

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: Photooxygenation 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

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 Universität 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 Universität 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 Universität 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
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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:

(2021)

1. Abbasi Kejani, A.; Khosravi, H.; Rominger, F.; **Balalaie, S.**; Breit, B.; Metal-Free Domino Oligocyclization Reactions of Enynals and Enynones with Molecular Oxygen. *Org. Lett.* **2021**, 23, 1291–1295.

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2. Valipour, A.; Heidari, B.; Asghari, S. M.; **Balalaie, S.**; Rabouti, H.; Omidian, N.; The effect of different exogenous kisspeptins on sex hormones and reproductive indices of the goldfish (*Carassius auratus*) broodstock. *J. Fish Biol.* **2020**, <https://doi.org/10.1111/jfb.14645>.
3. Golmohammadi, F.; **Balalaie, S.**; Fathi Vavsari, V.; Anwar, M. U.; Al-Harrasi, A.; Synthesis of Spiro- β -lactam-pyrroloquinolines as Fused Heterocyclic Scaffolds through Post-transformation Reactions. *J. Org. Chem.* **2020**, 85, 13141-13152.

4. Talaei, B.; Fathi Vavsari, V.; **Balalaie, S.**; Arabanian, A.; Bijanzadeh, H. R.; Synthesis of Novel Peptides Using Unusual Amino Acids. *Iran J. Pharm. Res.*, **2020**, *19*, 370-382.
5. Zahedian Tejeneki, H.; Nikbakht, A.; **Balalaie, S.**; Rominger, F.; Regio-And Diastereoselective Indium-Catalyzed Conia-Ene Reaction of ortho-Alkynyl Diketopiperazines to Access Fused Diketopiperazinoindolines, *J. Org. Chem.* **2020**, *85*, 8544–8552.
6. Sadremomtaz, A.; Ali, A. M.; Jouyandeh, F.; **Balalaie, S.**; Navari, R.; Broussy, S.; Mansouri, K.; Groves, M. R. Asghari, S. M.; Molecular docking, synthesis and biological evaluation of Vascular Endothelial Growth Factor (VEGF) B based peptide as antiangiogenic agent targeting the second domain of the Vascular Endothelial Growth Factor Receptor 1 (VEGFR1D2) for anticancer application. *Signal Transduct Target Ther.* **2020**, *5*, 1-4.
7. Barbari, G. R.; Dorkoosh, F.; Amini, M.; Bahari Javan, N.; Sharifzadeh, M.; Atyabi, F.; **Balalaie, S.**; Rafiee Tehrani, N.; 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 [Retraction]. *Int. J. Nanomedicine*, **2020**, *15*, 1623-1624.
8. Moayedi, S.; Yadegar, A.; **Balalaie, S.**; Yarmohammadi, M.; Zali, M.R.; Suzuki, H.; Fricker, G.; Haririan, I.; Sugar Codes Conjugated Alginate: An Innovative Platform to Make a Strategic Breakthrough in Simultaneous Prophylaxis of GERD and Helicobacter pylori Infection. *Drug Des. Devel. Ther.* **2020**, *14*, 2405-2412.
9. 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**, *17*, e1900710.
10. Fathi Vavsari, V.; Shakeri, P.; **Balalaie, S.**; Application of Chiral Isocyanides in Multicomponent Reactions, *Curr. Org. Chem.* **2020**, *24*, 162-183.

11. 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.
12. Fathi Vavsari, V.; **Balalaie, S.**; Recent Advances in Green Synthesis of Chromones, *Chemistry of Heterocyclic Compounds*. **2020**, *56*, 404–407.
13. Sohbaty, 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.
14. 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**, *31*, 871-877.
15. 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**, *31*, 861-865.
16. 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.
17. Takallou, A.; Habibi, A.; Ziyaei Halimehjan, A.; **Balalaie, S.**; NHC-assisted Ni (II)-catalyzed acceptorless dehydrogenation of amines and secondary alcohols, *Appl. Organomet. Chem*. **2020**, *34*, e5379.
18. 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.
19. Ghodrati, A.; Firoozpour, L.; **Balalaie, S.**; Hosseini, F.; Ramezanzpour, 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).

