

Curriculum Vitae

PERSONAL DATA

Name and surname Grace Karminski-Zamola
Academic title PhD, full professor in permanent state (in retirement)
Year and institution of PhD obtained 1972. Faculty of Technology (now Faculty of Chemical Engineering and Technology), Zagreb
Address Marulićev trg 20, 10000 Zagreb
Phone 0385-1-4597-243
Fax 0385-1-4597-224
E-mail gzamola@fkit.hr
Personal web page -
Citizenship croatian
Date and place of birth 24.04.1940., Zagreb

WORK EXPERIENCE

Date (from – until) 15.11.1962-1.10.1963
Institution University Institute for organic chemistry and biochemistry, Zagreb
Position assistant
Work field Organic chemistry
Date (from – until) 1.10. 1962-1975
Institution Faculty of Chemical Engineering and Technology
Position assistant
Work field Organic chemistry
Date (from – until) 1975-1986
Institution Faculty of Chemical Engineering and Technology
Position Assistant professor
Work field Organic chemistry
Date (from – until) 1986-1996
Institution Faculty of Chemical Engineering and Technology
Position Associate professor
Work field Organic chemistry, (medicinal chemistry)
Date (from – until) 1996-2000
Institution Faculty of Chemical Engineering and Technology
Position Full professor
Work field Organic chemistry,(medicinal chemistry)
Date (from – until) 2000-2010
Institution Faculty of Chemical Engineering and Technology
Position Full professor in permanent state
Work field Organic chemistry, (medicinal chemistry)

EDUCATION

Date 25.09.1962.
Place Zagreb
Institution Faculty of Technology
Title of qualification awarded Bachelour's degree in chemistry
Date 1962-1969
Place Zagreb
Institution Faculty of Technology

Title of qualification awarded Master of science in natural sciences; chemistry
Date 1969-1972
Place Zagreb
Institution Faculty of Technology
Title of qualification awarded PhD in natural science; organic chemistry

LANGUAGES

MOTHER TONGUE Croatian
ENGLISH LANGUAGE yes
Speaking Very good
Writing Very good
Reading Very good

Language German, Italian
Speaking good
Writing good
Reading good

RESEARCH AND OTHER PROJECTS

2014 - 2017 collaborator on the project *Synthesis and cytostatic evaluations of novel nitrogen heterocycles library*, Croatian science foundation

2011 -2013 collaborator on the national project *Novel heterocycles as antitumor and antiviral "smart" drugs* Finance07d by Ministry of Science, Education and Sport of the Republic of Croatia; (No. 125-0982464-1356)

2011-2012 co-host on the project *Synthesis, photochemical synthesis, DNA binding, antitumor activity and QSAR analyses of novel condensed quinolones and quinolines* (Cogito Partnership Hubert Curien za 2011./2012, croatian-french project)

2007 - 2011 leader of the national project *Novel heterocycles as antitumor and antiviral "smart" drugs* Financed by Ministry of Science, Education and Sport of the Republic of Croatia; (No. 125-0982464-1356)

2002 - 2006 leader of the national project *New Heterocyclic Compounds; Synthesis, Antiinfective and Antitumor Activity* Financed by Ministry of Science, Education and Sport of the Republic of Croatia; (No. 125005)

1996 - 2002 co-ordinator of the national project *Synthesis of nucleoside heterocycles for HIV treatment* Financed by Ministry of Science and Technology of the Republic of Croatia; (No. 125005)

1991 - 1995 leader of the scientific project *Photosynthesis of polynuclear heterocyclic quinolones* Financed by Ministry of Science and Technology of the Republic of Croatia; (No. 1-07-0)

1993 - 1995 leader of the American project *RNA-DNA Selective Anti-HIV agents* Financed by Fogarty International Research Collaboration Award (PA91-77 USA)

1996 -1999 leader of the croatian-american project *Bis-benzothiazolyl amidines as potential anti-HIV opportunistic diseases agents* Financed by Ministry of Science and Technology of the Republic of Croatia and National Institute of Health, Bethesda, Washington DC

1995 - 1998 leader of the collaboration project *Synthesis of novel tilosine derivatives* with PLIVA

1994 – 1998 leader of the collaboration project *Synthesis and photosynthesis of benzo, furyl and/or thienyl azepines, diazepines and azepinones as potentially biologically (pharmacological) substances* with BELUPO d.o.o

TEACHING

Undergraduate study programmes

Lectures of the "Organic chemistry" 1981-1993.

