Curriculum Vitae

First Name: Saeed Surname: Balalaie

Date of Birth: Sep 26th 1965 Place of birth: Iran

Nationality: Iranian Marital Status: Married

Contact

Faculty of Chemistry, K. N. Toosi University of Technology P. O. Box 15875-4416, Tehran - Iran

Tel: (+98 21) 23064226, Mobile: (+98) 912-3332851
E-mail: balalaie@kntu.ac.ir

Position:

- Professor of Organic Chemistry
- Assistant Professor: 1997-2003
- Associate Professor: 2003-September 2007
- Professor: from September 2007- now

Academic Qualifications:

Ph.D. 1992 - 1997, Sharif University of Technology (IRAN) Faculty of Chemistry, 6 months research in Justus Liebig Universität (Prof. J. Ipaktschi, Giessen-Germany) Dissertation: Photoxygenation of Organic Compounds by Singlet Oxygen, Supervisor: Prof. M. M. Hashemi.

MSc. 1989 - 1991, Shahid Beheshti University (National University of Iran) (IRAN), Department of Chemistry
Thesis: Extraction and Structure Elucidation of Guainolide in Centaurea Xanthocephala, Supervisor: Prof. A. Rustaiyan.

B.Sc. 1984-1989 University of Tehran (IRAN), Faculty of Science, Chemistry Department

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Awards:

1. Alexander von Humboldt Research fellowship Oct.2001- Jan. 2003

   Reference: Prof. Dr. R. Gleiter, Organisch Chemisches Institut der Universität Heidelberg, Im Neuenheimer Feld 270, D-69120 Heidelberg, Germany

2. Alexander von Humboldt Research fellowship July 2004- Sep. 2004

   Reference: Prof. Dr. R. Gleiter, Organisch Chemisches Institut der Universität Heidelberg, Im Neuenheimer Feld 270, D-69120 Heidelberg, Germany
   (Equipment and Book Donation from Alexander von Humboldt Foundation)

3. Distinguished researcher in K. N. Toosi University of Technology 2006

4. Alexander von Humboldt Research fellowship July 2007- Sep. 2007

   Reference: Prof. Dr. R. Gleiter, Organisch Chemisches Institut der Universitaet Heidelberg, Im Neuenheimer Feld 270, D-69120 Heidelberg, Germany

5. Distinguished researcher in K. N. Toosi University of Technology 2011

6. Alexander von Humboldt Research fellowship July 2011- Sep. 2011

   Reference: Prof. Dr. R. Gleiter, Organisch Chemisches Institut der Universitaet Heidelberg, Im Neuenheimer Feld 270, D-69120 Heidelberg, Germany

7. Distinguished Organic Chemistry Professor in Iran selected by Iranian Chemical Society (2013)

8. Alexander von Humboldt Research fellowship 2014

   Reference: Prof. Dr. T. J. J. Mueller, Organisch Chemisches Institut der HeinrichHeine Universitaet Duesseldorf, Germany

9. Ambassador Scientist Alexander von Humboldt foundation in Iran from January 2015-2017

10. Distinguished researcher in K. N. Toosi University of Technology 2016

11. Alexander von Humboldt Research fellowship July-September 2017, Reference Prof. Dr. Bernhard Breit, Institute of Organic Chemistry, University of Freiburg

12. Ambassador Scientist Alexander von Humboldt foundation in Iran from January 2018-2020

13. Selected researcher by Iran's National Elites Foundation 2018 and 2019

14. Research Group Linkage Program Award supported by Alexander von Humboldt Foundation, collaboration with Prof. B. Breit, University of Freiburg (2018-2020), Germany

15. Initiation International collaboration project supported by DFG with Prof. Gebhard Haberhauer (2019-2020), University of Duisburg-Essen, Germany

16. Distinguished researcher in K. N. Toosi University of Technology 2019

17. Selected researcher by Ministry of Science, Research and Technology 2019

18. Selected as first laureate applied research in 33rd Khwarizmi International Award February 2020

Research Interests:

1. Designing and synthesis of bioactive peptides and synthesis of pharmaceutical peptides in solid and solution phase

2. New Methodologies in Organic Synthesis

3. Designing of novel multicomponent and domino reactions in organic synthesis to access multifunctional compounds

4. Amino acids in one-pot multicomponent reactions

5. Synthesis of Active Pharmaceutical Ingredients (API) compounds

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Publications:

(2020)

1. Salehi Ashani, R.; Azizian, H.; Sadeghi Alavijeh, N.; Fathi Vavsari, V.; Mahernia, Sh.; Sheysi, N.; Biglar, M.; Amanlou, M.; **Balalaie, S**.; Synthesis, Biological Evaluation and Molecular Docking of Deferasirox and Substituted 1,2,4-Triazole Derivatives as Novel Potent Urease Inhibitors: Proposing Repositioning Candidate, *Chem. Biodivers.* **2020**, (https://doi.org/10.1002/cbdv.201900710).

