Biography

First Name: Elham

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Education

1. Shahid Beheshti University of medical science, Tehran, Iran, 2009-2014, Ph.D. Medicinal Chemistry.

2. Shahid Beheshti University of medical science, Tehran, Iran, 2002-2009, Pharm.D. Pharmacy.

Thesis

Ph.D. Thesis

1. Title: Design, molecular modeling, synthesis and biological evaluation of new amide compounds as soluble epoxide hydrolase inhibitors (sEHI)

2. Supervisor: Dr. Sayyed Abbas Tabatabai, Dr Soraya Shahosseini, Dr Mehrdad Faizi

3. Abstract: Human soluble epoxide hydrolase (sEH) enzyme converts epoxyeicosatrienoic acids (EETs), substrates formed by epoxygenases from arachidonic acid, to the corresponding less active diols. Since EETs have wide range of physiological effects such as vasodilatory action and modulation of adhesion molecule expression, platelet aggregation, vascular smooth muscle migration and thrombolytic properties. Inhibition of sEH enzyme that leads to accumulation of active EETs provides a novel approach to the treatment of hypertension, atherosclerosis and inflammation. Since the most reported potent sEH inhibitors have limited pharmacokinetic profile, they aren’t useful for clinical application. In this research, new amide compounds with a novel secondary pharmacophore (oxadiazole, hydrazide, dihydropyrimidinone) against sEH enzyme were developed. The designed compounds showed high affinity to the active site of the sEH enzyme and were synthesized in good yield and characterized by IR, Mass and $^1$HNMR. Most of the novel compounds had comparable invitro sEH inhibitory activity to 12-(3-Adamantan-1-yl-ureido)-dodecanoicacid (AUDA), a potent urea-based sEH inhibitor.
1. **Title:** Design and synthesis of 2-Substituted-5-(4-chloro-2-phenoxy) phenyl-1.3.4-oxadiazole derivatives as new benzodiazepine receptor ligands.

2. **Supervisor:** Dr. Sayyed Abbas Tabatabai

3. **Abstract:** Benzodiazepines are useful in treating anxiety, insomnia, agitation, seizures, muscle spasms and alcohol withdrawal. Benzodiazepines vary in their elimination half-life, short- and intermediate benzodiazepines are preferred for the treatment of insomnia, longer-acting benzodiazepines are recommended for the treatment of anxiety. Benzodiazepines work by enhancing the effect of the inhibitory neurotransmitter gamma-amino butyric acid (GABA) at GABA (A) receptors which has a pentameric structure composed from a family of subunits (α 1-6, β 1-4, γ 1-4, δ, ε, π, θ and ρ 1-3). In addition to GABA binding site, GABA(A) receptors contain a large number of allosteric modulatory sites for a variety of compounds including BZ ligands. Based upon SAR of BZD ligands new series of 1.3.4 oxadiazole derivatives were designed & synthesized that had all the suggested requirements for binding to the BDZ receptor (Ar ring, π1 group). Conformational analysis and superimposition of energy minima conformations of the designed molecules on known benzodiazepine receptor ligands revealed that the main proposed benzodiazepine pharmacophores were well matched. The chemical structure of the synthesized compounds was determined by IR, NMR and Mass spectra.
Publication


4. Novel agonists of benzodiazepine receptors: design, synthesis, binding assay and pharmacological evaluation of 1,2,4-triazolo[1,5-a]pyrimidinone and 3-amino-1,2,4-triazole derivatives, Bioorganic and Medicinal Chemistry, 2014, 23, 480-487. Mehrdad Faizi, Sara Dabirian, Hamed Tajali, Fatemeh Ahmadi, Elham Rezaee Zavareh, Soraya Shahhosseini, Sayyed Abbas Tabatabai.


Congress presentation

1. Design and synthesis of 2-Substituted-5-(4-chloro-2-phenoxy) phenyl-1.3.4-oxadiazole derivatives as new benzodiazepine receptor ligands. E.Rezaei Zavare, S. A. Tabatabai. 12Th IPS.


3. A simple, rapid and precise Reverse Phase High Performance Liquid Chromatographic method was developed for the determination of zolpidem hemitartrate in presence of its degradation product in Tablet. E.Rezaei Zavare, S. A. Tabatabai.16Th IPSS.


