

Ahmed Zakaria Abdelazem (Ph.D.)

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Education:

- Ph.D. Biological Chemistry/Medicinal Chemistry (February 2015), Korea University of Science and Technology (UST), Daejeon, Republic of Korea.
Thesis title: New pyrimidine based compounds as anticancer agents targeting ROS1 kinase: design, synthesis and biological evaluation.
- M.Sc. Pharmaceutical Medicinal Chemistry (June 2009), Department of Medicinal Chemistry, Faculty of Pharmacy, Assiut University, Assiut, Egypt.
Thesis title: Chlorzoxazone esters of some non-steroidal anti-inflammatory drugs as mutual prodrugs.
- B. Pharmaceutical Sciences (May 2002), Faculty of Pharmacy, Assiut University, Assiut, Egypt (with degree of honor, ranked 13th among around 700 students).
- High School Degree with Major in Science and Mathematics (1997), Al-shaheed Abdulmone'm Ryad High School, Beba, Beni-Suef, Egypt (ranked 8th among around 300 students).

Employment History:

- 09/2015-Current: Lecturer at Biotechnology and Life Sciences Department, Faculty of Postgraduate Studies for Advanced Sciences, Beni-Suef University, Egypt.
- 09/2010-02/2015: Research Assistant, Chemical Kinomics Research Center, Korea Institute of Science and Technology (KIST).
- 07/2009-06/2010: Community Pharmacist, Attaqwa Pharmacy, Beba, Beni-Suef, Egypt.
- 09/2004-06/2009: Research Assistant, Department of Medicinal Chemistry, Faculty of Pharmacy, Assiut University, Assiut, Egypt.
- 01/2004-08/2004: Community Pharmacist, Attaqwa Pharmacy, Beba, Beni-Suef, Egypt.
- 10/2002-12/2003: Military Service, Mostafa Kamel Military Hospital, Alexandria, Egypt.

Research:

- Design and multiple step synthesis of organic compounds of potential biological activities.
- Design and synthesis of organic compounds of potential ROS1 kinase inhibitor activity.
- Hit optimization process in the field of kinase inhibitors.

- Elucidation and study of organic reaction mechanism of heterocyclic ring substitutions and organometallics catalyzed coupling reactions.
- Study the molecular mechanism of kinase inhibitor drugs.
- Computer Aided Drug Design.
- Chemical modification of lead compounds to maximize their biological activity and reduce toxicity (especially prodrug and soft drug approaches).
- Development of HPLC analysis method for prodrugs and their metabolites.

Skills and Expertise:

- Design of multiple step synthetic schemes for organic compounds of potential biological activities.
- Multiple step synthesis of organic compounds of potential biological activities.
- SAR study of biologically active compounds (especially kinase inhibitors).
- Lead optimization process in the field of ROS1 kinase inhibitors.
- Docking studies using modeling programs (especially MOE).
- Handling NMR equipment (Bruker), and interpreting ^1H -NMR, ^{13}C -NMR and 2D-NMR charts.
- Handling FT-IR Spectrometer (Perkin Elmer 16E PC).
- Handling and developing analysis method for HPLC.
- Isolation and purification techniques of organic compounds.
- Separation of active ingredients from different pharmaceutical dosage forms.
- Writing and reviewing manuscripts of research papers and review articles.
- Preparing tutorial about HPLC for undergraduate students.
- Using chemistry data bases such as: Scifinder and Reaxys.
- Computer skills: Office, Internet, Chemdraw, and EndNote X7.

Academic and Teaching Experience:

- Teaching a tutorial about HPLC to pharmacy undergraduate students (during my master study).
- Teaching the following course to postgraduate students: Human Physiology; Basic Pharmacology and Drug Metabolism; Drug Design, Discovery, and Development; Applications of Modern Biotechnology (includes Biocatalysis, Microbial Biotransformation, Extremophiles, and Assay Development in Drug Discovery).