2. Fathi Vavsari, V.; Shakeri, P.; **Balalaie, S**.; Application of Chiral Isocyanides in Multicomponent Reactions, *Curr. Org. Chem.* **2020**, *24*, 162-183.

3. Azizian, H.; Esmailnejad, A.; Fathi Vavsari, V.; Mahernia, Sh.; Amanlou, M.; **Balalaie, S**.; Pantoprazole Derivatives: Synthesis, Urease Inhibition Assay and In Silico Molecular Modeling Studies, *ChemistrySelect*. **2020**, *5*, 4580-4587.

4. Fathi Vavsari, V.; **Balalaie, S**.; Recent Advances in Green Synthesis of Chromones, *Chem Heterocycl Compd*. **2020**, *56*, 404–407.

5. Sohbati, H.; Alipour, M.; Hosseinkhani, S.; **Balalaie, S.**; Hamdan, F.; Design, Synthesis and Biological Evaluation of Triptorelin Analogs Containing Tetrazole Moiety, *ChemistrySelect.* **2020***, 5*, 1443-1449.

6. Nashta Rahimi, A.; Janatian Ghazvini, H.; **Balalaie, S**.; Rominger, F.; Zahedian Tejenek, H.; Bijanzadeh, H. R. Ultrasound-Activated Atom-Economical Approach to the Synthesis of Highly Substituted Pyrrolidin-2-ones through a Four-Component Ugi/5-endo-trig Intramolecular Radical Cyclization Reaction, *Synlett*. **2020**. (DOI: 10.1055/s-0040-1707997)

7. Amiri, K.; **Balalaie, S**.; Anwar, M. U.; Al-Harrasi, A.; Synthesis of 3-Oxoisoindoline-1-carboxamides through Sequential Four-Component Ugi Reaction/Oxidative Nucleophilic Substitution of Hydrogen, *Synlett*. **2020**. (10.1055/s-0039-1691598)

8. Akbarikalani, N.; Amiri, K.; Al-Harrasi, A.; **Balalaie, S**. Copper (triazole-5-yl) methanamine complexes onto MCM-41: the synthesis of pyridine-containing pseudopeptides through the 6-endo-dig cyclization of 1, 5-enynes. *RSC Adv.* **2020**, *10*, 10577-10583.

9. Takallou, A.; Habibi, A.; Ziyaei Halimehjan, A.; **Balalaie, S**.; NHC-assisted Ni (II)-catalyzed acceptorless dehydronation of amines and secondary alcohols, *Appl. Organomet. Chem.* **2020**, *34*, e5379. (https://doi.org/10.1002/aoc.5379)

10. Adibi, H.; Mehrabi, M.; Amiri, K.; **Balalaie, S**.; Khodarahmi, R. Synthesis and characterization of 2-benzylidene-1, 3-indandione derivatives as in vitro quantification of amyloid fibrils. *J. Iran Chem. Soc*. **2020**, *17*, 423-432.

11. Ghodrati, A.; Firoozpour, L.; **Balalaie, S.**; Hosseini, F.; Ramezanpour, S.; Edraki, N.; Mohtavinejad, N.; Amanlou, M.; Design, Synthesis and Enzymatic Inhibition of Novel Unusual Amino Acids as a Transition State Analogue of Amyloid Precursor Protein Peptide, *Int J Pept Res Ther*. **2020**, (DOI 10.1007/s10989-020-10015-9).

12. Ahmadi, S.; Dabbagh, H. A.; Grieco, P.; **Balalaie, S**.; A cystine-based dual chemosensor for fluorescent-colorimetric detection of CN− and fluorescent detection of Fe^{3+} in aqueous media: Synthesis, spectroscopic, and DFT studies. *Spectrochim Acta A.* **2020**, *228*, 117696.

