Peter C. Hart, Ph.D.

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Education

Fall 2011 – Fall 2015 University of Illinois at Chicago College of Medicine, Ph.D. in Pathology
Fall 2004 – Spring 2008 University of Illinois at Chicago, B.A. in Psychology

Academic Research Experience

Roosevelt University – College of Science, Health and Pharmacy **Oct 2019 – Present**
Associate Professor of Pharmacology Aug 2025 – Present
Assistant Professor of Pharmacology Oct 2019 – Aug 2025
Director, MS in Pharmaceutical Sciences Mar 2024 – Present

-Evaluating novel mechanisms of treatment resistance in ovarian cancer utilizing an unbiased pharmacologic high-throughput screening approach. Specific focus on "drug repurposing" to expedite potential therapeutic use.
-Teaching duties include courses for fundamental lectures in basic and clinical pharmacology, as well as the clinical pharmacology component in a team-based integrated systems approach for multiple disease states.
-Developed the Master's in Pharmaceutical Sciences (MSPS) program curriculum. Currently serving as advisor for several MSPS thesis students in progress. Director responsibilities include outreach, recruitment, admissions, and assessment including monitoring student progression and outcomes as well as effectiveness of the program.

University of Chicago – Section of Gynecologic Oncology **Jan 2016 – Oct 2019**
Postdoctoral Scholar

-Identified a metabolic target of the drug metformin from patient samples and evaluated this metabolite and its regulatory pathway as a novel biomarker for sensitivity/resistance to metformin's cytotoxic effects.
-Used unbiased approaches (genomics, proteomics and metabolomics) to evaluate convergent pathways that modulate stromal activation resulting from tumor:stromal crosstalk in the ovarian tumor microenvironment, which led to a first authorship published in *Cell Reports*.
-Coordinated with surgical pathology, lab technicians and external research coordinators to acquire and curate specimen from a phase II clinical trial (NCT02122185). Collaborating with Max Planck Institute Biochemistry to conduct proteomics analysis of laser capture micro-dissected specimen. Study is ongoing.

University of Illinois at Chicago – Department of Pathology **Aug 2011 – Dec 2015**
PhD Candidate

-Investigated the role of mitochondrial redox homeostasis in cellular metabolism, identifying that a mitochondrial antioxidant could bolster tumor growth via enhancement of glycolysis to meet biosynthetic demands
-Discovered a novel role of a canonical mitochondrial enzyme, and delineated its unusual ability to migrate out towards the nucleus and initiate transcriptional programs required for tumor progression. Study is ongoing.
-Initiated and maintained collaborations within the University of Illinois as well as other institutions that led to manuscripts published in *Nature*, *PNAS* and *Free Radical Research*

Tulane University – Department of Pharmacology **Jan 2010 – May 2011**
Research Assistant

-Assisted in the development of technology for behavioral phenotyping of zebrafish in models of anxiety
-Managed husbandry for large colonies of mice and zebrafish. Trained and supervised students in behavioral phenotyping of mice and zebrafish in models of stress, anxiety, depression as well as learning and memory
-Responsible for purchasing and maintaining an inventory of laboratory equipment, reagents and specimen.

Honors and Awards

2024 Faculty Award for Excellence in Research, *awarded by Roosevelt University*
2024 Sigma Xi Scientific Research Honor Society Nomination and Induction, *awarded by Sigma Xi*
2022 Howard Hughes Medical Institute (HHMI) Summer Research Award, *awarded by Roosevelt University*
2022 Office of Student Research Summer Research Award, *awarded by Roosevelt University*
2021 Faculty Research Award, *awarded by Roosevelt University*
2021 New Investigator Award, *awarded by the American Association of Colleges of Pharmacy (AACP)*
2020 Laboratory Equipment Donation Program Award *for ELAN DRC II, awarded by the U.S. Dept. of Energy*
2020 National Institutes of Health Loan Repayment Program Award COI *awarded by the NCI*
2019 HHMI Summer Institute on Scientific Teaching Scholarship *awarded by University of Chicago*
2018 National Institutes of Health Loan Repayment Program Award *awarded by the NCI*
2018 American Association for Cancer Research Scholar-in-Training Award
2017 Colleen's Dream Young Investigator Award
2016 University of Chicago Institute for Translational Medicine Core Subsidy Award
2015 Young Scientist Program Fellowship (YSP) *awarded by the International Union of Biochemistry and Molecular Biology (IUBMB-SBBq)*
2014 Pre-doctoral Education in Translational and Clinical Science (PECTS) Training Program *awarded by Center for Clinical and Translational Science (CCTS), University of Illinois at Chicago*
2013 Travel award and invitation for oral presentation to Society for Free Radical Biology and Medicine (SFRBM) 20th Annual Meeting *awarded by SFRBM*
2012 Travel award to Society for Free Radical Biology and Medicine (SFRBM) 19th Annual Meeting *awarded by Seahorse Bioscience*

Publications

Peer-reviewed Journal Articles:

1. Gerhardt, A., Nanakaliy, D., Shah, H.D., Sarfaraz, S., Madigan, C., Armas, J., Noetzel, J., Vrapciu, B., Downing, M., Elliott, R.P., Dipto, R., Olson, M.E., Potempa, L.A., and Hart, P.C.*. Evaluating the CRP interactome: insights into possible novel roles in cellular signaling and tumorigenecity. **Curr. Issues Mol. Biol.**, *in submission.*

2. Potempa, M., Hart, P.C., Rajab, I.M., Potempa, L.A. Redefining CRP in tissue injury and repair: more than an acute pro-inflammatory mediator. **Front. Immunol.**, 2025. Feb;16:1564607.

3. Albanna, H., Gjoni, A., Robinette, D., Rodriguez, G., Djambov, L., Olson, M.E., and Hart, P.C*. Activation of adrenoceptor alpha-2 (ADRA2A) promotes chemosensitization to carboplatin in ovarian cancer cell lines. **Curr. Issues Mol. Biol.**, 2023. Nov;45(12):9566-9578.