5. Synthesis of 3-(2-(benzyloxy)phenyl)-5-(methylsulfonyl)-4H-1,2,4-triazole as selective COX-2 inhibitor. S. Tabatabai, E. Rezaee, M. Sarkeshikian. 13Th IPS.


7. A novel ligand of Benzodiazepine receptor, 5-(4-chloro-2-phenoxyphenyl)N-(6-methylpyridin-2-yl)-1,3,4-oxadiazole-2-carboxamide with anticonvulsant effects in PTZ model of seizure. Arman Khalili, Elham Rezaee Zavareh, Sayyed Abbas Tabatabai, Mehrdad Faizi.3Th. BCNC.
8. Ethyl 5-(4-chloro-2-phenoxyphenyl)-1,3,4-oxadiazole-2-carboxylate acts as antagonist of benzodiazepine receptor. Sina Fakhar, Elham Rezaee Zavareh, Sayyed Abbas Tabatabai, Mehrdad Faizi. 3Th. BCNC.

9. Design and synthesis of new amide base derivatives of 3-phenyl glutaric acid as soluble epoxide hydrolase inhibitors. Somayehminaie Amrollah, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, 18th IPSS.

10. Design and synthesis of 3,5-diphenyl-4H-1,2,4-triazol-4-amine derivatives as novel benzodiazepine receptor ligands, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Hossein Fasihi Dastjerdi, 18th IPSS.

11. Design and synthesis of 2- (diphenyl methylidene) malonic acid derivatives as anti HIV agents, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Mehrnaz Lotfaliei, 18th IPSS.

12. Design and synthesis of 4-substituted-N-(3-mercapto-5-(4-(methylsulfonyl)phenyl)-4H-1,2,4-triazol-4-yl)benzamide as selective COX-2 inhibitors, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Mahshid Daryab, 18th IPSS.

13. Synthesis of 3-(4-(methylsulfonyl)phenyl)-6-phenyl-7H-[1,2,4]triazolo[3,4-b][1,3,4]thiadiazine derivatives as selective Cyclooxygenase-2 inhibitors, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Fatemeh Ebrahimi, 18th IPSS.

14. Synthesis of 6-(2-(benzyloxy)phenyl)-4-phenyl-3,4 dihydropyrimidin-2(1H)-one derivatives as benzodiazepine receptor agonist, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Afshan Khoshnevis, 18th IPSS.

15. Design and synthesis of the novel amide derivatives of isoindoline-1,3-dione as soluble epoxide hydrolase inhibitors, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Maryam Shokri, 18th IPSS.

16. Design and synthesis of novel amide derivatives of 2-phenyl-1,3,4-oxadiazole as soluble epoxide hydrolase inhibitors, Sayyed Abbas Tabatabai, Elham Rezaee Zavareh, Fahimeh Najafi, NSCPS.
Research project

1. Design and synthesis of 4-nitro-N-(4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl)benzamide as selective (sEH) Inhibitors, 1391, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

2. Design and synthesis of 4-flouro-N-(4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl)benzamide as selective (sEH) Inhibitors, 1391, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

3. Design and synthesis of 4-methyl-N-(4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl)benzamide as selective (sEH) Inhibitors, 1391, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

4. Design and synthesis of 4-methoxy-N-(4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl)benzamide as selective (sEH) Inhibitors, 1391, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

5. Design and synthesis of Ethyl 5-(4-chloro-2-phenoxyphenyl)-1,3,4-oxadiazole-2-carboxylate acts as antagonist of benzodiazepine receptor, 1391, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

6. Design, molecular modeling, synthesis and biological evaluation of new amide compounds as soluble epoxide hydrolase inhibitors (sEHI), 1392, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

7. Design and synthesis of N-(3,5-diphenyl-4H-1,2,4-triazol-4-yl)-2-(pyperidine-1-yl) derivatives as novel benzodiazepine receptor ligands, 1393, Hossein Fasihi, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

8. Design and synthesis of ethyl 2-(hydrazinecarbonyl)-3,3-diphenylacrylate as anti HIV agents, 1392, Mehrnaz lotfalie, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

9. Design and synthesis of 2-(benzyl amino)-N-(5-phenyl-1,3,4-oxadiazol-2yl) acetamide as a soluble epoxide hydrolase inhibitor, 1392 Fahime Najafi, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

10. Design and synthesis of 5-oxo-3-phenyl-5-(phenylamino)pentanoic acid as soluble epoxide hydrolase inhibitors (sEHI), 1392, Somaye Minayi, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

11. Design and synthesis of 3-phenylglutaric acid derivatives as soluble epoxide hydrolase inhibitors, 1393, Somaye Minayi, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.