13. Pejman, S.; Kamarehei, M.; Riazi, G.; Pooyan, S.; **Balalaie, S.**; Ac-SDKP ameliorates the progression of experimental autoimmune encephalomyelitis via inhibition of ER stress and oxidative stress in the hippocampus of C57BL/6 mice, *Brain Res.* **2020**, *154*, 21-31.

(2019)

14. Ghiasi, P.; Hosseinkhani, S.; Ansari, H.; Aghdami, N.; **Balalaei, S**.; Pahlavan, S.; Baharvand, H.; Reversible permeabilization of the mitochondrial membrane promotes human cardiomyocyte differentiation from embryonic stem cells, *J. Cell Physiol*. **2019**, *234*, 521-536.

15. Balalaie, A.; Rezvani, M. B.; Basir, M. M.; Rezadoost, H.; **Balalaie, S.;** A New Approach for Determining the Minimum Concentration of Proanthocyanidin for Preservation of Collagen in H Dentin, *Eur J Prosthodont Restor Dent*, **2019**, *27*, 154-163.

16. Amiri, K.; Khosravi, H.; **Balalaie, S.;** Golmohammadi, F.; Anwar, M U.; Al-Harrasi, A.; Regio- and chemo-selective cyclization of allenic-Ugi products for the synthesis of 3-pyrroline skeletons, *Org. Biomol. Chem.*, **2019**, *17*, 8858-8870.

17. Janatian Ghazvini, H.; Armaghan, M.; Janiak, C.; **Balalaie, S.;** Müller, T. J. J.; Coupling-isomerization-cycloisomerization reaction (CICIR) - An unexpected and efficient domino approach to luminescent 2-(hydroxymethylene)indenones, *Eur. J. Org. Chem*. **2019,** *14*, 7058-7062.

18. Nikbakht, A.; **Balalaie, S.;** Breit, B.; Synthesis of 2-(isoquinolin-1-yl) prop-2-en-1-ones via silver(I)- catalyzed one-pot tandem reaction of ortho-alkynylbenzaldoximes with propargylic alcohols, *Org. Lett*. **2019**, *21*, 7645−7648.

19. Janatian Ghazvini, H.; Müller, T. J. J.; Rominger, F.; **Balalaie, S.;** Highly substituted medium-sized ring-fused azocinoquinoline scaffolds by post-

Ugi-4CR reductive carbopalladation cyclization, *J. Org. Chem*. **2019**, *84*, 10740−10748.

20. Abdollahpour-Alitappeh, M.; Lotfinia, M.; Bagheri, N.; Sineh Sepehr, K.; Habibi-Anbouhi, M.; Kobarfard, F.; **Balalaie, S.;** Foroumadi, A.; Abbaszadeh-Goudarzi ,G.; Abbaszadeh-Goudarzi, K.; Abolhassani, M.; Trastuzumab-monomethyl auristatin E conjugate exhibits potent cytotoxic activity in vitro against HER2-positive human breast cancer, *J. Cell Physiol.* **2019**, *234*, 2693-2704.

21. Ghalehshahi, H. G.; **Balalaie, S.;** Sohbati, H. R.; Azizian, H.; Alavijeh, M. S.; Synthesis, CYP 450 evaluation, and docking simulation of novel 4-aminopyridine and coumarin derivatives, *Arch. Pharm. Chem. Life Sci*. **2019**, *352*, 1-14.

22. Hamdan, F.; Bigdeli, Z.; **Balalaie, S.;** Sewald, N.; Michalek, C.; Efficient synthesis of novel RGD based peptides and the conjugation of the pyrazine moiety to their N-terminus, *New J. Chem*. **2019**, *43*, 2702-2709.

23. Hamdan, F.; Bigdeli, Z.; Asghari, S. M.; Sadremomtaz, A.; **Balalaie, S.;** Synthesis of modified RGD-based peptides and their in vitro activity, *ChemMedChem.* **2019**, *14*, 282-288.

24. Navari, R.; **Balalaie, S.;** Mehrparvar, S.; Darvish, F.; Rominger, F.; Hamdan, F; Mirzaie, S.; Efficient synthesis of pyrazolopyridines containing a chromane backbone through domino reaction, *Beilstein J. Org. Chem.* **2019**, *15*, 874-880.

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amidodiester fragments and succinimide derivatives, *ChemistrySelect.* **2019**, *4*, 9074-9078.