4. Olson, M., Hornick, M., Stefanski, A., Albanna, H., Gjoni, A., Hall, G.D., Hart, P.C., Rajab, I.M., Potempa, L.A. A biofunctional review of C-reactive protein (CRP) as a mediator of inflammatory and immune responses: differentiating pentameric and modified CRP isoform effects. **Front. Immunol.**, 2023. Sep;14:1264383.

5. Majerczyk, D., Ayad, E.G., Brewton, K.L., Saing, P., Hart, P.C.*. Systemic maternal inflammation promotes autism spectrum disorders via IL-6 and IFN-gamma. **Biosci. Rep.**, 2022. Oct;27;BSR20220713.

6. Coelho, D.R., Palma, F.R., Paviani, V., He, C., Danes, J.M., Huang, Y., Calado, J.C.P., Hart, P.C., Furdui, C.M., Poole, L.B., Schipma, M., Bonini, M.G. Nuclear localized, iron-bound superoxide dismutase-2 antagonizes epithelial lineage programs to promote stemness of breast cancer cells via a novel histone demethylase activity. **Proc. Natl. Acad. Sci. USA**, 2022. Jul;119(29):e2110348119. doi:10.1073/pnas.2110348119.

7. Rajab, I.M., Potempa, L.A., Olson, M.E., Hart, P.C. C-reactive protein and cancer: Interpreting the differential bioactivities of its pentameric (pCRP) and monomeric, modified (mCRP) isoforms. **Front. Immunol.**, 2021. Sep;12:744129.

8. Kenny, H.A., Hart, P.C., Kordylewicz, K., Lal, M., Shen, M., Kara, B., Chen, Y.J., Grassl, N., Alharbi, Y., Watters, K.M., Pantakar, M.S., Ferrer, M., Lengyel, E. The natural product β-escin targets cancer and stromal cells of the tumor microenvironment to inhibit ovarian cancer metastasis. **Cancers**, 2021. Aug;13:3931.

* indicates PCH is the corresponding author

9. F.K. Tsogas, Majerczyk, D., Hart, P.C.*. Possible role of metformin as an immune modulator in the tumor microenvironment of ovarian cancer. **Int. J. Mol. Sci.** 2021. Jan;22(2):867.

10. Hart, P.C.*, Rajab, I.M., Alebraheem, M., Potempa, L.A. C-reactive protein and cancer – diagnostic and therapeutic insights. **Front. Immunol.** 2020. Nov;19(11):595835.

11. Potempa, L.A., Rajab, I.M., Hart, P.C. How CRP structural isoforms with distinct bioactivities affect disease progression. **Front. Immunol.**, 2020. Sep;10(11):2126.

12. Potempa, L.A., Rajab, I.M., Hart, P.C., Bordon, J., Fernandez-Botran, R. Insights into the use of C-reactive protein as a diagnostic index of disease severity in COVID-19 infections. **Am. J. Trop. Med. Hyg.**, 2020. Aug;103(2):561-563.

13. Hart, P.C., Kenny, H.A., Grassl, N., Watters, K.M., Litchfield, L.M., Coscia, F., Blaženović, I., Ploetzky, L., Fiehn, O., Mann, M., Lengyel, E., Romero, I.L. Mesothelial cell HIF1α expression is metabolically downregulated by metformin to prevent oncogenic tumor-stromal crosstalk. **Cell Rep.**, 2019. Dec;29(12):4086-4098.

14. He, C., Danes, J.M., Hart, P.C., Zhu, Y., Huang, Y., de Abreu, A.L., O'Brien, J., Mathison, A.J., Tang, B., Frasor, J., Wakefield, L., Ganini, D., Stauder, E., Zielonka, J., Gantner, B.N., Urrutia, R.A., Gius, D., Bonini, M.G. SOD2 acetylation on lysine 68 promotes stem cell reprogramming in breast cancer. **Proc. Natl. Acad. Sci.**, 2019. Nov;116(47):23534-23541.

15. Zhu, Y., Zou, X., Dean, A.E, O'Brien, J., Gao, Y., Tran, E.L, Park, S.H., Liu, G., Kieffer, M.B., Jiang, H., Stauffer, M.E., Hart, P.C.(R), Quan, S., Satchell, K.J., Horikoshi, N., Bonini, M.G., Gius, D. Lysine 68 acetylation directs MnSOD as a tetrameric detoxification complex versus a monomeric tumor promoter. **Nat. Commun.**, 2019. Jun;10(1):2399.

16. McGuire, S., Kara, B., Hart, P.C., Montag, A., Wroblewski, K., Fazal, S., Huang, X.Y., Lengyel, E., Kenny, H.A. Inhibition of fascin in cancer and stromal cells blocks ovarian cancer metastasis. **Gyn. Onc.**, 2019. May;153(2):405-415.

17. Hart, P.C., Chiyoda, T., Curtis, M., Liu, X., Chang, C.Y., McGregor, S., Lastra, R., Locasale, J., Lengyel, E., Romero, I.L. SPHK1 is a novel target of metformin in ovarian cancer. **Mol. Can. Res.**, 2019. Apr;17(4):870-881. *Manuscript featured as Editor's Choice.*

18. Lee, J., Yesilkanal, A., Frankenberger, C., Liu, J., Yan, J., Elbaz, M., Rabe, D., Rustandy, F., Tiwari, P., Grossman, E., Hart, P.C., Kang, C., Sanderson, S., Nomura, D., Bonini, M.G., Locasale, J., Rosner, M.R. Effective combination therapy for breast cancer targeting BACH1 and mitochondrial metabolism. **Nature**, 2019. Apr;568(7751):254-258.

19. Kenny, T.C., Hart, P.C., Ragazzi, M., Serasinghe, M., Chipuk, J., Sagar, A., Eliceiri, K., LaFramboise, T., Gradhi, S., Santos, J., Riar, A.K., Papa L., D'Aurello, M., Manfredi, G., Bonini, M.G., Germain, D., Selected mitochondrial DNA landscapes activate the SIRT3 axis of the UPRmt to promote metastasis. **Oncogene** 2017. Aug;36(31):4393-4404.

