

Anne M. Gardner, PhD

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EDUCATION

Postdoctoral Research Fellow

National Jewish Center for Immunology, Denver, CO

Mentor, Gary L. Johnson, PhD

- Biochemically analyzed regulatory phosphorylation sites on MEK-1 by designing *in vitro* and *in vivo* kinase assays using purified proteins
- Created assays that were commercially developed and used internationally
- Awarded F32 individual NIH fellowship, ACS, and Cancer League of CO grants

PhD, Dept. of Microbiology and Immunology

Duke University, Durham, NC 1992

Mentor, Yair Argon, PhD

Dissertation Title: Changes in the expression, transport and degradation of immunoglobulin chains during B-cell differentiation.

- Awarded NIH predoctoral training fellowship in Cell and Molecular Biology
- Cell and Molecular Biology Steering Committee, 1986-1990
- Chair, Jim McGuinness Memorial Lecture Committee, 1987-1989

BA, Biology

Cornell University, Ithaca, NY

EMPLOYMENT

Lab Manager

Cornell University Molecular Biology & Genetics, Ithaca, NY 2021-present

B. Frank Pugh, PhD

- Manage a basic research lab investigating the epigenomic regulation of the eukaryotic genome, including training and supervision of technicians and undergraduates. Develop and implement SOPs and workflows. Responsible for IBC, IRB, EHS compliance, maintaining budgets, and assisting with grant applications and management

Research Associate 2

Ohio State University Wexner Medical Center, Columbus, OH 2017-2021

Kristine Yoder, PhD and Richard Fishel, PhD

- Managed day to day operations of a large research group in Cancer Biology & Genetics
- Implemented new techniques to advance research directions and contributed to publications in human mismatch repair research and retroviral integration research by production of recombinant nucleosome substrates, designing fluorescently labeled DNA constructs for FRET assays to analyze protein:protein and protein:DNA interactions in single molecule microscope setups, and developing recombinant protein purification schemes

Scientist

Miami Valley Biotech, Dayton, OH 2009-2017

- Launched a biotech company to supply proteins and antibodies to the research community

- Developed a purification scheme to increase the yield 10-fold of recombinant proteins, >95% pure, up to 92% heme content
- Responsible for rabbit anti-sera production from antigen design/purification through quality control of finished product

Research Associate

Children's Hospital Research Foundation, Cincinnati, OH 1999-2006

- Used site directed mutagenesis to test the roles of conserved amino acids in enzyme catalysis. Performed kinetic analysis, spectrophotometric and structural studies
- Used a bioinformatics approach to identify and clone a novel reductase system
- Published 12 articles in peer reviewed journals, invited seminar speaker at national and local symposia

PUBLICATIONS

Palmieri, D, Javorina, A, Siddiqui, J, Gardner, A, Fries, A, Chapleau, RR, Starr, C, Fishel, R, Miles, WO. Mass COVID-19 patient screening using UvsX and UvsY mediated DNA recombination and high throughput parallel sequencing. *Sci Rep.* 2022. 12, 4082. <https://doi.org/10.1038/s41598-022-08034-1>.

Kotlar RM, Jones ND, Senavirathne G, Gardner AM, Messer RK, Tan YY, Rabe AJ, Fishel R, Yoder KE. Retroviral prototype foamy virus intasome binding to a nucleosome target does not determine integration efficiency. *J Biol Chem.* 2021 Mar 17;296:100550. doi: 10.1016/j.jbc.2021.100550. PMID: PMC8050864.

Gardner AM, Gardner PR. Allostery in the nitric-oxide dioxygenase mechanism of flavohemoglobin. *J Biol Chem.* 2020 Dec 11;jbc.RA120.016637. doi: 10.1074/jbc.RA120.016637. PMID: 33310705.

Mackler RM, Jones ND, Gardner AM, Lopez MA Jr, Howard CJ, Fishel R, Yoder KE. Nucleosome DNA unwrapping does not affect prototype foamy virus integration efficiency or site selection. *PLoS One.* 2019 Mar 13;14(3):e0212764. doi: 10.1371/journal.pone.0212764. PMID: 30865665; PMID: PMC6415784.

Gardner AM, Cook MR, Gardner PR. Nitric-oxide dioxygenase function of human cytoglobin with cellular reductants and in rat hepatocytes. *J Biol Chem.* 2010 Jul 30;285(31):23850-7. doi: 10.1074/jbc.M110.132340. Epub 2010 May 27. PMID: 20511233; PMID: PMC2911317.

Gardner PR, Gardner AM, Brashear WT, Suzuki T, Hvitved AN, Setchell KD, Olson JS. Hemoglobins dioxygenate nitric oxide with high fidelity. *J Inorg Biochem.* 2006 Apr;100(4):542-50. doi: 10.1016/j.jinorgbio.2005.12.012. Epub 2006 Jan 24. PMID: 16439024.

Helmick RA, Fletcher AE, Gardner AM, Gessner CR, Hvitved AN, Gustin MC, Gardner PR. Imidazole antibiotics inhibit the nitric oxide dioxygenase function of microbial flavohemoglobin. *Antimicrob Agents Chemother.* 2005 May;49(5):1837-43. doi: 10.1128/AAC.49.5.1837-1843.2005. PMID: 15855504; PMID: PMC1087630.

Hallstrom CK, Gardner AM, Gardner PR. Nitric oxide metabolism in mammalian cells: substrate and inhibitor profiles of a NADPH-cytochrome P450 oxidoreductase-coupled microsomal nitric oxide dioxygenase. *Free Radic Biol Med.* 2004 Jul 15;37(2):216-28. doi: 10.1016/j.freeradbiomed.2004.04.031. PMID: 15203193.

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- Gardner AM, Helmick RA, Gardner PR. Flavorubredoxin, an inducible catalyst for nitric oxide reduction and detoxification in *Escherichia coli*. *J Biol Chem.* 2002 Mar 8;277(10):8172-7. doi: 10.1074/jbc.M110471200. Epub 2001 Dec 18. PMID: 11751865.
- Pathania R, Navani NK, Gardner AM, Gardner PR, Dikshit KL. Nitric oxide scavenging and detoxification by the *Mycobacterium tuberculosis* haemoglobin, HbN in *Escherichia coli*. *Mol Microbiol.* 2002 Sep;45(5):1303-14. doi:10.1046/j.1365-2958.2002.03095.x. PMID: 12207698.
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- Gardner PR, Gardner AM, Martin LA, Dou Y, Li T, Olson JS, Zhu H, Riggs AF. Nitric-oxide dioxygenase activity and function of flavohemoglobins. Sensitivity to nitric oxide and carbon monoxide inhibition. *J Biol Chem.* 2000 Oct 13;275(41):31581-7. doi: 10.1074/jbc.M004141200. PMID: 10922365.
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Johnson NL, Gardner AM, Diener KM, Lange-Carter CA, Gleavy J, Jarpe MB, Minden A, Karin M, Zon LI, Johnson GL. Signal transduction pathways regulated by mitogen-activated/extracellular response kinase kinase kinase induce cell death. *J Biol Chem.* 1996 Feb 9;271(6):3229-37. doi: 10.1074/jbc.271.6.3229. PMID: 8621725.

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Note: I formerly published under Anne M Stockdale.