28. Mottaghi, M.; Khosravi, H.; **Balalaie, S**.; Rominger, F.; Catalytic formal [4 + 1] isocyanide-based cycloaddition: an efficient strategy for the synthesis of 1*H*-cyclopenta[*b*]quinolin-1-one derivatives, *Org. Biomol. Chem*. **2019**, *17*, 275-282.

29. **Balalaie, S.;** Malakoutikhah, M.; Teixido, M.; Fathi Vavsari, V.; Giralt, E.; Haghighatnia, Y.; Hamdan, F.; Arabanian, A.; Efficient synthesis of norbuprenorphines coupled with enkephalins and investigation of their permeability, *Iran. J. Pharm. Res.* **2019**, *18*, 1277-1287.

30. Takallou, A.; Habibi, A.; Ziyaei Halimehjani, A.; **Balalaie, S.**; Bis(imidazolium) chloride based on 1,2-phenylenediamine as efficient ligand precursor for palladium-catalyzed Mizoroki-Heck cross-coupling reaction, *J. Organomet. Chem.* **2019,** *888*, 24-28.

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31. Mahdavi, M.; Asghari, S.; Rahnamay, M.; Dehghan, G.; Feizi, M.A.H.; **Balalaie, S.;** Cytotoxicity, oxidative stress, and apoptosis in K562 leukemia cells induced by an active compound from pyrano-pyridine derivatives, *Human Exp. Toxicol*. **2018**, *37*, 1105-1116.

32. Golmohammadi, F.; **Balalaie, S.;** Hamdan, F.; Maghari, S.; Efficient synthesis of novel conjugated 1,3,4-oxadiazole-peptides, *New J. Chem.* **2018**, *42*, 4344-4351.

33. Ghalehshahi, H.G.; **Balalaie, S.;** Aliahmadi, A.; Peptides N-connected to hydroxycoumarin and cinnamic acid derivatives: synthesis and fluorescence spectroscopic, antioxidant and antimicrobial properties, *New J. Chem.* **2018**, *42*, 8831-8842.

34. **Balalaie, S**.; Vaezghaemi, A.; Zarezadeh, N.; Rominger, F.; Bijanzadeh, H. R.; Catalyst-free synthesis of fused triazolo-diazepino[5,6-*b*]quinoline derivatives via a sequential Ugi-4CR–nucleophilic substitution–intramolecular Click reaction, *Synlett* **2018**, *29*, 1095-1101.

35. **Balalaie, S**.; Derakhshan-Panah, F.; Zolfigol, M. A.; Rominger, F.; A convenient method for the synthesis of imidazo[1,2-*a*]pyridines with a new approach, *Synlett* **2018**, *29*, 89-93.

36. **Balalaie, S**.; Esmaeilabadi, H.; Mehrparvar, S.; Rominger, F.; Hamdan, F.; Bijanzadeh, H. R.; Synthesis of functionalized dihydropyrido[2,3-*d*]pyrimidines in aqueous medium, *SynOpen* **2018**, *2*, 1–5.

37. Mohammadi Ziarani, G.; Fathi Vavsari, V.; Badiei, A.; Afshani, A.; Gholamzadeh, P.; **Balalaie, S.;** Faridbod, F.; Ganjali, M. R.; A highly sensitive fluorescent bulk sensor based on isonicotinic acid hydrazide–immobilized nano-fumed silica (fumed-Si–INAH) for detection of Hg^{2+} and Cr^{3+} ions in aqueous media, *J. Iran. Chem. Soc.* **2018**, *15*, 211-221.

38. Moosavi-Zare, A. R.; Zolfigol, M. A., Derakhshan-Panah, F.; **Balalaie, S.;** Synthesis and characterization of 4,4′-bipyridinium sulfonic acid chloride as a new and efficient catalyst for the preparation of amidoalkyl phenols and bis amidoalkyl phenols, *Mol. Catal*. **2018**, *449*, 142-151.

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40. Barbari, G. R.; Dorkoosh, F.; Amini, M.; Bahari Javan, N.; Sharifzadeh, M.; Atyabi, F.; **Balalaie, S.**; Rafiee Tehrani, N.; Rafiee Tehrani, M.; Synthesis and characterization of a novel peptide-grafted Cs and evaluation of its nanoparticles for the oral delivery of insulin, in vitro, and in vivo study, *Int. J. Nanomed.* **2018**, *13*, 5127–5138.