20. Ekou, D.N., Bera, S., Weinberg, F., Anson, E., Hart, P.C., Zaichick, S., Domann, F., Bonini, M.G., Diamond, A.M. Allele-specific interaction between glutathione peroxidase 1 and manganese superoxide dismutase affects the levels of Bcl-2, Sirt3 and E-Cadherin. **Free Radic. Res.** 2017. Jun;51(6):582-590.

21. Chiyoda, T., Hart, P.C., Eckert, M.A., McGregor, S.M., Lastra, R., Hamamoto, R., Nakamura, Y., Yamada, S.D., Olopade, O.I., Lengyel, E., Romero, I.L. Loss of BRCA1 in the cells of origin of ovarian cancer induces glycolysis: A window of opportunity for ovarian cancer chemoprevention. **Cancer Prev. Res.** 2017. Apr;10(4):255-266.

22. He, C., Hart, P.C., Germain, D., Bonini, M.G. SOD2 and the mitochondrial UPR: partners regulating cellular phenotypic transitions. **Trends Biochem. Sci.** 2016. Jul; 41(7):568-77.

23. Hart, P.C., Minshall, R.D., Bonini, M.G. Caveolin-1 regulates cancer cell metabolism via scavenging Nrf2 and suppressing MnSOD-driven glycolysis. **Oncotarget** 2016. Jan 5;7(1): 308-22.

24. Baig, M., Zaichik, S., Mao, M., Abreu, A.D., Bakshi, F., Saqib, U., Deng, J., Hart, P.C., Chatterjee, S., Block, M., Vogel, S., Malik, A., Consolaro, M., Christman, J., Minshall, R., Gantner, B., Bonini, M. NOS1-derived nitric oxide promotes NFκB transcriptional activity through inhibition of suppressor of cytokine signaling (SOCS-1). **J. Exp. Med.** 2015 Sep 21;212(10):1725-1738.

25. Hart, P.C., Mao, M., Abreu, A.L., Ansenberger-Fricano, K., Ekou, D.N., Ganini, D., Kajdacsy-Balla, A., Diamond, A.M., Minshall, R.D., Consolaro, M.E.L., Santos, J.H., Bonini, M.G. MnSOD upregulation sustains the Warburg effect via mitochondrial ROS and AMPK-dependent signalling in cancer. **Nat. Commun.** 2015. Feb 5;6:6053.

26. Bonini, M.G., Consolaro, M.E., Hart, P.C., Mao, M., Abreu, A.L., Master, A. Redox control of enzymatic functions: the electronics of life's circuitry. **IUBMB Life** 2014 Mar 26;66(3):167-181.

27. Stewart, A., Wu, N., Cachat, J., Hart, P., Gaikwad, S., Wong, K., Utterback, E., Gilder, T., Kyzar, E., Newman, A., Carlos, D., Chang, K., Hook, M., Rhymes, C., Caffery, M., Greenberg, M., Zadina, J., Kalueff, A. Pharmacological modulation of anxiety-like phenotypes in adult zebrafish. **Prog. Neuropsychopharmacology Biol. Psychiatry** 2011; 1:35(6): 1421-31.

28. Stewart, A., Riehl, R., Wong, K., Green, J., Cosgrove, J., Vollmer, K, Kyzar, E., Hart, P., Allain, A., Cachat, J., Utterback, E., Gaikwad, S., Hook, M., Rhymes, K., Newman, A., Chang, K., Kalueff, A. Behavioral effects of MDMA ("Ecstasy") on adult zebrafish. **Behav. Pharmacol.** 2011; 22(3): 275-80.

29. Grossman, L., Stewart, A., Gaikwad, S., Utterback, E., Wu, N., DiLeo, J., Frank, K., Cachat, J., Howard, H., Hart, P., Kalueff, A. Behavioral effects of piracetam on adult zebrafish. **Brain Res. Bull.** 2011; 85(1-2): 58-63.

30. Stewart, A., Wong, K., Cachat, J., Gaikwad, S., Kyzar, E, Wu, N., Hart, P., Piet, V., Utterback, E., Elegante, M., Tien, D., Kalueff, A. Zebrafish models to study drug abuse-related phenotypes. **Rev. Neurosci.** 2011; 22(1): 95-105.

31. Cachat, J., Stewart, A., Grossman, L., Gaikwad, S., Kadri, F., Min Chung, K., Wu, N., Wong, K., Roy, S., Suciu, C., Goodspeed, J., Elegante, M., Bartels, B., Elkhayat, S., Tien, D., Tan, J., Denmark, A., Gilder, T., Kyzar, E., DiLeo, J., Frank, K., Chang, K., Utterback, E., Hart, P., Kalueff, A. Measuring behavioral and endocrine responses to novelty stress in adult zebrafish. **Nat. Protoc.** 2010; 5(11): 1786-99.

32. Gaikwad, S., Stewart, A., Hart, P., Wong, K., Cachat, J., Kalueff, A. Acute stress disrupts cued and spatial memory in zebrafish: the utility of fish models to study stress-memory interplay. **Behav. Processes** 2011; 87(2): 224-30.

33. LaPorte, J., Egan, R., Hart, P., Bergner, C., Cachat, J., Canavello, P., and Kalueff, A. Qui non proficit, deficit: experimental models for 'integrative' research of affective disorders. **J. Affect Disord.** 2010; 121: 1-9.

34. Cachat, J., Canavello, P., Elegante, M., Bartels, B., Hart, P., Bergner, C., Egan, R., Duncan, R., Tien, D., Chung, A., Wong, K., Goodspeed, J., Tan, J., Grimes, C., Elkhayat, S., Suciu, C., Rosenberg, M., Chung, K., Kadri, F., Roy, S., Gaikwad, S., Stewart, A., Zapolsky, I., Gilder, T., Mohnot, S., Beeson, E., Amri, H., Zukowska, Z., Soignier, R., and Kalueff, A. Modeling withdrawal syndrome in zebrafish. **Behav. Brain Res.** 2010; 208: 371-6.

