiche contenenti composti con azione anti-glicazione da usare per prevenire e rallentare il processo di invecchiamento cutaneo. Apone Fabio, Colucci Maria G., Cucchiara Jerez Mirna, De Laurentiis Francesco, Guerrini Remo, Massarotti Sergio. Number: **ITMI20102250**
- 13) Supramolecular aggregates comprising maleimido cores. Guerrini Remo, Salvadori Severo. Girolamo Calo'. **European Patent Application n° 13162532.9**, filed: April 5, 2013
This Patent describes the synthesis of tetra branched peptides characterized by high purity, high yield and reproducibility. The molecules contained in this patent act as GPCR ligands with long lasting activity in vivo.

Teaching activities:

1992-1999, R. Guerrini acted as collaborator of prof. Severo Salvadori for the practical laboratory activities for the course of Analyses of Drugs III, Degree in Chemical and Pharmaceutical Technologies

2000-present, responsible of the course of Qualitative Analyses of Drugs, Degree in Chemical and Pharmaceutical Technologies, University of Ferrara.

2010-present R. Guerrini is a member of the Graduate School Committee (PhD school) in Medicinal Chemistry of the University of Ferrara

2010-present postgraduate course (level 2) in Cosmetic Science and Technology (COSMAST) University of Ferrara

November 2009 to February 2010, tutor of Dr. Dalal Naima with a Fellowship granted by International Atomic Energy Agency (IAEA)

April-July 2011, tutor of Dr. Katarina Smilkov with a Fellowship granted by International Atomic Energy Agency (IAEA)

2013-2016 postgraduate course (level 1) in "Aspects of Regulation, Patenting and Economics in Drug Development", University of Ferrara

2015-present Coordinator of the degree course in Chemical and Pharmaceutical Technologies, University of Ferrara

2016-2017 Tutor for a research fellowship titled "Design and synthesis of homo – and hetero-tetrameric molecules", University of Ferrara

2016-present, R. Guerrini acted as tutor of the PhD student Valentina Albanese funded in a frame of a PhD program of Regione Emilia Romagna.

R. Guerrini is member of the following examiner commission:

Medicinal chemistry II for the Degree in Chemical and Pharmaceutical Technologies

Medicinal chemistry II for the Degree in Pharmacy.

From 1998 to present R. Guerrini acted as tutor of about 30 experimental thesis and 1 PhD thesis.

Professional Membership and consultancies:

1998-present: Remo Guerrini is a member of the Italian Society of Chemistry.

2007 Member of the examination committee for the qualification to the profession of pharmacist

2009-present: R. Guerrini is a member of the Editorial board of International Journal of Peptides (<https://www.hindawi.com/journals/ijpep/editors/>).

R. Guerrini acts as referee for the following scientific journals: Journal of Medicinal Chemistry, European Journal of Medicinal Chemistry, Bioorganic & Medicinal Chemistry, Bioorganic & Medicinal Chemistry Letters, Peptides

2010-present: Remo Guerrini is a member “Socio Ordinario” classe di scienze matematiche, fisiche, chimiche naturali” of the Accademia delle Scienze di Ferrara. <http://www.accademiascienze.ferrara.it/>

2010-present: Remo Guerrini is the technical director of the section Molecular Interactions Biomarkers and Delivery of the Laboratorio per le Tecnologie delle Terapie Avanzate (LTTA) of the Tecnopolo, Università di Ferrara.

<http://lta.tecnopolo Ferrara.it/contact.php?G=eNortjKyUjJ1VrIGXDALZAIR>

Remo Guerrini performed consulting work for the following companies: Recordati S.p.A. (Pharmaceutical Company) and Intercos S.p.A. (Cosmetic Company, Agrate Brianza, Italy)

Invited lectures and organizing committee:

November, 16 2001 Zealand Pharmaceuticals, Copenhagen Denmark

Medicinal chemistry of OP4 receptor: agonists and antagonists

June 18, 2003 Italfarmaco s.p.a. Milano

Ligands for the NOP receptor

November 12, 2003 Gruppo Angelini, Pomezia, ROMA

Novel peptide ligands for the NOP receptor: full e partial agonists and pure antagonists

30 maggio 2 giugno 2001. XXX Congresso Nazionale della Società Italiana di Farmacologia. Genova. Agonisti ed antagonisti per il recettore OP4

18-22 settembre 2002. XVI Convegno Nazionale della Divisione di Chimica Farmaceutica. Sorrento. Struttura-Attività del neuropeptide Nocicettina/Orfanina FQ

8-11 April 2008, member of the Organizing Committee of the European Opioid Conference / European Neuropeptide Club joint meeting, , Ferrara, Italy

