CIRRICULUM VITAE

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EDUCATION

Degree: Doctor of Philosophy, Chemistry **2007**
- Arizona State University, Tempe, Az.

Degree: Master of Science, Chemistry and Biochemistry **2004**
- Arizona State University, Tempe, Az.

Degree: Bachelor of Science, Microbiology/Molecular Biology **2000**
- Arizona State University, Tempe, Az.

Degree: Bachelor of Science, Chemical Biology **1995**
- Mutah University, Jordan.

PROFESSIONAL

Assistant Research Professor, Center for BioEnergetics
Biodesign Institute at Arizona State University, Tempe, Az. **2014-Present**

Assistant Research Scientist, Center for BioEnergetics
Biodesign Institute at Arizona State University**,** Tempe, Az. **2010-2014**

Postdoc, Center for BioEnergetics Biodesign Institute at Arizona State University**,** Tempe, Az. **2007-2010**

PROFESSIONAL AFFILIATIONS

- *Biodesign Safety committee Chair* ASU Biodesign 2018-Present
- *Member of the National Academy of Inventors* 2017-Present
- *EH & S Compliance Officer* Biodesign Institute 2009-Present
- *American Chemical Society* ACS 2000-Present
- *American Society for Microbiology* ASM 2000-Present
- *Assistant Research Professor, Barrett Honors Faculty* 2019-Present
- *Biodesign Institute Outreach Advisory Team* 2012-2014

PUBLICATIONS

1- Liu J, Bandyopadhyay I, Zheng L, **Khdour OM**, Hecht SM. Antiferroptotic activity of phenothiazine analogues: A novel therapeutic strategy for oxidative stress related disease. ACS medicinal chemistry letters. 2020, 11(11):2165-73.
2- Daskalova SM, Eisenhauer BM, Gao M, Feng X, Ji X, Cheng Q, Fahmi N, **Khdour OM**, Chen S, Hecht SM. An assay for DNA polymerase β lyase inhibitors that engage the catalytic nucleophile for binding. *Bioorganic & Medicinal Chemistry*. 2020, 28(17):115642.
3- Hui C, Tomilov A, Garcia C, Jiang X, Fash DM, **Khdour OM**, Rosso C, Filippini G, Prato M, Graham J, Hecht S. Novel idebenone analogs block Shc's access to insulin receptor to improve insulin sensitivity. Biomedicine & Pharmacotherapy. 2020, 132:110823.
4- Ji X, Chen Q, Arutla V, **Khdour O**, Hu QY, Chen S. Double-component diazeniumdiolate derivatives as anti-cancer agents. Bioorganic & Medicinal Chemistry. 2020, 28(8):115405.
5- Ji X, **Khdour OM**, Hecht SM. Multifunctional radical quenchers as potential therapeutic agents for the treatment of mitochondrial dysfunction. Future Medicinal Chemistry. 2019, (13):1605-24.
6- **Khdour OM**, Bandyopadhyay I, Visavadiya NP, Chowdhury SR, Hecht SM. Phenothiazine antioxidants increase mitochondrial biogenesis and frataxin levels in Friedreich's ataxia cells. MedChemComm. 2018;9(9):1491-501.
7- Bandyopadhyay I, Chowdhury SR, Visavadiya NP, Hecht SM, **Khdour OM**. Chemical synthesis of lipophilic methylene blue analogues which increase mitochondrial biogenesis and frataxin levels. Data in brief. 2018, 20:1105-14.
8- **Khdour OM**, Bandyopadhyay I, Chowdhury SR, Visavadiya NP, Hecht SM. Lipophilic methylene blue analogues enhance mitochondrial function and increase frataxin levels in a cellular model of Friedreich's ataxia. Bioorganic & Medicinal Chemistry. 2018, 26(12):3359-69.
9- Mastroeni D, Nolz J, **Khdour OM**, Sekar S, Delvaux E, Cuyugan L, Liang WS, Hecht SM, Coleman PD. Oligomeric amyloid β preferentially targets neuronal and not glial mitochondrial-encoded mRNAs. Alzheimer's & Dementia. 2018, 14(6):775-86.
10- Chowdhury SR, **Khdour OM**, Bandyopadhyay I, Hecht SM. Lipophilic methylene violet analogues as modulators of mitochondrial function and dysfunction. Bioorganic & Medicinal Chemistry. 2017, 25(20):5537-47.
11- Zhang Y, Chevalier A, **Khdour OM**, Soto LM, Hecht SM. Inhibition of Human Cancer Cell Growth by Analogues of Antimycin A. Planta Medica. 2017, 83(18):1377-83.
12- Chevalier A, **Khdour OM**, Schmierer M, Bandyopadhyay I, Hecht SM. Influence of substituent heteroatoms on the cytoprotective properties of pyrimidinol antioxidants. Bioorganic & Medicinal Chemistry. 2017, 25(5):1703-16.
13- Mastroeni D, **Khdour OM**, Delvaux E, Nolz J, Olsen G, Berchtold N, Cotman C, Hecht SM, Coleman PD. Nuclear but not mitochondrial-encoded oxidative phosphorylation genes are altered in aging, mild cognitive impairment, and Alzheimer's disease. Alzheimer's & Dementia. 2017,13(5):510-9.
14- Chevalier A, Zhang Y, **Khdour OM**, Hecht SM. Selective functionalization of antimycin A through an N-transacylation reaction. Organic letters. 2016,18(10):2395-8.
15- Chevalier A, Zhang Y, **Khdour OM**, Kaye JB, Hecht SM. Mitochondrial nitroreductase activity enables selective imaging and therapeutic targeting. Journal of the American Chemical Society. 2016,138(37):12009-12.
16- Mastroeni D, **Khdour OM**, Arce PM, Hecht SM, Coleman PD. Novel antioxidants protect mitochondria from the effects of oligomeric amyloid beta and contribute to the maintenance of epigenome function. ACS chemical neuroscience. 2015,6(4):588-98.
17- Alam MP, **Khdour OM**, Arce PM, Chen Y, Roy B, Johnson WG, Dey S, Hecht SM. Cytoprotective pyridinol antioxidants as potential therapeutic agents for neurodegenerative and mitochondrial diseases. Bioorganic & medicinal chemistry. 2014, 22(17):4935-47.