35. Egan, R., Bergner, C., Hart, P., Cachat, J., Canavello, P., Glasgow, E., Amri, H., Zukowska, Z., and Kalueff, A. Understanding behavioral and physiological phenotypes of stress and anxiety in zebrafish. **Behav. Brain Res.** 2009; 205: 38-44.

Book Chapters:

1. Olson, M., Hornick, M., Stefanski, A., Albanna, H., Gjoni, A., Hall, G.D., Hart, P.C., Rajab, I.M., Potempa, L.A. A biofunctional review of C-reactive protein (CRP) as a mediator of inflammatory and immune responses: differentiating pentameric and modified CRP isoform effects. In: Biology of C-Reactive Protein. 2024: 122-132.
2. Hart, P.C., Rajab, I.R., Alebraheem, M., Potempa L.A. C-reactive protein and cancer – diagnostic and therapeutic insights. In: Diagnostic and Therapeutic Applications of Pentraxin and Pentraxin-Associated Proteins. 2022: 69-85.
3. Rajab, I.M., Hart, P.C., Potempa L.A. How CRP structural isoforms with distinct bioactivities affect disease progression. In: Diagnostic and Therapeutic Applications of Pentraxin and Pentraxin-Associated Proteins. 2022: 42-53.
4. Hart, P.C., Bajwa, P., Kenny, H.A. "Modeling the early steps of ovarian cancer dissemination in an organotypic culture of the human peritoneal cavity". In: Ovarian Cancer: Molecular & Diagnostic Imaging and Treatment Strategies. 2021: 75-94.
5. Bonds, J., Hart, P.C., Minshall, R.D., Lazarov, O., Haus, J.M., Bonini, M.G. "Type 2 diabetes mellitus as a risk factor for AD." In: Genes, Environment and Alzheimer's Disease. Eds. O. Lazarov and G. Tesco. Oxford Academic Press. 2016: 387-414.
6. Hart, P., Bergner, C., Dufour, B., Smolinsky, A., Egan, R., LaPorte, J., Kalueff, A. "Analysis of Abnormal Repetitive Behaviors in Experimental Animal Models." In: Translational Neuroscience and Its Advancement of Animal Research Ethics. Eds. J. Warnick and A. Kalueff. Nova Science, NY. 2010: 71-82.
7. Hart, P., Bergner, C., Smolinsky, A., Dufour, B., Egan, R., and Kalueff, A. Experimental models of anxiety for drug discovery and brain research. In: Mouse Models for Drug Discovery. Eds. G. Proetzel and M. Wiles. Humana Press. Methods Mol Biol, NY. 2010; 602: 299-321.
8. Dow, E., Piet, V., Stewart, A., Gaikwad, S., Cachat, J., Hart, P., Wu, N., Kyzar, E., Utterback, E., Newman, A., Hook, M., Rhymes, K., Carlos, D., Kalueff, A. "Modeling mouse anxiety and sensorimotor integration: phenotypes in the Suok test." In: Mood and Anxiety Related Phenotypes in Mice: Characterization Using Behavioral Tests, Vol. II. Ed. T. Gould, Humana Press, NY. 2010.
9. Egan, R., Smolinsky, A., Bergner, C., LaPorte, J., Hart, P., and Kalueff A. "Hybridizing experimental paradigms to increase high throughput of neurobehavioral data." In: Translational Neuroscience in Animal Research: Advancements, Challenges, and Research Ethics. Eds. J.E. Warnick and A.V. Kalueff. Nova Science, NY. 2010: 113-123.
10. Bergner, C., Smolinsky, A., Hart, P., Dufour, B., Egan, R., and Kalueff, A. "Mouse models for studying depression-like states and antidepressant drugs." In: Mouse Models for Drug Discovery. Eds. G. Proetzel and M. Wiles. Humana Press. Methods Mol Biol. 2010; 602:267-282.
11. Bergner, C., Smolinsky, A., Dufour, B., LaPorte, J., Hart, P., Egan, R., and Kalueff, A. "Phenotyping and genetics of rodent grooming and barbering: utility for experimental neuroscience research." In: Neurobiology of Grooming Behavior. Eds. A.V. Kalueff, J.L. LaPorte, and C.L. Bergner. Cambridge University Press. 2010: 46-66.
12. Canavello, P., Cachat, J., Elkhayat, S., Bartels, B., Hart, P., Elegante, M., Beeson, E., Laffon, A., Haymore, W., Tien, D., Tien, A., Mohnot, S., Kalueff, A. "Video-aided analysis of zebrafish locomotion and anxiety-related behavioral responses." In: Zebrafish Neurobehavioral Protocols. Eds. A. Kalueff and J. Cachat, Humana Press, NY. 2010: 1-15.
13. Stewart, A., Cachat, J., Suciu, C., Hart, P., Gaikwad, S., Utterback, E., DiLeo, J. Kalueff, A. "Intraperitoneal injections as a method of psychotropic drug delivery in adult zebrafish." In: Zebrafish Neurobehavioral Protocols. Eds. A. Kalueff and J. Cachat, Humana Press, NY. 2010: 169-181.
14. Cachat, J., Stewart, A., Utterback, E., Kyzar, E., Hart, P., Carlos, D., Gaikwad, S., Hook, M., Rhymes, K., Kalueff, A. "Deconstructing adult zebrafish behavior with swim trace visualizations." In: Zebrafish Neurobehavioral Protocols. Eds. A. Kalueff and J. Cachat, Humana Press, NY. 2010: 191-203.

