POORVA GHOSH

ghosh.poorva@gmail.com 650-996-7874

EDUCATION:

PhD (Molecular and Cell biology)	University of Texas at Dallas, USA	2020
MS (Molecular and Cell biology)	University of Texas at Dallas, USA	2016
MSc (Biotechnology)	Savitribai Phule Pune University, India	2011
BSc (Biotechnology)	Savitribai Phule Pune University, India	2009

RESEARCH EXPERIENCE:

1. Corvus Pharmaceuticals, Inc.

Supervisor- Lyn Hsu
Position- Scientist II

This position is an integral part of the biology team at Corvus. In my position, I investigate novel mechanisms of action of Corvus small molecule drugs using immunology and pharmacology techniques leveraging my cancer drug discovery experience. My experiments span from areas of mechanism of action studies, to biomarker discovering as well as screening of new lead drug candidates to accelerate the solid tumor pipeline at Corvus.

2. The O'Donnell Laboratory at the University of Texas Southwestern Medical Center

P.I - Kathryn O'Donnell
Position- Postdoctoral researcher
Research projects:

- **Investigating the therapeutic potential of antibodies targeting a novel oncogene (cell surface protein) in lung cancer**

  Identified and investigated the therapeutic efficacy of a lead monoclonal antibody candidate inhibiting the cell surface protein PCDH7, using tumor models of lung cancer. Investigated the mechanism of action of this candidate.
- **Investigating the role of eukaryotic translation initiation factor eIF5B in lung tumorigenesis**

  Generated a transgenic mouse model expressing eIF5B as well as generated mouse models with a conditional knockout of eIF5B using CRISPR approaches to study the oncogenic role of eIF5B in growth and progresssion of lung adenocarcinomas.

3. The Li Zhang Laboratory at The University of Texas at Dallas P.I- Li Zhang

Position – Graduate student
Research Projects:

The project is focused on investigating the role of heme flux in lung cancer growth and progression *in vivo*

- **Investigating the impact of limiting heme availability on hypoxia and vascularization in NSCLC tumors** Utilized various strategies to limit heme such as, treatment with mitochondria targeting drugs like Cyclopamine tartrate and heme sequestering peptides and investigated the impact of the same on hypoxia and vascularization status of NSCLC tumor

xenograft models in NOD/SCID mice using Multispectral Optoacoustic tomography.

- **Evaluating the efficacy of heme sequestrants in targeting NSCLC tumor growth using murine models** Purified and characterized heme sequestrants and evaluated their efficacy in limiting heme availability and itsimpact on NSCLC tumor growth. Evaluated acute and sub-acute toxicity levels of the heme sequestrants in mice.
- **Investigating the role of heme in progression of lung cancer in Genetically engineered mouse models** Assessed the role of heme flux and function in lung cancer progression using firefly luciferase expressing *Kras* ^{G12D} *Lkb1*$^{-/-}$ mice.

4. **The Reitzer Laboratory at University of Texas at Dallas**

   P.I – Laurence Reitzer

   Position- Graduate student (Laboratory rotation)

   Research Project:

   Understanding glycine metabolism in *Moroxella catarrhalis*

   The project aimed at disrupting the gene gcvt (glycine cleavage system) in Moraxella catarrhalis (respiratory pathogen) to understand the glycine metabolism in this organism.

5. **Research project (MSc Biotechnology)**

   A research project as part of curriculum at Modern college, University of Pune, India. The project involved studying the effects of pesticides on the storage pest *Tribolium casteneum.*

6. **Research project (BSc Biotechnology)**

   A research project as part of the curriculum at HPT Arts and RYK Science College, University of Pune, India.
   The project involved studying the microbial degradation of organophosphate pesticides in soil isolates.

WORK EXPERIENCE:

Scientist II August 2022-Present
Corvus Pharmaceuticals, Inc.