Graduate study programmes

Practical exercises from Organic chemistry during the university assistant period 1963-1975. (180h a year)

Seminars, examinations and help during the diploma work of the students.

Part of the lectures "Modern methods in organic chemistry" 1976-1978

Lectures of the "Structures and mechanism in organic chemistry" 1978-1980

Lectures of the "Planning of organic industry synthesis" 1981-2009.

Lectures of the "Organic chemistry" on the Faculty of Technology, Sisak 1981-1982.

Lectures of the "Organic chemistry" 1996-2009.

Lectures of the "Drugs and protecting agents" 1994-2006

Lectures of students choice "Chemistry of natural compounds", "Heterocycles in biomolecules", "Organic Photochemical Synthesis" 1999-2006 and "Heterocyclic antitumor drugs" 2000-2009

Part of the lectures of "Natural and synthetic polymers" 2007-2010.

Postgraduate study programmes

Lectures of "Organic photosynthesis" 1986-1998.

Lectures of "Heterocycles in biomolecules and industrial products" 1992-2010.

Lectures of students choice "Nonnucleoside's antitumor drugs" 2000-2010.

MENTORSHIPS OF DOCTORAL AND MASTER DISSERTATIONS AND TRAINING OF YOUNG RESEARCHERS AND SCIENTISTS

Doctoral dissertation

1. Miroslav Bajić „Synthesis and photochemical dehydrocyclisation of some 2,5-distyryl-substituted thiophenes and furans“, Zagreb 1992.
2. Zvonimira Mikotić-Mihun „Synthesis of tricyclic condensed heterocyclic compounds with potential pharmacological activity“, Zagreb 1999.
3. Jasna Dogan Koružnjak „ Synthesis and photochemical synthesis of the benzo[b]thiophene- and thieno[3,2-b]thiophene series“, Zagreb, 2000.
4. Kristina Starčević „Synthesis of potential biologicaly active amides and bis-amides from heterocyclic series“ 2005.
5. Ivana Jarak „Synthesis, photochemical synthesis and antitumor action amidno derivatives of the benzo[b]thieno[2,3-c]quinolones, Zagreb 2005
6. Irena Čaleta „ Synthesis and biological action of substituted benzothiazole derivatives“, Zagreb 2007
7. Marijana Hranjec „ Synthesis, biological activity and interaction with ct-DNA of new benzimidazole derivatives“, Zagreb 2007
8. Irena Sović „Novel heterocyclic compounds: derivatives of isoindoline, synthesis and antitumor evaluation in vitro“, Zagreb 2012.
9. Maja Aleksić „Synthesis, photochemical synthesis, QSAR analysis and antitumor activity of new benzothieno- and thienothieno-quinolone derivatives“, Zagreb 2013.

Master dissertation (scientific)

1. Mila Orlić „ Photochemical reactions of phenylamides of 2-furan-carboxylic acid“, Zagreb 1979.
2. Miroslav Malešević „Photochemical synthesis of heterocyclic diquinolones.Twofold photochemical dehydrohalogenation of benzo[1,2-b :4,5-b'di-thiophene- and dithieno[3,2-b:2',3'-d]thiophene dicarboxanilides“ Zagreb 1995.

3. Jasna Dogan „Photochemical synthesis of heterocyclic quinolones. Photodehydrohalogenation of benzo[b]thiophene- and thieno[3,2-b]thiophene dicarboxanilides“ Zagreb 1996.
4. Davorka Pavličić „Synthesis of new dianilides of thieno[3,2-b]thiophene, thieno[3,2-b]furan and Polythiophene series“, Zagreb, 1997
5. Jelena Blažević-Šafarik „ Synthesis and photochemical synthesis of some new thiophene and thieno[3,2-b]thiophene derivatives“, Zagreb, 1998.
6. Kristina Starčević „Synthesis and photochemistry substituted bis-benzimidazolyl benzothiophene and benzothienofuran series!, Zagreb 2001.
7. Livio Racane „Synthesis of new substituted benzothiazoles and bis-benzothiazoles of hereocyclic series“, Zagreb 2001
8. Ivana Jarak „ Synthesi and biological activity of new substituted amides from heterocyclic series“, Zagreb, 2002.
9. Marko Đerek “Beckmann’s rearrangements of 13-hidroksi-10, 11, 12, 13-dihydro-9-(e, z)oksim-demikarosiltilozin” a Zagreb, 2004