18- **Khdour OM**, Arce PM, Roy B, Hecht SM. An optimized pyrimidinol multifunctional radical quencher. ACS medicinal chemistry letters. 2013, 4(8):724-9.
19- Madathil MM, **Khdour OM**, Jaruvangsanti J, Hecht SM. A structurally simplified analogue of geldanamycin exhibits neuroprotective activity. ACS medicinal chemistry letters. 2013, 4(10):953-7.
20- Fash DM, **Khdour OM**, Sahdeo SJ, Goldschmidt R, Jaruvangsanti J, Dey S, Arce PM, Collin VC, Cortopassi GA, Hecht SM. Effects of alkyl side chain modification of coenzyme Q10 on mitochondrial respiratory chain function and cytoprotection. Bioorganic & medicinal chemistry. 2013, 21(8):2346-54.
21- Goldschmidt R, Arce PM, **Khdour OM**, Collin VC, Dey S, Jaruvangsanti J, Fash DM, Hecht SM. Effects of cytoprotective antioxidants on lymphocytes from representative mitochondrial neurodegenerative diseases. Bioorganic & medicinal chemistry. 2013, 21(4):969-78.
22- Madathil MM, **Khdour OM**, Jaruvangsanti J, Hecht SM. Synthesis and biological activities of N-(3-carboxylpropyl)-5-amino-2-hydroxy-3-tridecyl-1, 4-benzoquinone and analogues. Journal of natural products. 2012, 75(12):2209-15.
23- Arce PM, Goldschmidt R, **Khdour OM**, Madathil MM, Jaruvangsanti J, Dey S, Fash DM, Armstrong JS, Hecht SM. Analysis of the structural and mechanistic factors in antioxidants that preserve mitochondrial function and confer cytoprotection. Bioorganic & medicinal chemistry. 2012, 20(17):5188-201.
24- Cai X, **Khdour OM**, Jaruvangsanti J, Hecht SM. Simplified bicyclic pyridinol analogues protect mitochondrial function. Bioorganic & medicinal chemistry. 2012, 20(11):3584-95.
25- Arce PM, **Khdour OM**, Goldschmidt R, Armstrong JS, Hecht SM. A strategy for suppressing redox stress within mitochondria. ACS medicinal chemistry letters. 2011, 2(8):608-13.
26- **Khdour OM**, Lu J, Hecht SM. An acetate prodrug of a pyridinol-based vitamin E analogue. Pharmaceutical research. 2011, 28(11):2896-909.
27- Lu J, **Khdour OM**, Armstrong JS, Hecht SM. Design, synthesis, and evaluation of an α-tocopherol analogue as a mitochondrial antioxidant. Bioorganic & medicinal chemistry. 2010, 18(21):7628-38.
28- Leiris SJ, **Khdour OM**, Segerman ZJ, Tsosie KS, Chapuis JC, Hecht SM. Synthesis and evaluation of verticipyrone analogues as mitochondrial complex I inhibitors. Bioorganic & medicinal chemistry. 2010, 18(10):3481-93.
29- Armstrong JS, **Khdour O**, Hecht SM. Does oxidative stress contribute to the pathology of Friedreich's ataxia? A radical question. The FASEB journal. 2010, 24(7):2152-63.
30- **Khdour O**, Skibo EB. Quinone methide chemistry of prekinamycins: 13 C-labeling, spectral global fitting and in vitro studies. Organic & Biomolecular Chemistry. 2009;7(10):2140-54.
31- Chapuis JC, **Khdour O**, Cai X, Lu J, Hecht SM. Synthesis and characterization of Δlac-acetogenins that potently inhibit mitochondrial complex I. Bioorganic & medicinal chemistry. 2009, 17(6):2204-9.
32- **Khdour O**, Skibo EB. Chemistry of pyrrolo [1, 2-a] indole-and pyrido [1, 2-a] indole-based quinone methides. Mechanistic explanations for differences in cytostatic/cytotoxic properties. The Journal of Organic Chemistry. 2007,72(23):8636-47.
33- **Khdour O**, Ouyang A, Skibo EB. Design of a cyclopropyl quinone methide reductive alkylating agent. 2. The Journal of Organic Chemistry. 2006,71(16):5855-63.