15. Canavello, P., Cachat, J., Beeson, E., Laffoon, A., Grimes, C., Haymore, W., Elegante, M., Bartels, B., Hart, P., Elkhayat, S., Tien, D., Mohnot, S., Amri, H., Kalueff, A. "Measuring endocrine (cortisol) responses of zebrafish to stress." In: Zebrafish Neurobehavioral Protocols. Eds. A. Kalueff and J. Cachat, Humana Press, NY. 2010: 135-143.
16. Stewart, A., Maximino, C., Marques de Brit, T., Herculano, A., Gouveia, A., Morato, S., Cachat, J., Gaikwad, S., Elegante, M., Hart, P., Kalueff, A. "Neurophenotyping of adult zebrafish using the light/dark box paradigm." In: Zebrafish Neurobehavioral Protocols. Eds. A. Kalueff and J. Cachat, Humana Press, NY. 2010: 157-168.
17. Cachat, J., Canavello, P., Elegante, M., Bartels, B., Elkhayat, S., Hart, P., Tien, A., Tien, D., Beeson, E., Mohnot, S., Laffoon, A., Haymore, W., Kalueff, A. "Modeling Stress and Anxiety in Zebrafish." In: Zebrafish Models in Neurobehavioral Research. Eds A. Kalueff and J. Cachat, Humana Press. 2010: 73-89.
18. Smolinsky, A., Bergner, C., Hart, P., Egan, R., and Kalueff, A.. "The utility of genetically modified animals in modeling OCD-spectrum disorders." In: Transgenic and Mutant Tools to Model Brain Disorders. Eds. A.V. Kalueff and A.N. Smolinsky. Humana Press. 2009: 139-149.
19. Egan, R., Bergner, C., Hart, P., LaPorte, J., Kalueff, A. "Genetic animal models of anxiety." In: Transgenic and Mutant Tools to Model Brain Disorders. Eds. A. Kalueff and C. Bergner. Humana Press. 2009: 179-189.
20. Bergner, C., Egan, R., Hart, P., Cachat, J., Canavello, P., Kalueff, A. "Mutant and Transgenic Zebrafish in Modeling Neurobehavioral Disorders." In: Transgenic and Mutant Tools to Model Brain Disorders. Eds. A. Kalueff and C. Bergner, Humana Press. 2009: 3-12.
21. Canavello, P., Egan, R., Bergner, C., Hart, P., Cachat, J., Kalueff, A. "Genetic Animal Models of Depression." In: Transgenic and Mutant Tools to Model Brain Disorders. Eds. A. Kalueff and C. Bergner, Humana Press. 2009: 191-200.

Invited Talks and Presentations

Hart, P.C. Drug repurposing to evaluate mechanisms of chemoresistance in ovarian cancer. *Department of Pathology Seminar Series*, University of Illinois at Chicago College of Medicine, Chicago, IL. March 14th, 2025.

Hart, P.C., Homa, S., and Delgado, E. Metformin promotes T-cell recruitment in a novel 3D model of omental metastasis. *American Association for the Colleges of Pharmacy (AACP)*. July 22nd, 2023.

Hart, P.C. Metformin targets mesothelial cells to impede ovarian cancer metastasis. *Department of Pathology Seminar Series*, University of Illinois at Chicago College of Medicine, Chicago, IL. July 12th, 2018.

Hart, P.C., Litchfield, L., Sheikh, S., Lengyel, E., Romero I.L. Metformin inhibits TGFβ-induced stromal ECM remodeling to impede invasion in ovarian cancer. *AACR Annual Meeting, 2017*. Washington, D.C. April 3rd, 2017 – AMA PRA Category 1.

Hart, P.C., Yamada, D., Fleming, G., Romero, I., Lengyel, E. Repurposing metformin as a metabolically targeted therapeutic for ovarian cancer. *Mayo Clinic and University of Chicago SPORE Annual Meeting*. October 25th, 2016.

Hart, P.C., Minshall, R.D., Bonini, M.G. Caveolin-1 loss in human breast cancer is associated with increased tumor aggressiveness and mortality. *SBBQ Young Scientist Program - Satellite Conference for IUBMB, 2015*. São Paulo, SP, Brazil. August 21st, 2015.

Hart, P.C., Minshall, R.D., Bonini, M.G. Caveolin-1 loss in human breast cancer is associated with increased tumor aggressiveness and mortality. *American Society for Investigative Pathology: Special Session, Highlights: Graduate Student Research in Pathology; at Experimental Biology, 2015*. Boston, Massachusetts. March 28, 2015 and March 30th, 2015.

Hart, P.C., Mao, M., Abreu, A.L., Chen, A.J., Minshall, R.D., Bonini, M.G. Caveolin-1-dependent regulation of cellular metabolism: Role of Nrf-2 and SOD2. *Society for Free Radical Biology and Medicine, 2013*. San Antonio, Texas. November 21st, 2013.

Service and Other Activities

Academic and Scholarly Appointments:

Director	Roosevelt University Master of Science in Pharmaceutical Sciences (MSPS) Program [2024 to present]
Post Chair	Roosevelt University Pharmacy Admissions Committee [2024 to present]
Chair	Roosevelt University Pharmacy Admissions Committee [2022 to 2024; Chair-Elect 2020-2022]
Chair	Roosevelt University Search Committee for Pharmacology TT Faculty [2024]
Chair	Roosevelt University Research Awards Committee [2023 and 2024]
Vice Chair	Roosevelt University Pharmacy Council [2022 to 2024]
Chair	Roosevelt University Pharmacy Council [2020 to 2022]
Faculty Rep	Roosevelt University Pharmacy Administrative Council [2022 to 2024]
Committee Member	Roosevelt University Planning and Budget Committee [2024 to present]
Committee Member	Roosevelt University Pharmacy Assessment Committee [2024 to present]
Committee Member	Roosevelt University Library and Educational Resources Committee [2024 to present]
Committee Member	Roosevelt University Pharmacy Foundational Sciences Committee [2022 to present]
Committee Member	Roosevelt University Pharmacy Integrated Sequence Committee [2019 to present]
Review Editor	Frontiers in Pharmacology, Editorial Board – Anti-Cancer Drugs Section [2025 to present]
Academic Editor	Current Issues in Molecular Biology, Editorial Board - Section of Molecular Medicine [2021 to present]
Special Issue Editor	Current Issues in Molecular Biology for Special Issue entitled: "*Advances in pharmacotherapeutic Stategies to prevent Tumor Development, Progression, and Treatment Resistance*" [2024]
Guest Editor	Frontiers Cell and Developmental Biology for Special Issue entitled: "*Reviews and Advances in Metastasis*" [2023]
Guest Editor	Frontiers Genetics for Special Issue entitled: "*Advances in Genetic and Epigenetic Mechanisms of Therapeutic Resistance in Cancer*" [2022]
Guest Editor	International Journal of Molecular Sciences for Special Issues entitled: "*Pharmacologic Targeting of the Tumor Microenvironment*" [2021] "*Targeting Stromal Cell Signaling within the Tumor Microenvironment*" [2022]