Training of young researchers

Over 50 graduate diploma works and about 10 student's „rector's awards“

AWARDS AND RECOGNITIONS

State scientific award in the field of natural sciences in 2008 year.

MEMBERSHIP IN SCIENCE ORGANIZATIONS AND BODIES

Member of the organizing committee of international scientific meeting;

“European Symposium of Organic reactions” 2001 Cavtat, Croatia

“European Symposium of Organic chemistry”, 2003, Cavtat, Croatia

President of the organizing committee of national scientific meeting entiteled “Nobel price winner Vladimir Prelog and Croatian chemistry”, 2006, Zagreb

Member of the “Croatian Chemical Society”

Member of the “Croatian Society of Chemical Engineers”

Earlirer member of the “European Photochemical Society and member of the “International Society of Heterocyclic Chemistry”

COMMISSIONS, COMMITTEES, BOARDS AND WORK GROUPS

Rewiever of several international chemical and medicinal chemistry journals (Tetrahedron Letters, medicinal chemistry; European Journal of Medicinal Chemistry, Bioorganic & Medicinal Chemistry, Journal of Medicinal Chemistry (USA), Kemija u industriji, Acta Pharmaceutica and Croatica Chemica Acta).

Head of the Department of Organic chemistry, Faculty of the Chemical Engineering and Technology, University of Zagreb, 1986-1997 and 2001-2005.

Member of a lot of intracollegiate commissions until 2005

Member of the Ministry of Science Commission for chemistry 2001-2005.

PAPERS

CC scientific papers (104)

Other scientific papers (18)

International CC conference proceeding (4)

International conference proceeding (3)

Plenary lectures (1)

Patents (8)

International and domestic conferences with poster presentation (133)

List of chosen CC publications

No.	Reference	IF	Cit ^a	Q ^b
1.	L. Racané, S.Kraljević Pavelić, R.Nhili, S. Depauw, C. Paul-Constant, I. Ratkaj, M. H. David-Cordonnier, K. Pavelić, V.Tralić-Kulenović, G. Karminski-Zamola , New anticancer active and selective phenylene-bisbenzothiazoles: Synthesis, Antiproliferative Evaluation and DNA binding <i>Eur. J. Med. Chem.</i> 63 (2013) 882-891.	3.499 (2012)	0	Q1
2.	M. Hranjec, I. Sović, I. Ratkaj, G. Pavlović, N. Ilić, L. Valjalo, K. Pavelić, S. Kraljević Pavelić, G. Karminski-Zamola , Antiproliferative potency of novel benzofuran-2-carboxamides on tumour cell lines: Cell death mechanisms and determination of crystal structure. <i>Eur. J. Med. Chem.</i> 59 (2013) 111-119.	3.499 (2012)	0	Q1
3.	I. Sović, G. Pavlović, G. A. Papadopoulos, D. Šišak, G. Karminski-Zamola , 2-substituted-1H-perimidines, single-crystal and powder X-ray diffraction, DFT calculations <i>J. Mol. Struct.</i> 1041 (2013) 156-163.	1.404 (2012)	0	Q3
4.	M. Aleksić, B. Bertoša, R. Nhili, L. Uzelac, I. Jarak, S. Depauw, M. H. David-Cordonnier, M. Kralj, S.Tomić, G. Karminski-Zamola , Novel Substituted Benzothiophene-, Thienothiophene-carboxanilides, quinolones : Synthesis, Photochemical Synthesis, DNA-binding Properties, Antitumor evaluation, QSAR analysis. <i>J. Med. Chem.</i> 55 (2012) 5044-5060.	5.614	2	Q1
5.	K. Ester, F. Supek, K. Majsec, M. Marjanović, D. Lembo, M. Donalisio, T. Šmuc, I. Jarak, G. Karminski-Zamola , M. Kralj, Putative mechanisms of antitumor activity of cyano-substituted heteroaryles in HeLa cells. <i>Invest. New Drugs</i> 30 (2012) 450-467.	3.498	1	Q1
6.	L. Racané, S. Kraljević Pavelić, I. Ratkaj, V. Stepanić, K. Pavelić, Krešimir, V. Tralić-Kulenovića, G. Karminski-Zamola , Synthesis and antiproliferative evaluation of some new amidino-substituted bis-benzothiazolyl-pyridines and pyrazine <i>Eur. J. Med. Chem.</i> 55 (2012) 108-116.	3.346	1	Q1
7.	L. Racane, H. Čičak, Z. Mihalić, G. Karminski-Zamola , V. Tralić-Kulenović, New pentacyclic ring system: intramolecular cyclization of o,o'-disubstituted bibenzothiazoles. <i>Tetrahedron.</i> 67 (2011) 2760-2767.	3.025	1	Q2
8.	I. Jarak, M. Marjanović, I. Piantanida, M. Kralj, G. Karminski-Zamola , Synthesis, anti-tumor properties and Polynucleotide - binding activities. <i>Eur. J. Med. Chem.</i> 46 (2011) 2807-2815.	3.499	9	Q1
9.	B. Bertoša, M. Aleksić, G. Karminski-Zamola , S. Tomić, QSAR analysis of antitumor active amides and quinolones from thiophene series. <i>Intern. J. Pharm.</i> 394 (2010) 106-114.	3.607	5	Q1
10.	L. Racané, M. Kralj, L. Šuman, R. Stojković, V. Tralić-Kulenović, G. Karminski-Zamola , Novel amidino substituted 2-phenylbenzothiazoles: Synthesis, antitumor evaluation in vitro and acute toxicity testing in vivo. <i>Bioorg. Med. Chem.</i> 18 (2010) 1038-1044;	2.978	14	Q2