PATENTS

- Sidney Hecht, Omar Khdour, Jun Lu, Pablo Arce, "***Multifunctional radical quenchers and their uses***," Patent number: 8952025, February 10, 2015.
- S. Hecht, O. Khdour, S. Roy Chowdhury and I. *Bandyopadhyay,"* ***Methylene Blue and Methylene Violet Analogues as Mitochondrial Therapeutic Agents***," PCT/US16/18233 application filed February 17, 2016.

- S. Roy Chowdhury, O. Khdour and S. Hecht, **Multifunctional Radical Quenchers for the Treatment of Mitochondrial Dysfunction**, U. S. Patent 9,334,250, May 10, 2016.
- S. Hecht, O. Khdour, S. Roy Chowdhury and P. Talukder, "***Multifunctional Radical Quenchers for the Treatment of Mitochondrial Dysfunction,"*** U. S. Patent 9,388,163, July 12, 2016.
- S. Hecht, X. Cai, O. Khdour and J. I. Armendariz Guajardo, "***1H-Pyrrolo[2,3-b] pyridine Derivatives and Their Use as Radical Quenchers***," U. S. Patent 9,440,967, September 13, 2016.
- M. M. Madathil, O. Khdour and S. Hecht, ***Multifunctional Radical Quenchers,*** U. S. Patent 9,957,214, May 1, 2018.
- Sidney Hecht, Omar Khdour, Sandipan Roy Chowdhury, *Indrajit Bandyopadhyay****, "Substituted phenothiazines as mitochondrial agents,"*** Patent number***:*** 10472340, November 12, 2019.
- Sidney Hecht, Omar Khdour, Mohammad Alam, Sriloy Dey, Yana Chen, Arnaud Chevalier, "***Therapeutic compounds,"*** Patent number: 10364227, July 30, 2019.
- Arnaud Chevalier, Omar Khdour, Yanmin Zhang, Sidney Hecht, "***Prodrug and profluorescent compounds for selective mitochondrial imaging and therapeutic targeting***," Patent number: 10604501, March 31, 2020.

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Journal of the American Chemical Society (JACS)
Journal of Organic & Biomolecular Chemistry
Nature Communications
Journal of Medicinal Chemistry
ChemBioChem