Postdoctoral Advisor	University of Chicago Postdoctoral Association Advisory Board [2018 – 2019]
Peer-Reviewer	Molecular Cancer Research | International Journal of Molecular Sciences | Cancers Frontiers in Oncology | Frontiers in Immunology | Frontiers in Pharmacology Frontiers in Genetics | Clinical and Translational Medicine | Oncotarget | Aging Advances in Medical Sciences | Bioscience Reports: Molecules | Pharmaceuticals Cancer Management and Research | Journal of Pharmacology and Therapeutics

Pedagogical Training:

Research in Translational Oncology. *Roosevelt University PHAR533*. Schaumburg, Illinois. PI and lab supervisor in Summer 2021, Summer 2022, Summer 2023, Winter 2023, Summer 2024, Summer 2025.

Oncology Literature Research. *Roosevelt University PHAR590*. Schaumburg, Illinois. PI and research coordinator in Summer 2020, Winter 2022, Spring 2024, Fall 2024, Summer 2025, Fall 2025.

MS Pharmaceutic Sciences Research. *Roosevelt University BIOL485*. Schaumburg, Illinois. PI and thesis advisor, all terms 2025 to present.

Research in Translational Oncology. *Roosevelt University BIOL492*. Schaumburg, Illinois. Course director in Spring 2024 and Spring 2025.

Principles of Drug Action. *Roosevelt University PHAR530*. Schaumburg, Illinois. Course instructor in Winter 2019 and course coordinator/instructor in Winter 2020-2023, Fall 2024, Fall 2025.

Integrated Sequence VI: Gastrointestinal and Hepatobiliary Systems. *Roosevelt University PHAR632*. Schaumburg, Illinois. Course instructor in Winter 2019-2023, Fall 2024, Spring 2025.

Integrated Sequence IX: Hematology Oncology. *Roosevelt University PHAR636*. Schaumburg, Illinois. Course course coordinator/instructor in Summer 2021-2024 and instructor in Summer 2020-present.

Integrated Sequence I: Musculoskeletal, Immune and Pulmonary Disorders. *Roosevelt University PHAR531*. Schaumburg, Illinois. Course instructor in Spring 2020-2024, Fall 2025.

Integrated Sequence II: Endocrine Systems. *Roosevelt University PHAR532*. Schaumburg, Illinois. Course instructor in Spring 2020-2024, Fall 2025.

Pharmaceutical Care: OTC Therapeutics. *Roosevelt University PHAR601*. Schaumburg, Illinois. Guest instructor on "OTC Analgesics" and "OTC Cough and Cold" in Fall 2022-2025.

Epithelial-to-mesenchymal transition and back: extrinsic regulation by the tumor microenvironment. *University of Chicago BIOS25326 Undergraduate Course in Tumor Microenvironment and Metastasis*. Chicago, Illinois. Guest instructor on April 3rd 2019, April 14th 2020 and April 8th 2021.

Howard Hughes Medical Institute – Summer Institute on Scientific Teaching, hosted at the University of San Diego. San Diego, California. June 17th through 21st, 2019.

Cancer metabolism: glycolysis and tumor progression. *University of Illinois at Chicago PATH511 Graduate Course in Pathobiology of Cancer*. Chicago, Illinois. Guest instructor on February 22nd 2015.

Research Mentorship Experience:

Ayesha Ahmed[#]	RU MS Pharmaceutical Sciences	Research Lab	2025 - present
Jaren Orbeck[#]	RU MS Pharmaceutical Sciences	Research Lab	2025 - present
Bobby E. Elliott[$,#]	RU PharmD Candidate	Research Lab	2025 - present
Charlotte Madigan[$,#]	RU PharmD Candidate	Research Lab	2025 - present
Makenna Downing[$,#]	RU PharmD Candidate	Research Lab	2025 - present
Rafid Dipto[$,#]	RU PharmD Candidate	Research Lab	2025 - present