- | | | | | |
|-----|---|-------|----|----|
| 11. | L. Racané, V. Tralić-Kulenović, S. Kraljević Pavelić, I. Ratkaj, P. Peixoto, R. Nhili, S. Depauw, M. P. Hildebrand, M. H. David-Cordonnier, K. Pavelić, G. Karminski-Zamola , Novel Diamidino-Substituted Derivatives of Phenyl-Benzothiazolyl- and Dibenzothiazolyl-Furans and Thiophenes: Synthesis, Antiproliferative and DNA binding Properties. <i>J. Med. Chem.</i> 53 (2010) 2418-2432. | 5.207 | 6 | Q1 |
| 12. | I. Čaleta, M. Kralj, M. Marjanović, B. Bertoša, S. Tomić, G. Pavlović, K. Pavelić, G. Karminski-Zamola , Novel Cyano- and Amidino- Benzothiazole Derivatives: Synthesis, Antitumor Evaluation, X-ray and QSAR Analysis. <i>J. Med. Chem.</i> 52 (2009) 1744-1756. | 4.802 | 44 | Q1 |
| 13. | K. Ester, M. Hranjec, I. Piantanida, I. Čaleta, J. Ivana, K. Pavelić, M. Kralj, G. Karminski-Zamola , Novel Derivatives of Pyridyl-Benzo [b]thiophene-2-carboxamides and Benzo[b]thieno[2,3-c]naphthyridin-2-ones: Minor Structural Variations Provoke Major Differences of Antitumor Action Mechanisms. <i>J. Med. Chem.</i> 52 (2009) 2482-2492. | 4.802 | 14 | Q1 |
| 14. | M. Hranjec, K. Starčević, I. Piantanida, M. Kralj, M. Marjanović, M. Hasani, G. Westman, G. Karminski-Zamola , Synthesis, antitumor evaluation and DNA binding studies of novel amidino-benzimidazolyl substituted derivatives of furyl-phenyl and thienyl-phenyl-acrylates, naphthofurans and naphthothiophenes. <i>Eur. J. Med. Chem.</i> 43 (2008) 2877-2890. | 2.882 | 14 | Q2 |
| 15. | M. Hranjec, I. Piantanida, M. Kralj, L. Šuman, K. Pavelić, G. Karminski-Zamola , Novel amidino-substituted thienyl- and furyl-vinyl-benzimidazole derivatives and their photochemical conversion into corresponding diaza-cyclopenta[c]fluorenes. Synthesis, interactions with DNA and RNA and antitumor evaluation. Part 4. <i>J. Med. Chem.</i> 51 (2008) 4899-4910. | 4.898 | 30 | Q1 |
| 16. | D. Agić, M. Hranjec, N. Jajčanin, K. Starčević, G. Karminski-Zamola , M. Abramić, Novel amidino-substituted benzimidazoles: Synthesis of compounds and inhibition of dipeptidyl peptidase III. <i>Bioorg. Chem.</i> 35 (2007) 153-169. | 2.125 | 9 | Q2 |
| 17. | M. Hranjec, G. Karminski-Zamola , Synthesis of Novel Benzimidazolyl-substituted Acrylonitriles and Amidino-substituted Benzimidazo[1,2- <i>a</i>] Quinolines. <i>Molecules</i> 12 (2007) 1817-1828. | 0.940 | 10 | Q3 |
| 18. | M. Hranjec, M. Kralj, I. Piantanida, M. Sedić, L. Šuman, K. Pavelić, G. Karminski-Zamola , Novel Cyano- and Amidino-Substituted Derivatives of Styryl-2-Benzimidazoles and Benzimidazo[1,2- <i>a</i>]quinolines. Synthesis, Photochemical Synthesis, DNA binding and Antitumor Evaluation, Part 3. <i>J. Med. Chem.</i> 50 (2007) 5696-5711. | 4.895 | 56 | Q1 |
| 19. | K. Starčević, M. Kralj, K. Ester, I. Sabol, M. Grce, K. Pavelić, G. Karminski-Zamola , Synthesis, Antiviral and Antitumor Activity of 2-substituted-5-amidino-benzimidazoles. <i>Bioorg. Med. Chem.</i> 15 (2007) 4419-4426. | 2.662 | 44 | Q2 |
| 20. | I. Jarak, M. Kralj, I. Piantanida, L. Šuman, M. Žinić, K. Pavelić, G. Karminski-Zamola , Novel Cyano- and Amidino-Substituted Derivatives of Thieno[2,3- <i>b</i>]- and Thieno[3,2- <i>b</i>]thiophene-2-carboxanilides and Thieno[3',2':4,5]thieno- and Thieno[2',3' : 4,5]thieno [2,3- <i>c</i>]quinolones: Synthesis, Photochemical Synthesis, DNA binding and Antitumor Evaluation. <i>Bioorg. Med. Chem.</i> 14 (2006) 2859-2868. | 2.624 | 35 | Q2 |