20. Ahmadi, S.; Dabbagh, H. A.; Grieco, P.; **Balalaie, S.**; A cystine-based dual chemosensor for fluorescent-colorimetric detection of CN⁻ and fluorescent detection of Fe³⁺ in aqueous media: Synthesis, spectroscopic, and DFT studies. *Spectrochim Acta A.*, **2020**, 228, 117696.
21. 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.

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22. Ghiasi, P.; Hosseinkhani, S.; Ansari, H.; Aghdami, N.; **Balalaie, 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.
23. 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.
24. 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.
25. 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.
26. 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-alkynylbenzaloximes with propargylic alcohols, *Org. Lett.* **2019**, 21, 7645-7648.

27. 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.
28. 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.
29. Ghalehshahi, H. G.; **Balalaie, S.**; Sohbaty, 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.
30. 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.
31. 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.
32. 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.
33. Poursan, S.; Ahadi, S.; **Balalaie, S.**; Rominger, F.; Bijanzadeh, H. R.; Design and synthesis of novel functionalized fused oxazepine and diazepine analogues containing coumarin backbone through domino reaction, *ChemistrySelect* **2019**, *4*, 6403-6407.
34. **Balalaie, S.**; Doroudian, Y.; Zarezadeh, N.; Zahedian Tejeneki, H.; Rominger, F.; Regiocontrolled synthesis of fused heterocyclic skeletons containing pyranocoumarin backbones, *ChemistrySelect* **2019**, *4*, 8921-8924.

35. Jamaati, H.; **Balalaie, S.**; Kazemi Miraki, M.; Rominger, F.; Bijanzadeh, H. R.; Choline chloride/ urea as mild media for the synthesis of the chromonyl amidodiester fragments and succinimide derivatives, *ChemistrySelect* **2019**, *4*, 9074-9078.
36. 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.
37. **Balalaie, S.**; Malakoutikhah, M.; Teixido, M.; Fathi Vavsari, V.; Giralt, E.; Haghghatnia, 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.
38. 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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39. 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.
40. 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.
41. 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.
42. **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.

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44. **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.
45. 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 Hg²⁺ and Cr³⁺ ions in aqueous media, *J. Iran. Chem. Soc.* **2018**, *15*, 211-221.
46. 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.
47. Sharifi, N.; Khajeh, K.; Mahernia, S.; **Balalaie, S.**; Ataie, G.; Jahanbani, R.; Amanlou, M.; Probing angiotensin converting enzyme (ACE) domain-dependent inhibition of *onopordia*, isolated from *onopordon acanthium* L., using a continuous fluorescent assay, *Pharm. Sci.* **2018**, *24*, 31-37.
48. 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.
49. **Balalaie, S.**; Bakhshaei Ghoroghaghaei, H.; Alavijeh, N. S.; Darvish, F.; Rominger, F.; Bijanzadeh, H. R.; Synthesis of fully functionalized 3bromoazaspiro[4.5]trienones through Ugi four-component reaction (Ugi-4CR) followed by *ipso*-bromocyclization, *SynOpen* **2018**; *2*(3): 222-228.

50. 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.
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52. 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.
53. Hamdan, F.; Tahoori, F.; **Balalaie, S.**; Synthesis of novel cyclopeptides containing heterocyclic skeletons, *RSC Adv.* **2018**, *8*, 33893-33926.
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55. 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.
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58. 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.

59. Hekmat, S.; **Balalaie, S.**; Ramezanpour, S.; Rominger, F.; Fathi Vavsari, V.; Kabiri-Fard, H.; SB-Pr-SO₃H: 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.
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63. Rezaeianpour, S.; Hajiagha Bozorgi, A.; Moghimi, A.; Almasi, A.; **Balalaie, S.**; Ramezanpour, S.; Nasoohi, S.; Mazidi, S. M.; Geramifar, P.; Bitarafan-Rajabi, A.; Shahhosseini, S.; Synthesis and biological evaluation of cyclic [^{99m}Tc]-HYNIC-CGPRPPC as a fibrin-binding peptide for molecular imaging of thrombosis and its comparison with [^{99m}Tc]-HYNIC-GPRPP, *Mol. Imaging Biol.* **2017**, *19*, 256-264.
64. **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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