Dlen Nanakaliy[$,#]	RU PharmD Candidate	Research Lab	2025 - present
Alison Gerhardt[$,#]	RU PharmD Candidate	Research Lab	2025 - present
Arpine Mikayelyan	Pharmacy Research Fellow	Research Lab	2025 - present
Harnish D. Shah[$,#]	RU MS Biotech; Adjunct Faculty	Research Lab	2025 - present
Sid Sarfaraz[$,#]	RU BMS; Adjunct Faculty	Research Lab	2024 - present
Aileen Saucedo[#]	RU Undergraduate BS Biology	Research Lab	2024 - present
Bella Vrapcui[$,#]	RU PharmD Candidate	Research Lab	2024 - present
Jessica Armas[$,#]	RU PharmD Candidate	Research Lab	2024 - present
Joseph Noetzel[$,#]	RU PharmD Candidate	Research Lab	2024 - present
Sinni Moozhayil	Pharmacy Lab Manager	Research Lab	2023 - present
Melanie Ortega[#]	RU Undergraduate BS Chemistry	Research Lab	2025
Chenyu Yao[#]	RU MS Pharmaceutical Sciences	Research Lab	2024 - 2025
Leila Ebdair[#]	RU PharmD Candidate	Literature Review	2024 - 2025
Amal Abdelhalim[#]	RU PharmD Candidate	Literature Review	2024 - 2025
Haya Albanna[$,#]	RU PharmD Candidate	Research Lab	2023 - 2025
Alesia Gjoni[$,#]	RU PharmD Candidate	Research Lab	2023 - 2025
Angelina Consalvo[#]	Pharmaceutic Research Fellow	Research Lab	2024
Axel Garcia[#]	RU PharmD Candidate	Research Lab	2023 - 2024
Laura Djambov[$]	RU MA Biological Sciences	Research Lab	2023 - 2024
Danielle Robinette[$,#]	RU PharmD Candidate	Research Lab	2022 - 2024
Gerardo Rodriguez[$]	RU PharmD Candidate	Research Lab	2022
Kascha Brown	RU PharmD Candidate	Literature Review	2022
Jadee Fernandez	RU PharmD Candidate	Literature Review	2022
Elizabeth Ayad[$]	RU PharmD Candidate	Literature Review	2021 - 2022
Kari Brewton[$]	RU PharmD Candidate	Literature Review	2021 - 2022
Pichrasmei Saing[$]	RU PharmD Candidate	Literature Review	2021 - 2022
Tatiana Kojo	RU MA Biological Sciences	Literature Review	2021 - 2022
Silver Homa	RU MS Biotechnology	Research Lab	2021 - 2022
Esmeralda Delgado[#]	RU McNair Scholar; BA Biology	Research Lab	2021 - 2022
Bhavini Patel	RU MS Biotechnology	Research Lab	2021
Faye Tsogas[$]	RU PharmD Candidate	Literature Review	2020 - 2021
Caleb Navarro	RU PharmD Candidate	Literature Review	2020
Pam Chaisompongpun	RU PharmD Candidate	Literature Review	2020
May Alebraheem	RU PharmD Candidate	Literature Review	2019 - 2020
Jillian Snow	UCM Visiting Research Assistant	Research Lab	2019
Shermeen Sheikh	UCM BA Biological Sciences	Research Lab	2018 - 2019
Briana Turner	UCM BA Biological Sciences	Research Lab	2018 - 2019

$ indicates student co-authored a manuscript
# indicates student presented data as internal or external seminar

Student Mentored Abstracts & Presentations:

1. Yao, C., Sarfaraz, S., Saucedo, A., Hart, P.C. Regulation of olaparib resistance in ovarian cancer using serotonin receptor modulators. *American Society for Biochemistry and Molecular Biology* (*ASBMB)*. Chicago, IL, April 13th, 2025. Poster presentation to be delivered by C. Yao.

2. Shah, H.D., Sarfaraz, S., Hart, P.C. Monomeric C-reactive protein (mCRP) promotes chemoresistance to carboplatin in ovarian cancer. *Roosevelt University Research and Inquiry Symposium*. Chicago, IL, April 11th, 2025. Poster presentation to be delivered by H.D. Shah.

3. Yao, C., Sarfaraz, S., Saucedo, A., Hart, P.C. Regulation of olaparib resistance in ovarian cancer using serotonin receptor modulators. *Roosevelt University Research and Inquiry Symposium*. Chicago, IL, April 11th, 2025. Poster presentation to be delivered by C. Yao and S. Sarfaraz.

4. Saucedo, A.G., Moozhayil, S., Consalvo, A., Hart, P.C. Characterization of ovarian cancer cell line sensitivity to olaparib. *West Coast Biological Sciences Undergraduate Research Conference (WCBSURC)*. San Marcos, CA, Apr. 12th, 2025. Poster presentation to be delivered by A.G. Saucedo.

5. Noetzel, J., Armas, J., Vrapciu, B. and Hart, P.C. Potential modulation of mitochondrial function by monomeric C-reactive protein in ovarian cancer. *Roosevelt University Research and Discovery Showcase*. Schaumburg, IL, April 4th, 2025. Oral presentation delivered by J. Noetzel.

6. Albanna, H., and Hart, P.C. ADRA2A activation as a potential mechanism to overcome chemoresistance to carboplatin in ovarian cancer. *American Association of the Colleges of Pharmacy (AACP) Annual PharmD Research Showcase*. Memphis, TN, April 1st, 2025 (virtual). Oral presentation delivered by H. Albanna.

7. Albanna, H., Gjoni, A., Robinette, D. Rodriguez, G., Olson, M.E., Hart, P.C. High-throughput screening identifies ADRA2A activation as a potential mechanism to enhance ovarian cancer cell sensitivity to carboplatin. *American College of Clinical Pharmacy (ACCP) Annual Meeting*. Pheonix, AZ, Oct. 14th, 2024. Poster presentation delivered by H. Albanna.

8. Gjoni, A., Garcia, A., Albanna, H., Potempa, L.A., Hart, P.C. C-reactive protein as a biomarker and potential therapeutic in high-grade serous ovarian cancer. *Illinois Pharmacists Association (IPhA) Annual Meeting Poster Competition.* Springfield, IL, Sept. 28th 2024. Poster presentation by A. Gjoni and A. Garcia.

9. Armas, J., Noetzel, J., Vrapciu, B., Saucedo, A., Moozhayil, S., Consalvo, A., Hart, P.C. Modulation of mitochondrial function by monomeric C-reactive protein (mCRP) in ovarian cancer. *Illinois Pharmacists Association (IPhA) Annual Meeting Poster Competition.* Springfield, IL, Sept. 28th 2024. Poster presentation delivered by J. Armas, J. Noetzel, and B. Vrapciu.

10. Abdelhalim, A.Z., Ebdair, L., Hart, P.C. Evaluation of the effects of monomeric C-reactive protein on epithelial tumor cells. *Illinois Pharmacists Association (IPhA) Annual Meeting Poster Competition.* Springfield, IL, Sept. 28th 2024. Poster presentation delivered by A. Abdelhalim and Leila Ebdair.

11. Saucedo, A., Moozhayil, S., Consalvo, A., Hart, P.C. Characterization of chemosensitivity of high-grade serous ovarian cancer cell lines to olaparib. *Roosevelt University Summer Research Intensive Symposia.* Chicago, IL, Aug. 13th 2024. Poster presentation delivered by A. Saucedo.