- | | | | | |
|-----|--|-------|----|----|
| 21. | K. Starčević, I. Čaleta, D. Cinčić, B. Kaitner, M. Kralj, K. Ester, G. Karminski-Zamola , Synthesis, crystal structure determination and antiproliferative evaluation of novel benzazoyl benzamides. <i>Heterocycles</i> . 68 (2006) 2285-2299. | 1.077 | 13 | Q3 |
| 22. | K. Starčević, M. Kralj, I. Piantanida, L. Šuman, K. Pavelić, G. Karminski-Zamola , Synthesis, Photochemical Synthesis, DNA Binding and Antitumor Evaluation of Novel Cyano- and Amidino-Substituted Derivatives of Naphtho-Furans, Naphtho-Thiophenes, Benzo-Thieno-Furans, Benzo-Dithiophenes and their Acyclic Precursors. <i>Eur. J. Med. Chem.</i> 41 (2006) 925-939. | 2.187 | 20 | Q2 |
| 23. | I. Jarak, M. Kralj, L. Šuman, G. Pavlović, J. Dogan, I. Piantanida, M. Žinić, K. Pavelić, G. Karminski-Zamola , Novel Cyano- and N-isopropylamidino-Substituted Derivatives of Benzo[b]thiophene-2-carboxanilides and Benzo[b]thieno[2,3-c]quinolones: Synthesis, Photochemical Synthesis, Crystal Structure Determination and Antitumor Evaluation. <i>J. Med. Chem.</i> 48 (2005) 2346-2360. | 4.926 | 32 | Q1 |
| 24. | K. Starčević, G. Karminski-Zamola , I. Piantanida, M. Žinić, L. Šuman, K. Kralj, Photoinduced Switch of a DNA/RNA Inactive Molecule into a Classical Intercalator. <i>J. Am. Chem. Soc.</i> 127 (2005) 1074-1075. | 7.419 | 15 | Q1 |
| 25. | J. Dogan Koružnjak, M. Grdiša, N. Slade, B. Zamola, K. Pavelić, G. Karminski-Zamola , Novel Derivatives of Benzo(b)thieno(2,3-c)quinolones: Synthesis, Photochemical Synthesis, and Antitumor Evaluation. <i>J. Med. Chem.</i> 46 (2003) 4516-4524. | 4.820 | 15 | Q1 |
| 26. | J. Dogan Koružnjak, N. Slade, B. Zamola, K. Pavelić, G. Karminski-Zamola , Synthesis, photochemical synthesis and antitumor evaluation of novel derivatives of thieno[3',2':4,5]thieno[2,3-c]quinolones. <i>Chem. Pharm. Bull.</i> 50 (2002) 656-660. | 1.507 | 10 | - |
| 27. | L. Racane, V. Tralić-Kulenović, L. Fišer-Jakić, W. D. Boykin, G. Karminski-Zamola , Synthesis of bis-amidino-substituted benzothiazoles from furan and thiophene series as potential anti HIV agent. <i>Heterocycles</i> . (2001) 2085-2098. | 1.015 | 31 | - |
| 28. | G. Karminski-Zamola , J. Dogan, W.D. Boykin, M. Bajić, Mass spectral fragmentation patterns of some benzo[b]thiophene- and thieno[2,3-b]thiophene-2, 5-dicarbonyldichlorides, dicarbonyl-dianilides and anilido-quinolones. <i>RCM. Rapid Commun. Mass Spectr.</i> 9 (1995) 282-288. | 2.515 | 6 | - |
| 29. | G. Karminski-Zamola , J. Dogan, M. Bajić, J. Blažević, M. Malešević, Synthesis of some new furyl- and thienyl-acrylates or diacrylates and acrylic acids by palladium catalyzed vinylation of substituted bromofurans and bromothiophenes. <i>Heterocycles</i> 38 (1994) 759-767. | 0.98 | 16 | - |
| 30. | G. Karminski-Zamola , L. Fišer-Jakić, K. Jakopčić, Photochemistry of Furans: photochemical transformation of some substituted 2-phenyl-3-furylacrylic acids. <i>Tetrahedron</i> . 38 (1982) 1329-1335. | - | 19 | - |