Postdoctoral researcher June 2020-July 2022
O'Donnell Lab, UT Southwestern Medical Center

Graduate teaching assistant August 2019- June 2020
Cell and molecular biology Lab

Graduate research assistant January 2018-August 2019
Dr. Li Zhang Lab

Graduate teaching assistant
Cell and molecular biology Lab, Biochemistry Lab, August 2013-December 2017
Introduction to modern biology

Lecturer
H.P.T Arts and R.Y.K Science college, Nashik, India July 2012-May 2013

PUBLICATIONS:

1. **Ghosh P**, Mason RP, Liu L, and Zhang L. Modulation of heme and tumor vascular oxygenation – a novel strategy for lung cancer therapy. *Oncoscience*, 2022 DOI: 10.18632/oncoscience.569

2. Dey S, Ashrafi A, Vidal C, Jain N, Kalainayakan S, **Ghosh P**, Alemi P, Konduri P, Jung-Whan Kim, and Li Zhang. Heme sequestration effectively suppresses the development and progression of both lung adenocarcinoma and squamous cell carcinoma *Mol Cancer Res* 2021 DOI: 10.1158/1541-7786.MCR-21-0385
3. Wang T, Ashrafi A, Konduri PC, **Ghosh P**, Dey D, Modareszadeh P, Salamat N, Alemi PS, Berisha E and Zhang L. Heme sequestration as an effective strategy for the suppression of tumor growth and progression. *Mol Cancer Ther* 2021 DOI: 10.1158/1535-7163.MCT-21-0033
4. **Ghosh P**, Guo Y, Ashrafi A, Chen J, Dey S, Zhong S, Liu J, Campbell J, Konduri P, Gerberich J, Garrossian M, Mason RP, Zhang L, and Liu L Oxygen- enhanced optoacoustic tomography reveals the effectiveness of targeting heme and oxidative phosphorylation at normalizing tumor vascular oxygenation. Cancer Res; 2020 (80) (17) 3542-3555.
5. **Ghosh P**., Vidal C., Dey S., and Zhang L. Mitochondria Targeting as an Effective Strategy for Cancer Therapy. Int. J. Mol. Sci. 2020, 21, 3363; doi:10.3390/ijms21093363
6. Sohoni S*, **Ghosh P*,** Wang T, Kalainayakan SP, Vidal C, Dey S and Zhang L. Elevated heme synthesis and uptake underpin intensified oxidative metabolism and tumorigenic functions in non-small cell lung cancer cells. Cancer Res; 2019; 79:2511-2525 (* Equal contribution towards first author)
7. Kalainayakan SP, **Ghosh P**, Dey S, Fitzgerald K, Konduri P, Sohoni S, Garrossian M Liu.L and Zhang L. Cyclopamine tartrate, a modulator of hedgehog signaling and mitochondrial respiration, effectively arrests lung tumor growth and progression. Scientific Reports volume 9, Article number: 1405 (2019)
8. Dey S, Kumari S, Kalainayakan, SP, Campbell J, **Ghosh P**, Zhou H, FitzGerald KE, Mason RP, Zhang L, and Liu L,The vascular disrupting agent combretastatin A-4 phosphate causes prolonged elevation of proteins involved in heme flux and function in resistant tumor cells. Oncotarget 9, 4090-4101 (2018).
9. **Ghosh P**, Sawant N, Patil SN and Aglave B. Microbial degradation of organophosphate pesticides, International Journal of Biotechnology and Biochemistry 0973-2691 volume 6 number 6(2010) pp. (871-876)

MANUSCRIPTS IN PROGRESS:

1. Novaresi N, **Ghosh P,** Deng H, Xiong W, Ku Z, Zhu J, Zhou X, Ahn C, Li M, Minna JD, An Z, Zhang N, O'Donnell KA. Therapeutic targeting of PCDH7 in lung adenocarcinoma (Under review at Science Advances)
2. Kurleto, K.**, Ghosh, P**., Novaresi, N., Suresh, S., Zhu, J., Nguyen, M., Zhang, H., Ahn, C., Hammer, R., Minna, JD., O'Donnell, KA. Investigating the oncogenic activity of eukaryotic translation initiation factor eIF5B in lung adenocarcinoma (Manuscript in progress)

PATENTS:

Ningyan Zhang, Zhiqiang An, Hui Deng, Zhiqiang Ku, Wei Xiong**, Poorva Ghosh,** Nicole Novaresi, Kathryn O'Donnell, 2023**. MONOCLONAL ANTIBODIES AGAINST PCDH7 FOR LUNG CANCER THERAPY,** US patent Serial no. 63/515,000 filed July 21, 2023, Patent pending.

