Dr. Ayuob Aghanejad

Ph.D., Nuclear pharmacy

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Radiopharmacist with experience in laboratory procedures, radiopharmaceuticals quality control procedures, radiation safety. Expertise in tracking and quantifying radiation methods in biological and environmental systems including in radiochemistry, radiobiology, and radiation dosimetry. Expertise in multi-steps synthetic organic chemistry, drug discovery and nano biomedicine.

EDUCATION

PhD, Nuclear pharmacy

Tehran University of Medical Sciences, Faculty of Pharmacy

SKILLS

- Synthesis of radiolabelled organic chemicals, purification, filming, electrophoresis and confirming by HPLC; Familiarity with contemporary separation and structure determination techniques transition metal catalyzed organic reactions and its applications.
- Develop and optimize radiolabeling techniques using various isotopes and various ligands, analytical methods, and formulations for new compounds
- Expert in modern multi-steps synthetic organic chemistry, medicinal chemistry and inorganic complexation for radiopharmaceutical applications.
- Expert in pharmaceutical chemistry and drug discovery.
- Background in positron emission tomography (PET), single-photon emission computed tomography (SPECT), radiation safety and familiarity with cyclotron and reactor processes
- Supervise radiopharmacy operation, dispense & distribute radiopharmaceuticals properly and accurately, quality control tests on prepared products and manually record results

- Participates and ensures execution of aseptic techniques, including sterility test and pyrogenic testing per company standard operating procedures

Technical Expertise

- Instrumentation of UV-Vis, NMR, FT-IR, potentiostat galvanostat, DSC, gamma & beta spectroscopy, thin layer chromatography scanner
- Analysis and purification of organic compounds by HPLC (Analytical & preparative), LC-MS and troubleshooting these machines, planar chromatography (TLC and prep TLC), gas chromatography and affinity chromatography.
- Perform required tests on equipment (e.g. dose calibrator constancy and survey meter checks) and manually record results.

Publications

1. Abdolahinia ED, Nadri S, Rahbarghazi R, Barar J, Aghanejad A and Omidi Y. Enhanced penetration and cytotoxicity of metformin and collagenase conjugated gold nanoparticles in breast cancer spheroids. *Life Sciences*. 2019; 231.
2. Aghanejad A, Babamiri H, Adibkia K, Barar J and Omidi Y. Mucin-1 aptamer-armed superparamagnetic iron oxide nanoparticles for targeted delivery of doxorubicin to breast cancer cells. *BioImpacts*. 2018; 8: 117-27.
3. Aghanejad A, Jalilian AR, Bahrami-Samani A, Beiki D, Maus S and Khalaj A. Preparation and preliminary biological evaluation of [^{153}Sm] samarium AMD3100; Towards a possible therapeutic chemokine receptor CXCR4 targeting complex. *Iranian Journal of Nuclear Medicine*. 2015; 23: 36-43.
4. Aghanejad A, Jalilian AR, Bahrami-Samani A, Shirvani-Arani S and Moradkhani S. Radiosynthesis and evaluation of ytterbium-175 labeled bleomycin as therepeutic agent. *Iranian Journal of Nuclear Medicine*. 2014; 22: 40-5.
5. Aghanejad A, Jalilian AR, Fazaeli Y, et al. Synthesis and evaluation of [67Ga]-AMD3100: A novel imaging agent for targeting the chemokine receptor CXCR4. *Scientia Pharmaceutica*. 2014; 82: 29-42.
6. Aghanejad A, Jalilian AR, Fazaeli Y, Beiki D, Fateh B and Khalaj A. Radiosynthesis and biodistribution studies of [62Zn/ 62Cu]-plerixafor complex as a novel in vivo PET generator for chemokine receptor imaging. *Journal of Radioanalytical and Nuclear Chemistry*. 2014; 299: 1635-44.
7. Aghanejad A, Jalilian AR, Maus S, Yousefnia H, Geramifar P and Beiki D. Optimized production and quality control of 68Ga-DOTATATE. *Iranian Journal of Nuclear Medicine*. 2016; 24: 29-36.
8. Akbarzadeh Khiavi M, Safary A, Aghanejad A, et al. Enzyme-conjugated gold nanoparticles for combined enzyme and photothermal therapy of colon cancer cells. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 2019; 572: 333-44.
9. Arteshi Y, Aghanejad A, Davaran S and Omidi Y. Biocompatible and electroconductive polyaniline-based biomaterials for electrical stimulation. *European Polymer Journal*. 2018; 108: 150-70.