a Total citation number (ISI Web of Science, August 2013); b The best Q in corresponding category (*ISI Journal Citation Report*)

COMPUTER SKILLS

Familiar with Windows and MS-DOS operating systems Proficient in MS Office, CorelDraw, ChemDraw, OriginPro.

OTHER IMPORTANT SKILLS AND COMPETENCES

ADDITIONAL INFORMATION AND NOTES

Field of scientific word

1. Organic synthesis of new heterocyclic systems from the furan, thiophene, benzofuran, benzothiophene, benzothiazole, benzimidazol, quinoline, quinolone and fluorene, isoindolines. Research of the mechanism of the reaction.
2. Photochemical synthesis of condensed heterocyclic systems: naphthofurans, naphthothiophenes, dibenzothiophenes, dithienothiophenes, condensed benzothienoquinolones, thienothienylquinolones and other heterocyclic compounds prepared by the photochemical dehydrohalogenation and dehydrogenation.
3. Using MW method for the preparing of heterocyclic compounds.
4. Preparing of kationic and dikationic salts of amides and amidines, quaterni amonium salts as pharmacophoric substituents responsible for antitumor action in condensed heterocyclic compounds.
5. Reaction of prepared heterocyclic compounds with DNA/RNA to reserch the mechanisam of antitumor activity
6. Introduction of photodynamic therapy with prepared heterocycles.
7. Application of spectroscopic methods (UV, IR, ^1H and ^{13}C NMR, Fluorescent spectroscopy, HPLC, CD) in the detection of prepared compounds.