CONFERENCE PRESENTATIONS/ABSTRACTS:

1. Hsu,L., Pawar,R., Li,D., **Ghosh,P**., Nguyen,K., Williams, C., Ding, N., Verner, E., and Richard Miller. Selective ITK Blockade Induces Antitumor Responses and Enhances Efficacy to Immune Checkpoint Inhibitors in Preclinical Models. American Association of Cancer Research Annual meeting 2023 (Poster)

2. Li D., **Ghosh P**., Hsu L., Miller R., Selective A2AR Blockade Synergizes with Immune Checkpoint Therapy by Potentiating Proinflammatory Th1 Helper Cell Responses. Japanese Cancer Association and American Association for Cancer Research (JCA-AACR) Precision Cancer Medicine International Conference, 2023 (Poster)

3. **Ghosh, P**., Novaresi, N., Suresh, S., Zhu, J., Nguyen, M., Zhang, H., Ahn, C.,Hammer, R., Minna, JD., O'Donnell, KA. Investigating the oncogenic activity of eukaryotic translation initiation factor eIF5B in lung adenocarcinoma. Lung Cancer SPORE Workshop 2022 (Talk)

4. **Ghosh, P.,** Kalainayakan,S.P., Dey, S., Ashrafi.A and Zhang, L. Limiting heme availability as an effective strategy to target lung cancer growth and progression *in vivo.* Proceedings of the American Association for Cancer Research Annual Meeting 2019 (Poster).
5. Ashrafi. A**, Ghosh, P.,** Sohoni.S., and Zhang, L. To investigate the role of heme flux and function in growth and progression of NSCLC in vivo. Proceedings of the American Association for Cancer Research Annual Meeting 2019 (Poster).
6. **Ghosh, P.,** Kalainayakan,S.P., Dey, S., and Zhang, L. To examine the effect of limiting heme bioavailability on lung cancer growth and progression Proceedings of the American Association for Cancer Research Annual Meeting 2018; DOI**:** 10.1158/1538-7445.AM2018-786 (Poster).
7. Kalainayakan, S.P**., Ghosh, P.,** Dey, S, Liu, L., and Zhang, L. Targeting mitochondrial function in lung tumor growth and progression [abstract]. In: Proceedings of the American Association for Cancer Research Annual Meeting 2018 DOI: 10.1158/1538-7445.AM2018-5490 (Poster).
8. Kalainayakan, S.P**., Ghosh, P.,** Dey, S., FitzGerald, K.E., Liu, L., and Zhang, L. Developing therapeuticstrategies for lung cancer treatment by targeting heme and mitochondrial function. 2017 Innovations in Cancer Prevention and Research Conference (Poster)
9. **Ghosh, P.,** Kalainayakan,S.P., Dey, S., and Zhang, L.Evaluating the efficacy of limiting heme availability on growth and progression of lung tumor. Proceedings of the American Association for Cancer Research 2017, DOI: 10.1158/1538-7445.AM2017-1500(Poster)
10. Kalainayakan, S.P., **Ghosh, P.,** Dey, S., and Zhang, L. Assessing the efficacy of targeting mitochondrial respiration in delaying lung tumor growth by using subcutaneous xenografts in mouse models, Proceedings of the American Association for Cancer Research 2017, DOI:10.1158/1538-7445.AM2017-2129 (Poster)

HONORS/AWARDS:

PhD research small grant
(Travel award by the Office of graduate education at UT Dallas) December 2019

First class with distinction in Master of Science in Biotechnology, degree conferred by Savitribai Phule Pune University, India.

First class with distinction in Bachelor of Science in Biotechnology, degree conferred by Savitribai Phule Pune University, India.

SCHOLARSHIPS:

Graduate Scholarship awarded by UT Dallas Fall 2013-May 2020

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

Editorial Board Member- Biochemistry and Molecular Biology (Science Publishing Group)

Associate member in American Association of Cancer Research 2015- Present

Member in American Association for the Advancement of Science 2018- Present