12. Robinette, D., Albanna, H., Gjoni, A., Rodriguez, G., Djambov, L., Hart, P.C. Identification of chemosensitizing agents in ovarian cancer via high-throughput screening of an FDA drug library. *American Society of Health-System Pharmacists (ASHP) Midyear*. San Diego, CA, Dec. 6th, 2023. Poster presentation delivered by D. Robinette and A. Gjoni.

13. Robinette, D., Albanna, H., Gjoni, A., Rodriguez, G., Djambov, L., Hart, P.C. Identification of chemosensitizing agents in ovarian cancer via high-throughput screening of an FDA drug library. *Louis Stokes Midwest Regional Center of Excellence*, Oak Brook, IL, Nov. 5th, 2023. Oral presentation delivered by D. Robinette.

14. Robinette, D., Albanna, H., Gjoni, A., Rodriguez, G., Djambov, L., Hart, P.C. Identification of chemosensitizing agents in ovarian cancer via high-throughput screening of an FDA drug library. *Illinois Pharmacists Association (IPhA) Annual Meeting Poster Competition.* Springfield, IL, Sept. 30th, 2023. Poster won first place in the poster competition; delivered by D. Robinette, H. Albanna, and A. Gjoni.

15. Delgado, E., Robinette, D., Rodriguez, G., Patel, B., Homa, S., and Hart, P.C. Mesothelial cell HIF activity regulates ovarian cancer adhesion. *McNair Scholars Conference*. Baltimore, MD, Sept. 17th, 2022. Oral presentation delivered by E. Delgado.

Professional Societies:

Sigma Xi Scientific Research Honor Society [Member]
American Association of Colleges of Pharmacy [Member]
London Journals Press [Honorary Rosalind Member]
American Association for Cancer Research [Past Member]
Society for Redox Biology and Medicine [Past Member]

Research Support

Research Support Pending Resubmission:

R15 NIH AREA Hart (PI) Submitted 02/23/24
Goal: Evaluate therapeutic strategies that repurpose small molecule inhibitors to prevent platinum resistance in ovarian cancer and determine their efficacy as chemosensitizers to second-line therapies in recurrent disease.
Score: 28 (25 payline)
Role: PI

Ongoing Research Support:

RU PRIME Micro-Grant Hart (PI) 11/30/24 – 12/01/25
Goal: Assess the ability of lead compounds thiabendazole and meclizine to overcome chemoresistance of ovarian tumor cells to carboplatin.
Role: PI

Completed Research Support:

RU PRIME Micro-Grant Hart (PI) 12/01/24 – 11/31/25
Goal: Assess the effects of thiabendazole and meclizine in overcoming resistance to carboplatin in high-grade serous ovarian cancer cell lines.
Role: PI

RU Office of Student Research Award Hart (PI) 06/01/24 – 08/31/24
Goal: Evaluate the role of 5-HT receptors on mechanisms of chemosensitization of ovarian cancer epithelial cells to carboplatin.
Role: PI

RU HHMI Research Award Hart (PI) 06/01/24 – 08/31/24
Goal: Determine the effects of monomeric C-reactive protein (mCRP) on cell cycle control in ovarian cancer cell lines.
Role: PI

RU HHMI Research Award Hart (PI) 03/01/24 – 05/31/24
Goal: Evaluate the impact of monomeric C-reactive protein (mCRP) on epithelial-to-mesenchymal transition (EMT) in ovarian cancer.
Role: PI

RU Office of Student Research Award Hart (PI) 06/01/23 – 08/06/23
Goal: Assess the effect of adrenoceptor alpha-2 (ADRA2A) agonists on chemoresistance in ovarian cancer.
Role: PI

RU Office of Student Research Award Hart (PI) 06/01/22 – 08/06/22
Goal: Identify the impact of HIF1 and HIF2 signaling on mesothelial-mesenchymal transition.
Role: PI

RU HHMI Research Award Hart (PI) 06/01/22 – 08/06/22
Goal: Determine the impact of HIF signaling on epithelial ovarian cancer proliferation, clonogenicity, invasion and adhesion to the mesothelium.
Role: PI

McNair Scholar Program Award Hart (PI) 06/01/22 – 08/06/22
Goal: Evaluate the role of hypoxia-dependent HIGD2A on metastasis and chemoresistance of epithelial ovarian cancer. Research support includes consumables/reagents and stipend support for a research assistant.
Role: PI

AACP New Investigator Award Hart (PI) 03/01/21 – 09/30/22
Goal: Develop a novel 3D organotypic model of transendothelial migration into the submesothelium of the peritoneum to evaluate the ability of metformin to alter T-cell differentiation and migration.
Role: PI

McNair Scholar Program Award Hart (PI) 06/01/21 – 08/06/21
Goal: Assess mesothelial cell-dependent HIF1 and HIF2 signaling in the tumor microenvironment of epithelial ovarian cancer.
Role: PI

L30 NIH Loan Repayment Hart (PI) 08/15/18 – 07/15/20
Goal: Evaluate the ability of metformin to inhibit HIF-dependent stromal reprogramming in *in vitro* and *in vivo* models of ovarian cancer metastasis.
Role: PI

P50 CA136393 Kaufmann (PI) 09/11/15 – 10/07/19
Goal: SPORE project aimed to understand the mechanism by which metformin mitigates metabolic changes in tumor cells and to determine whether metformin can be used in clinical practice as a cancer drug.
Role: Postdoctoral Scholar

Colleen's Dream Foundation Hart (PI) 11/01/17 – 11/01/18
Goal: Foundation grant to utilize unbiased comprehensive proteomic approaches to assessing the ability of ovarian cancer cells to reprogram the stroma of the omentum, including mesothelial cells and fibroblasts.
Role: PI (Postdoctoral Scholar)

UL1 TR000430 Hart (PI) 11/01/16 – 11/01/17
Goal: Subsidy to offset University of Chicago Genomics Core facility costs for a series of microarray analyses to determine the effects of physiological doses of metformin on stromal cells.
Role: PI (Postdoctoral Scholar)