10. Asgari D, Aghanejad A and Mojarrad JS. An improved convergent approach for synthesis of erlotinib, a tyrosine kinase inhibitor, via a ring closure reaction of phenyl benzamidine intermediate. *Bulletin of the Korean Chemical Society*. 2011; 32: 909-14.
11. Bakhtiary Z, Barar J, Aghanejad A, et al. Microparticles containing erlotinib-loaded solid lipid nanoparticles for treatment of non-small cell lung cancer. *Drug Development and Industrial Pharmacy*. 2017; 43: 1244-53.
12. Barar J, Aghanejad A, Fathi M and Omidi Y. Advanced drug delivery and targeting technologies for the ocular diseases. *BioImpacts*. 2016; 6: 49-67.
13. Barghi L, Aghanejad A, Valizadeh H, Barar J and Asgari D. Modified Synthesis of Erlotinib Hydrochloride. *Advanced Pharmaceutical Bulletin*. 2012; 2: 119-22.
14. Borran AA, Aghanejad A, Farajollahi A, Barar J and Omidi Y. Gold nanoparticles for radiosensitizing and imaging of cancer cells. *Radiation Physics and Chemistry*. 2018; 152: 137-44.
15. Fakhari A, Aghanejad A, Jalilian AR and Gharepapagh E. Recent developments in targeted imaging of CXCR4-chemokine receptor. *Journal of Radioanalytical and Nuclear Chemistry*. 2018; 317.
16. Fathi M, Barar J, Aghanejad A and Omidi Y. Hydrogels for ocular drug delivery and tissue engineering. *BioImpacts*. 2015; 5: 159-64.
17. Fathi M, Sahandi Zangabad P, Barar J, Aghanejad A, Erfan-Niya H and Omidi Y. Thermo-sensitive chitosan copolymer-gold hybrid nanoparticles as a nanocarrier for delivery of erlotinib. *International Journal of Biological Macromolecules*. 2018; 106: 266-76.
18. Fathi M, Zangabad PS, Aghanejad A, Barar J, Erfan-Niya H and Omidi Y. Folate-conjugated thermosensitive O-maleoyl modified chitosan micellar nanoparticles for targeted delivery of erlotinib. *Carbohydrate Polymers*. 2017; 172: 130-41.
19. Hamidi A, Rashidi MR, Asgari D, Aghanejad A and Davaran S. Covalent immobilization of trypsin on a novel aldehyde-terminated pamam dendrimer. *Bulletin of the Korean Chemical Society*. 2012; 33: 2181-6.
20. Jafarizad A, Aghanejad A, Sevim M, et al. Gold Nanoparticles and Reduced Graphene Oxide-Gold Nanoparticle Composite Materials as Covalent Drug Delivery Systems for Breast Cancer Treatment. *ChemistrySelect*. 2017; 2: 6663-72.
21. Khajeh S, Tohidkia MR, Aghanejad A, Mehdipour T, Fathi F and Omidi Y. Phage display selection of fully human antibody fragments to inhibit growth-promoting effects of glycine-extended gastrin 17 on human colorectal cancer cells. *Artificial Cells, Nanomedicine and Biotechnology*. 2018; 46: 1082-90.
22. Mirzaei A, Jalilian AR, Aghanejad A, et al. Preparation and Evaluation of ⁶⁸Ga-ECC as a PET Renal Imaging Agent. *Nuclear Medicine and Molecular Imaging*. 2015; 49: 208-16.
23. Saberian M, Hamzeiy H, Aghanejad A and Asgari D. Aptamer-based nanosensors: Juglone as an attached-redox molecule for detection of small molecules. *BioImpacts*. 2011; 1: 31-6.
24. Same S, Aghanejad A, Nakhjavani SA, Barar J and Omidi Y. Radiolabeled theranostics: Magnetic and gold nanoparticles. *BioImpacts*. 2016; 6: 169-81.
25. Vahidfar N, Jalilian AR, Fazaeli Y, et al. Development of radiolanthanide labeled porphyrin complexes as possible therapeutic agents in breast carcinoma xenografts. *Radiochimica Acta*. 2014; 102: 659-68.

Patents

1. **Aghanejad, A**., Khalaj, A., Synthesis of plerixafor active pharmaceutical ingredient (API)
   Iranian Patent Numbered as (2016)

2. Ghiyasvand, S., Davaran, S., **Aghanejad, A**., Development of Smart Amphiphilic Polymeric Nanoparticles Contain insulin, Iranian Patent Numbered as 59979 (July, 2009).