<http://www.unife.it/dipartimento/medicina/eventi/European%20Opioid%20Conference.pdf>

22-26 November 2010 Vienna, invited speaker at the 3rd Research Co-ordination Meeting of the CRP on ‘Development of ^{99m}Tc Radiopharmaceuticals for Sentinel Node Detection and Cancer Diagnosis’ organized by International Atomic Energy Agency (IAEA)

12-16 Settembre 2010. XX National Meeting on Medicinal Chemistry, della Società Chimica Italiana. Abano Terme (Pd), Italia “UFPeptides s.r.l. a spinoff company of the University of Ferrara”

List of Publications:

Remo Guerrini is included in the list of Top UniFE Scientists of the Scopus Highly Cited Italian Scientists: [http://www.via-](http://www.via-academy.org/VIA/index.php?title=Scopus_Highly_Cited_Italian_Scientists#Ranking_of_SCOPUS_citation_rate_for_large_Italian_Institutes)

[academy.org/VIA/index.php?title=Scopus Highly Cited Italian Scientists#Ranking of SCOPUS citation rate for large Italian Institutes](http://www.via-academy.org/VIA/index.php?title=Scopus_Highly_Cited_Italian_Scientists#Ranking_of_SCOPUS_citation_rate_for_large_Italian_Institutes)

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Bibliometric parameters:

- 1) Total citations: **8805 (SCOPUS)**
- 2) Average citation of publications: **30.5 (SCOPUS)**
- 3) Total IF: **1078.203 (Journal Citation Reports 2015)**
- 4) Average IF of publications; **3.77**
- 5) H-index (SCOPUS): **48**

Book chapters:

- 1) Calo G, and Guerrini R. (2013) Medicinal chemistry, pharmacology, and biological actions of peptide ligands selective for the nociceptin/orphanin FQ receptor. In Ko MC and Husbands SM (eds.) Research and development of opioid-related ligands. ACS symposium series 2013;1131:275-325, ISBN: 978-0-8412-2782-8 Oxford University Press.
- 2) Calo', G., Lambert, D.G. & Guerrini, R. (2013) Nociceptin/orphanin FQ (Chapter 215). In: Handbook of biologically active peptides, ISBN: 978-0-12-385095-9 (Kastin, A. J., ed): Elsevier.

Papers:

- 1) Synthesis and pharmacological activity of the N-terminal Dermorphin tetrapeptide analogues with CH₂-NH peptide bond isosteres.
S.Salvadori, R.Guerrini, P.A.Borea, R.Tomatis
Int. J. Peptide Protein Res. 40, 1992, 437-444
- 2) Prerequisite for His⁴ in Deltorphin A for High δ Opioid Receptor Selectivity
S.Salvadori, R.Guerrini, V.Forlani, S.D.Bryant, L.H.Lazarus
Amino Acids 7, 1994, 291-304
- 3) Selective Opioid Dipeptides
P.A.Temussi, S.Salvadori, P.Amodeo, C.Bianchi, R.Guerrini, R.Tomatis, L.H.Lazarus, D.Picone and T.Tancredi
Biochem. Biophys. Res. Com. 198 ,1994, 933-939
- 4) Molecular Dynamics Conformation of Deltorphin Analogues Advocate δ Opioid Binding Site Models
S. D. Bryant, M. Attila, S. Salvadori R. Guerrini, L.H. Lazarus
Peptide Research 7, 1994, 175-184
- 5) Conversion of Enkephalin and Dermorphin Into δ -Selective Opioid Antagonist by Single-Residue Substitution

T. Tancredi, S. Salvadori, P. Amodeo, D. Picone, L.H. Lazarus, S.D. Bryant, R. Guerrini, G. Marzola, P.A. Temussi
Eur. J. Biochem. 224, 1994, 241-247

6) Identification and Characterization of Three Calmodulin Binding Sites of the Skeletal Muscle Ryanodine Receptor
P. Menegazzi, F. Larini, S. Treves, R. Guerrini, M. Quadroni, F. Zorzato
Biochemistry 33, 1994, 9078-9084

7) Conformationally Constrained Amino Acids: a Concise Route to a Methionine Analogue
G. Fantin, M. Fogagnolo, R. Guerrini, M. Marastoni, A. Medici, P. Pedrini
Tetrahedron 50, 1994, 12973-12978

8) Effect of anchor residue modification on the stability of HLA-A11/Peptide complexes.
R. Gavioli, Q.J. Zhang, M. Marastoni, R. Guerrini, E. Reali, R. Tomatis, M.G. Masucci, S. Traniello
Biochem. Biophys. Res. Com. 206, 1995, 8-14