Publications & accepted manuscripts:

- **Ahmed Z. Abdelazem**, Mohammad M. Al-Sanea, Hyun-Mee Park, So Ha Lee. Synthesis of new diarylamides with pyrimidinyl pyridine scaffold and biological evaluation of their anti-proliferative effect on cancer cell lines. *Bioorganic and Medicinal Chemistry Letters*, **2016**, 26, 1301–1304.
- M.M. Al-Sanea, **A.Z. Abdelazem**, B.S. Park, K.H. Yoo, T. Sim, Y.J. Kwon and SH Lee. ROS1 Kinase Inhibitors for Molecular-Targeted Therapies. *Current Medicinal Chemistry*, **2016**, 23, 142-160.
- **Ahmed Z. Abdelazem**, Mohammad M. Al-Sanea, Byung Sun Park, Hye Mi Park, Kyung Ho Yoo, Taebo Sim, Jong Bae Park, Seung-Hoon Lee, So Ha Lee. Synthesis and biological evaluation of new pyrazol-4-ylpyrimidine derivatives as potential ROS1 kinase inhibitors. *European Journal of Medicinal Chemistry*, **2015**, 90, 195-208.
- **Ahmed Z. Abdelazem** and So Ha Lee. Synthesis and biological evaluation of new pyrimidine-4-yl-ethanol derivatives as ROS1 kinase inhibitors. *Journal of Enzyme Inhibition and Medicinal Chemistry*, **2015**, 30, 290-298.
- Mohammad M Al-Sanea*, Byung Sun Park*, (* first co-authors), **Ahmed Z. Abdelazem**, Kyung Ho Yoo, Taebo Sim, Jin Sung Tae, So Ha Lee. Optimization of bipyridinyl pyrazole scaffolds via design, synthesis and screening of a new series of ROS1 kinase-modulating compounds. *Bulletin of Korean Chemical Society*, **2015**, 36, 305–311.
- Mohammad Al-Sanea, Ahmed Elkamhawy, **Ahmed Zakaria**, Youngjoo Kwon, So Ha Lee, Sang Woo Lee, In Tae Kim. Synthesis and *in vitro* screening of phenyl bipyridinyl pyrazole derivatives as potential antiproliferative agents. *Molecules*, **2015**, 20, 1031-1045.
- Byung Sun Park*, Mohammad M. Al-Sanea*, (* first co-authors), **Ahmed Z. Abdelazem**, Hye Mi Park, Eun Joo Roh, Hyun-Mee Park, Kyung Ho Yoo, Taebo Sim, Jin Sung Tae, So Ha Lee. Structure-based optimization and biological evaluation of trisubstituted pyrazole as a core structure of potent ROS1 kinase inhibitors. *Bioorganic and Medicinal Chemistry*, **2014**, 22, 3871–3878.
- B.S. Park, **A.Z. Abdel-Azeem**, M.M. Al-Sanea, K.H. Yoo, J.S. Tae and S.H. Lee Staurosporine Analogues from Microbial and Synthetic Sources and Their Biological Activities. *Current Medicinal Chemistry*, **2013**, 20, 3872-3902.
- **Ahmed Z. Abdel-Azeem**, Atef A. Abdel-Hafez, Gamal S. El-Karamany, Hassan H. Farag. Chlorzoxazone esters of some non-steroidal anti-inflammatory (NSAI) carboxylic acids as mutual

prodrugs: Design, synthesis, pharmacological investigations and docking studies. *Bioorganic and Medicinal Chemistry*, **2009**, 17, 3665–3670.

Patents:

- LEE, So Ha, YOO, Kyung Ho, SIM, Tae Bo, **Ahmed Zakaria Abdelazem**, PARK, Hye Mi, Mohammad Mahmoud Alsanea, PARK, Byung Sun. 2,4,6-Trisubstituted pyrimidine compounds for ROS kinase inhibitors, Korean patent has the application number of 10-2013-0129611 and registration number of K06748.

In-preparation manuscripts:

- **Ahmed Z. Abdelazem** and So Ha Lee. Clinically important non-immunosuppressive cyclosporin A analogues (Review article).

Awards:

- 12/2014: Best young researches' oral presentation in The Annual Meeting of Chemical Kinomic Research Center, KIST, Seoul, Korea
- 10/2014: UST award for overseas conference support (given to students of best research achievement).
- 09/2014: Best oral presentation in Biology session in 5th UST Conference, Daejeon, Korea.
- 06/2010: Doctoral Fellowship, KIST IRDA-UST program, International Research and Development Academy, Korea Institute of Science and Technology (KIST), Seoul, Republic of Korea and University of Science and Technology (UST), Daejeon, Korea.
- 08/2004: Master Fellowship, Academy of Scientific Research and Technology, Cairo, Egypt.
- 08/1997: Award from local social agency for being one of top ten students in my high school.
- 1995: Role model student in high schools in my town and third in my district.
- 1993: Role model student in middle school.

Professional Membership:

- Member of the American Chemical Society (April 2013-April 2014).
- Member of the Korean Chemical Society (April 2012-April 2015).
- Member of the Egyptian Pharmaceutical Society, since 2007.
- Member of Egyptian Pharmaceutical Syndicate, since 2002.