3. Davaran, S., **Aghanejad, A**., Salehi, R., Mashinchian, O., Moghoe, M. and Dehghan, GR., Development of Polymeric Nanoparticles Contain *Farnesiferol-C* as Anticancer Agent, Iranian Patent Numbered as 56417 and Iranian Research Organization for Science & Technology (IROST) as 415.1445 (January, 2009).
4. Davaran, S., **Aghanejad, A**., Salehi, R., Rashidi, M., Moghoe, M., Javadzade, Y., Development of Polymeric Nanoparticles Contain Dexamethasone for Eye drug delivery system, Iranian Patent Numbered as 56418 (January, 2009).

5. Asgari, D., **Aghanejad, A**., Davaran, S., Synthesis of Erlotinib hydrochloride as Anticancer Drug, Iranian Patent Numbered as 50667 (July, 2008).

6. Asgari, D., Davaran, S., Shahbazi, J., **Aghanejad, A**., Synthesis of four new biaryl bisoxazoline catalyst applicable in synthesis of chiral molecules, Iranian Patent Numbered as 50629 (July, 2008).

Presentations

1. **A Aghanejad.** Synthesis and Biological Evaluation of ^{68}Ga-AMD3100 as a Possible PET Imaging Tracer for Cardiovascular Disease. International Conference on Integrated Medical Imaging in Cardiovascular Diseases (IMIC 2016), International Atomic Energy Agency (IAEA)
2. **A Aghanejad**, A R Jalilian, S Maus, H Yousefnia, S Moradkhani, M Pouladi. Optimized production and quality control of ^{68}Ga-DOTATATE for small clinical trials. 45th Annual Scientific Meeting of the Australian and New Zealand Society of Nuclear Medicine. April 2015.
3. AR Jalilian, A Mirzaei, **A Aghanejad**, M Mazidi, H Yousefnia, G Shabani, K Ardaneh, P Geramifar, D Beiki. Preparation and Evaluation of ^{68}Ga-ECC as a PET Renal Imaging Agent. April 2015.

4. **A. Aghanejad**, A R. Jalilian. Synthesis and evaluation of [^{68}Ga]–plerixafor for PET imaging of human colorectal carcinoma. 18th Iranian Congress of Nuclear Medicine (ICNM 2014), November 2014.
5. **A. Aghanejad**, A R. Jalilian, Y. Fazaeli, B. Alirezapour, M. Pouladi, D. Beiki, A. Khalaj Synthesis and Evaluation of [^{67}Ga]-AMD3100; a novel imaging agent for targeting chemokine receptor CXCR4. 18th Iranian Congress of Nuclear Medicine (ICNM 2014), November 2014.
6. **A. Aghanejad**, A. R. Jalilian. Radiosynthesis and biodistribution studies of [^{62}Zn/^{62}Cu]–plerixafor complex as a novel in vivo PET generator for chemokine receptor imaging. 18th Iranian Congress of Nuclear Medicine (ICNM 2014), November 2014.
7. A. R. Jalilian, **A. Aghanejad**, N. Vahidfar, A. Bahrami-Samani1, S. Moradkhani, M. Radiolabeling and biological evaluation of ^{177}Sm and ^{175}Yb zoledronic acid complexes. 27th Annual EANM Congress in Gothenburg, Sweden in October 2014.
8. H. Yousefnia, **A. Aghanejad**, A. Mirzaei, R. Enayati, AR. Jalilian, S. ZolghadriProduction, Quality Control and Biodistribution Assessment of ^{111}In-BPAMD as a New Bone Imaging Agent. ICECECE 2014: 16th International Conference on Electrical, Computer, Electronics and Communication Engineering.
9. Leila Barghi, Davoud Asgari, Hadi Valizadeh, **Ayuob Aghanejad**, Jaleh Barar, An improved synthesis of erlotinib, tyrosine kinase inhibitor. 1st International Pharmacy Graduation Projects Symposium (IPGPS-1) in Nicosia, Turkish Republic of Northern Cyprus, 2012.
10. Mashinchian, O., Davaran, S., **Aghanejad, A**., Salehi, R., Moghoe, M. and Dehghan, GR., Development of Polymeric Nanoparticles Contain of Farnesiferol-C as Anticancer Agent, the 1st National Student Congress on New Perspectives in Health System Arena, Urmia-Iran (12, March, 2009).
11. Hemmati, S., **Aghanejad, A**., Imanzade, G., Synthesis of new steroid derivatives with reactive functional groups at C-17 (methyl keton, nitrile, heterocyclics), The ^{11}th Iranian Pharmaceutical Science Congress' (2008).

Scientific Awards & Honors

Top student on 23th Iranian Ph.D. candidacy exam for pharmaceutical sciences degrees, June 2011.

Young investigator award for best scientific paper in Radiopharmacy, 18th Iranian Congress of Nuclear Medicine (ICNM 2014), November 2014.