9) Synthetic peptides presented by the mutant T2 cell line induce virus specific cytotoxic T lymphocytes
E. Reali, B. Giori, M. Marastoni, R. Guerrini, S. Spisani, R. Tomatis, S. Traniello, R. Gavioli.
J. Exp. Clin. Cancer Research 14, 1995, 108-109

10) Acid catalysis in the formation of dioxopiperazines from peptides containing tetrahydroisoquinoline-3-carboxylic acid at position 2
S. Capasso, F. Sica, L. Mazzarella, G. Balboni, R. Guerrini, S. Salvadori.
Int. J. Peptide Protein Res. 45, 1995, 567-573

11) Calmodulin binding sites of the skeletal, cardiac and brain ryanodine receptor Ca²⁺ channels: modulation by the catalytic subunit of cAMP dependent protein kinase?
R. Guerrini, P. Menegazzi, R. Anacardio, M. Marastoni, R. Tomatis, F. Zorzato, S. Treves.
Biochemistry 34, 1995, 5120-5129

12) δ opioid mimetic antagonists: prototypes for designing a new generation of ultrasensitive opioid peptides.
S. Salvadori, M. Attila, G. Balboni, C. Bianchi, S.D. Bryant, O. Crescenzi, R. Guerrini, D. Picone, T. Tancredi, P.A. Temussi, L.H. Lazarus.
Molecular Medicine 1, 1995, 678-689

13) Binary and ternary CU^{II} complexes of L-spinacine in aqueous solution.
M. Remelli, S. Rossi, R. Guerrini, F. Pulidori.
Annali di Chimica 85, 1995, 503-518

14) Conformational analysis of potent and very selective δ opioid dipeptide antagonists
P. Amodeo, G. Balboni, O. Crescenzi, R. Guerrini, D. Picone, S. Salvadori, T. Tancredi, P.A. Temussi.
FEBS Letters 377, 1995, 363-367

15) Opioid receptor selectivity alteration by single residue replacement. Synthesis and activity profile of [Dmt¹] Deltorphin B.

R.Guerrini, A.Capasso, L.Sorrentino, R.Anacardio, S.D.Bryant, L.H.Lazarus, M.Attila, S.Salvadori.

Eur. J. Pharm. 302, 1996, 37-42

16) Design and synthesis of 1-Aminocycloalkane-1-carboxylic acid-substituted deltorphin analogues: unique δ and μ opioid activity in modified peptides.

A.Breveglieri, *R.Guerrini*, S.Salvadori, C.Bianchi, S.D.Bryant, M.Attila, L.H.Lazarus.

J. Med. Chem. 39, 1996, 773-779

17) Activation of epitope-specific memory cytotoxic T lymphocyte responses by synthetic peptides

E.Reali, *R.Guerrini*, B.Giori, M.Borghi, M.Marastoni, R.Tomatis, S.Traniello, M.G.Masucci, R.Gavioli

Clin. Exp. Immunol. 105, 1996, 369-375

18) The mouse vas deferens: a pharmacological preparation sensitive to nociceptin

G.Calò, A.Rizzi, G.Bogoni, V.Neugebauer, S.Salvadori, *R.Guerrini*, C.Bianchi, D.Regoli

Eur. J. Pharm. 311, 1996, R3-R5

19) Polymorphonuclear neutrophils pulsed with synthetic peptides efficiently activate memory cytotoxic T lymphocytes

E.Reali, *R.Guerrini*, S.Moretti, S.Spisani, F.Lanza, R.Tomatis, S.Traniello, R.Gavioli

J. Leuk. Biol. 60, 1996, 207-213.

20) Dmt-Tic-OH, a highly selective and potent δ -opioid dipeptide receptor antagonist after systemic administration in the mouse

A.Capasso, *R.Guerrini*, G.Balboni, L.Sorrentino, P.Temussi, L.H.Lazarus, S.D.Bryant, S.Salvadori

Life Sciences 59, 1996, PL 93-98

21) δ -Selective opioid peptides containing a single aromatic residue in the message domain: an NMR conformational analysis

O.Crescenzi, P.Amodeo, G.Cavicchioni, *R.Guerrini*, D.Picone, S.Salvadori, T.Tancredi, P.A.Temussi

Journal of Peptide Science 2, 1996, 290-308

22) Opioid Diketopiperazines: Synthesis and activity of a prototypic class of opioid antagonists

G.Balboni, *R.Guerrini*, S.Salvadori, R.Tomatis, S.D.Bryant, C.Bianchi, M.Attila, L.H.Lazarus

Biol. Chem. 378, 1997, 19-29

23) Opioid Diketopiperazines: Refinement of the δ Opioid Antagonist Pharmacophore

S.D.Bryant, G.Balboni, *R.Guerrini*, S.Salvadori, R.Tomatis, L.H.Lazarus

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