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42. Bijari, N.; **Balalaie, S.**; Akbari, V.; Golmohammadi, F.; Moradi, S.; Adibi, H.; Khodarahmi, R.; Effective suppression of the modified PHF6 peptide/1N4R Tau amyloid aggregation by intact curcumin, not its

degradation products: Another evidence for the pigment as preventive/therapeutic "functional food", *Int. J. Biol. Macromol.* **2018**, *120*, 1009-1022.

43. Nikbakht, A.; **Balalaie, S.**; Baghestani, F.; Rominger, F.; Efficient synthesis of indole derivatives containing the tetrazole moeity utilizing an Ugi-azide post-transformation strategy, *Synlett* **2018**, 29(14), 1892-1896.

44. Ghalehshahi, H. G.; **Balalaie, S.;** Aliahmadi, A.; Moghimi, R.; Synthesis of 4-*N*-*α*-coumaryl amino acids and investigation of their antioxidant, antimicrobial activities and fluorescence spectra, *Amino Acids* **2018**, *50*, 1461–1470.

45. Hamdan, F.; Tahoori, F.; **Balalaie, S.;** Synthesis of novel cyclopeptides containing heterocyclic skeletons, *RSC Adv.* **2018**, *8*, 33893-33926.

46. **Balalaie, S**.; Shakeri, P.; Post-Ugi transformation of N-substituted-2-alkyneamides for the construction of diverse heterocyclic scaffolds, *Targets Heterocycl. System* **2018**, *22*, 468-489 (Book chapter).

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47. Abdollahpour-Alitappeh, M.; Habibi-Anbouhi, M.; **Balalaie, S.**; Golmohammadi, F.; Lotfinia, M.; Abolhassani, M.; A new and simple non-chromatographic method for isolation of drug/linker constructs: vc-MMAE evaluation. *J. Herbmed Pharmacol.* **2017**, *6*, 153-159.

48. Fathi Vavsari, V.; **Balalaie, S**.; Cascade reaction in the synthesis of heterocyclic natural products, *Curr. Org. Chem*. **2017**, *21*, 1393-1426.

49. Alavijeh, N. S.; Ahadi, S.; **Balalaie, S**.; Multicomponent reactions of amino acids and their derivatives in heterocycle chemistry, In Multicomponent reactions: synthesis of bioactive heterocycles, Ed. K.L. Ameta, K.L.; Dandia, A. *CRC Publisher*, **2017**, 83-116 (Book chapter).

50. Kangarlou, S.; Ramezanpour, S.; **Balalaie, S**.; Roudbar Mohammadi, S.; Haririan, I.; Curcumin-loaded nanoliposomes linked to homing peptides for integrin targeting and neuropilin-1-mediated internalization, *Pharm. Biol.* **2017**, 55, 277-285.

51. Hekmat, S.; **Balalaie, S**.; Ramezanpour, S.; Rominger, F.; Fathi Vavsari, V.; Kabiri-Fard, H.; SB-Pr-SO_3H: An efficient catalyst for the combinatorial synthesis of functionalized 2-aryl-4-quinazolinones using unusual γ-amino acids, *J. Iran. Chem. Soc.* **2017**, *14*, 833–841.

52. **Balalaie, S**.; Hekmat, S.; Ramezanpour, S.; Rominger, F.; Kabiri-Fard, H.; Fathi Vavsari, V.; An environmentally friendly approach for the synthesis of quinazolinone sulfonamide, *Monatsh. Chem.* **2017**, *148*, 1453-1461.

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56. **Balalaie, S.;** Shamakli, M.; Nikbakht, A.; Alavijeh, N. S.; Rominger, F.; Rostamizadeh, S., Bijanzadeh, H. R.; Direct access to isoxazolino and isoxazolo benzazepines from 2-((hydroxyimino)methyl)benzoic acid via a post-Ugi heteroannulation, *Org. Biomol. Chem.* **2017**, *15*, 5737-5742.

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58. **Balalaie, S.;** Mirzaie, S.; Nikbakht, A.; Hamdan, F.; Rominger, F.; Navari, R.; Bijanzadeh, H.R.; Indium catalyzed intramolecular hydroamidation of alkynes: An *exo-dig* cyclization for the synthesis of pyranoquinolines through post-transformational reaction, *Org. Lett.* **2017**, *19*, 6124-6127.

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