12. Design and synthesis of diphenyl-1,3,4-oxadiazole derivatives as novel benzodiazepine ligands, 1393, Naimeh Zareh Pishe, Elham Rezaei Zavare, Sayyed Abbas Tabatabai.
Teaching Experiences

1. Teaching of medicinal chemistry at school of pharmacy, Azad University Medical sciences.
2. Teaching of General Principles of Chemistry at school of pharmacy, International branch of Shahid Beheshti University Medical sciences.
3. Teaching of Organic Chemistry (1, 2) at school of pharmacy, International branch of Shahid Beheshti University Medical sciences.
4. Teaching of General Principles of Chemistry laboratory at school of pharmacy, International branch of Shahid Beheshti University Medical sciences.
5. Teaching of HPLC laboratory at school of pharmacy, Shahid Beheshti University Medical sciences.
6. Teaching of Organic Chemistry laboratory at school of pharmacy, Shahid Beheshti University Medical sciences.
7. Holding preparation classes for Basic Medical Science exam at school of pharmacy, Shahid Beheshti University Medical sciences and International branch of Shahid Beheshti University Medical sciences.
8. Advisor professor of Hossein Fasihi’s thesis as: Design and synthesis of 3,5-diphenyl-4H-1,2,4-triazol-4-amine derivatives as novel benzodiazepine receptor ligands.
9. Advisor professor of Fahime Najafi’s thesis as: Design and synthesis of 2-phenyl-1,3,4-oxadiazol derivatives as a soluble epoxide hydrolase inhibitor.
10. Advisor professor of Somaye Minayie’s thesis as: Design and synthesis of new amide base derivatives of 3-phenyl glutaric acid as soluble epoxide hydrolase inhibitors (sEHI).
11. Advisor professor of Mehrnaz Lotfali’s thesis as: Design and synthesis of 2- (diphenyl methylidene) malonic acid derivatives as anti HIV agents.
12. Advisor professor of Naeime Zarepishe’s thesis as: Design and synthesis of diphenyl-1,3,4-oxadiazole as novel benzodiazepine agonists.
13. Advisor professor of Ebrahim Ebadi’s thesis as: Design and synthesis of new amide base derivatives of 4,6-diphenyl pyrimidine-2(1H)-one as soluble epoxide hydrolase inhibitors (sEHI).
14. Advisor professor of Hamidreza Shadzad’s thesis as: Design and synthesis of new amide derivatives of 1,2,3-triazole as soluble epoxide hydrolase inhibitors (sEHI).

15. Advisor professor of Malek Azizi’s thesis as: Design and synthesis of 1,3,4-oxadiazole derivatives as soluble epoxide hydrolase inhibitors (sEHI).

16. Advisor professor of Naeime Zarepishe’s thesis as: Design and synthesis of oxadiazole-3-phenylbutanamide derivatives as soluble epoxide hydrolase inhibitors (sEHI).

**Awards:**

1. Ranked as a top student among graduate students of 2009, school of pharmacy Shahid Beheshti University of Medical Sciences, Tehran, Iran.

2. Ranked as a top student among graduate students of 2014, Department of Medicinal Chemistry, Shahid Beheshti University of Medical Sciences, Tehran, Iran.


5. Ranked as a top student in the comprehensive exam (2011).

6. Ranked as a top pharmacist (2010).


8. Ranked as a talent student from educational and development center.

**Skills:**

Software: Microsoft Office, EndNote, Hyperchem, Chemoffice, Auto Dock 4, Auto Dock Vina, Pymol, VMD, Viewrlite, Mg tools. Moe, Mendely, Gromac, Amber, Chimera, SPSS, Prism, Matlab, Chemoface, Padel, GaussView

HPLC, IR, Atomic Absorbance