Conferences & workshops Participations:

- 02/2016: Biotechnology and Drug Discovery. Biotechnology Workshop. Biotechnology and Life Sciences Department, Faculty of Postgraduate Studies for Advanced Sciences, Beni-Suef University, Egypt (**oral**).
- 11/2015: Structure activity relationship study for some novel ROS1 kinase inhibitors. The 3rd International Conference of Advanced Applied Sciences (ICAAS-III), Hurghada, Egypt (**oral**).
- 12/2014: Structure activity relationship study for some novel ROS1 kinase inhibitors. The Annual Meeting of Chemical Kinomic Research Center, KIST, Seoul, Korea (**oral**).
- 11/2014: Structure activity relationship study for the novel diaryl pyrazole ROS1 kinase inhibitors. The Annual Meeting of Korean Oil Chemists' Society, Seoul, Korea (**oral**).
- 10/2014: Synthesis and biological evaluation of new pyrimidine-4-yl-ethanol derivatives as ROS1 kinase inhibitors. 15th Tetrahedron Symposium - Asian Edition, Singapore Expo, Singapore (**poster**).
- 10/2014: Design, synthesis and screening of new 4,5'-bipyrimidin and 2,3'-bipyridine derivatives as ROS1 kinase inhibitors. 114th Meeting of Korean Chemical Society, Gwangju, Korea (**poster**).
- 09/2014: Structure activity relationship study for the novel ROS1 kinase inhibitors KIST301072 and KIST301080. 5th UST Conference, University of Science and Technology (UST), Daejeon, Korea (**oral**).
- 04/2014: Synthesis and biological evaluation of new pyrazol-4-ylpyrimidine derivatives as potential inhibitors for selective ROS1 kinase. 113th Meeting of Korean Chemical Society, Seoul, Korea (**poster**).
- 09/2013: Design, synthesis, *in-vitro* screening, and molecular modeling study of novel 1*H*-pyrazole derivatives as potential inhibitors for ROS1 kinase. 4th UST Conference, University of Science and Technology (UST), Daejeon, Korea (**oral**).
- 03/2008: Chlorzoxazone Esters of Some Non-steroidal Anti-inflammatory Drugs as Mutual Prodrugs. The 5th Pharmaceutical Science Conference, Faculty of Pharmacy, Assiut University, Assiut, Egypt (**poster**).

Conference Organizing:

- 11/2015: The 3rd International Conference of Advanced Applied Sciences (ICAAS-III), Hurghada, Egypt (**organizing member**).

Attended Conferences & Workshops:

- 10/2013: The 112th Meeting of Korean Chemical Society, Changwon, Korea.
- 04/2013: The 111th Meeting of Korean Chemical Society, Seoul, Korea.
- 10/2012: The 110th Meeting of Korean Chemical Society, Busan, Korea.
- 04/2012: The 109th Meeting of Korean Chemical Society, Seoul, Korea.
- 02/2008: Workshop on Computer Aided Drug Design Faculty of Pharmacy, Assiut University, Assiut, Egypt.
- 11/2006: Workshop on using MOE-Dock in Computer Aided Drug Design, Faculty of Pharmacy, Assiut University, Assiut, Egypt.

Extra Curriculum Activities:

- 06/2011- 02/2015: Teaching Arabic Language to non-natives in Seoul Central Mosque, as a volunteer work in weekends.
- 2014: One of the founders and treasurer of Muslim Student Association in Korea.
- 2011-2012: One of the founders and first manager of KIST MUSLIMS association.
- 2007-2011: Writing and publishing scientific poem “in Arabic language” in some scientific forums.
- 2005-2009: Teaching different subjects to elementary and middle school students in my hometown, as a volunteer work.
- 2004-2009: Patient counseling and public health guidance through part time work as community pharmacist.
- 2002: Pharmacy students’ field trip to some Egyptian pharmaceutical companies.
- 2001: One of the founders and member of a faculty’s society for student social and scientific activities “organizing workshops and exhibitions, designing and publishing scientific posters and magazines, helping orphans ...etc”.
- 2001: Egyptian universities summer campus for distinguished students.
- 1991-1994: Handball player in my town “younger than 14 years” team.

Languages:

- Arabic: Mother tongue.
- English: First foreign language “TOEFL ibt score 98”.
- French: Basics of reading and grammar.
- Korean: “Beginners 2” level.

References:**Dr. So Ha Lee**

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