

CURRICULUM VITAE

YANGZOM DOMA BHUTIA, DVM, PhD

OFFICE ADDRESS

Cell Biology and Biochemistry
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EDUCATION

Year	Institute	Discipline	Degree
2008	Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh, India	Veterinary Medicine	PhD
2004	Acharya N.G. Ranga Agricultural University, Andhra Pradesh, India	Clinical Veterinary Medicine	MVSc
2001	Marathwada Agricultural University, Parbhani, Maharashtra, India	Veterinary Science	DVM

PROFESSIONAL EXPERIENCE

2017- present	<i>Assistant Professor (Tenure Track)</i> , Texas Tech University Health Science Center, Lubbock, TX 79430.
2014- 2017	<i>Assistant Professor (Research Track)</i> , Texas Tech University Health Science Center, Lubbock, TX 79430.
2013-2014	<i>Assistant Research Scientist</i> , Georgia Regents University, Augusta GA, 30912
2011-2013	<i>Postdoctoral Fellow</i> , Georgia Regents University, Augusta GA, 30912
2009-2011	<i>Postdoctoral Fellow</i> , University of Georgia, School of Pharmacy Athens GA, 30602
2008-2009	<i>Research Assistant</i> , Central Zoo Authority, Ministry of Environment and Forests

HONORS AND AWARDS

- 1996-2001 Awarded Indian Council of Agricultural Research (ICAR) State Education Fellowship
- 2001-2004 Awarded Junior Research Fellowship (JRF) by the Indian Council of Agricultural Research (ICAR)
- 2004-2008 Awarded Senior Research Fellowship (SRF) at the Indian Veterinary Research Institute (IVRI)
- 2008 Qualified Indian Council of Agricultural Research (ICAR)-National Eligibility Test (ICAR- NET) as an eligibility for teaching Life Sciences
- 2011 AAPS Exceptional Abstract & Podium Presentation Award, AAPS Workshop on Drug Transporters, Washington DC
- 2019 Podium presentation on Biomedical Transporters Conference, Lucerne, Switzerland, August 2019

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

- American Association for Cancer Research (AACR)
- American Association of Pharmaceutical Scientists (AAPS)
- Indian Society of Veterinary Medicine (ISVM)
- Veterinary Council of India (VCI)
- Sikkim Veterinary Council (SVC)

EDITORIAL REVIEWER

- EBioMedicine
- Clinical Science
- Cellular Physiology and Biochemistry
- Bioscience Reports
- Biomedicine and Pharmacotherapy

TEACHING EXPERIENCE

GBCM 6333, Advanced Protein Biochemistry

- SLC transporters: Classification, function and relevance to health and disease to Master's and PhD students at TTUHSC since 2017- present.

GSBS 5372, Core II: Cells

- Introduction to cancer to Master's and PhD students at TTUHSC since 2018-present.

Physiology, Major Organ Systems

- Salivary, Gastric, and Pancreatic Secretions to first year Medical students at TTUHSC since 2018- present.

Major Advisor for Graduate Students (Ph.D.) and Biotechnology (Master's student)

- Bradley Schniers, 2018-present
- Ksenija Korac, 2019- present
- Varsha Ravi, 2019-present

Graduate Student Thesis Committee Member (Ph.D. & M.D./Ph.D.)

- Bojana Ristic, 2016-present
- Mohd. Omar Sikder, 2016-present
- Timothy Brown, 2017-present
- Jonathan Koppel, 2018-present
- Josue Enriquez, 2018-present
- Kevin Bass, 2019-present

Postdoctoral Fellows

- Toshihiro Sato, 2017-2018
- Devaraja Rajasekaran, 2018-present

PEER-REVIEWED PUBLICATIONS

1. Ristic B., Sikder O.M.F., **Bhutia Y.D.**, and Ganapathy, V. (2020) Pharmacologic inducers of the uric acid exporter ABCG2 as potential drugs for treatment of gouty arthritis. *Asian J. Pharm. Sci.* (in press).
2. Ogura, J., Sato, T., Higuchi, K., **Bhutia, Y.D.**, Babu, E., Masuda, M., Miyauchi, S., Rueda, R., Pereira, S.L. and Ganapathy, V. (2019). Transport Mechanisms for the nutritional supplement β -hydroxy- β -methylbutyrate (HMB) in mammalian cells. *Pharm Res* 36:84 doi: 10.1007/s11095-019-2626-3.
3. Kou L., Sun J., **Bhutia Y.D.**, Yao Q. and Chen R. (2018) Emerging advances in P-glycoprotein inhibitory nanomaterials for drug delivery. *Expert Opin Drug Deliv* 15:869:879.
4. Kou L., **Bhutia Y.D.**, Yao Q., He Z., Sun J. and Ganapathy V. (2018) Transporter-guided delivery of nanoparticles to improve drug permeation across cellular barriers and drug exposure to selective cell types. *Front Pharmacol* 26:9:27.
5. Sivaprakasam S., **Bhutia Y.D.** and Ganapathy V. (2017) Short-chain fatty acid transporters: Role in colonic homeostasis. *Compr Physiol* 12:299-314.
6. Sikder M.O.F., Yang S., Ganapathy V. and **Bhutia Y.D.** (2017) The Na⁺/Cl⁻-coupled, broad specific, amino acid transporter SLC6A14 (ATB⁰⁺): Emerging roles in multiple diseases and therapeutic potential for treatment and diagnosis. *AAPS J* 20:12.doi.1208/s12248-017-0164-7.

7. Ogura J., Miyayuchi, S., Shimono K., Yang S., Gonchigar S., Ganapathy V. and **Bhutia Y.D.** (2017) Carbidopa is an activator of aryl hydrocarbon receptor with potential for cancer therapy. *Biochem J* 474:3391-3402.
8. Sivaprakasam S., **Bhutia Y.D.**, Ramachandran S. and Ganapathy V. (2017) Cell-surface and nuclear receptors in the colon as targets for bacterial metabolites and its relevance to colon health. *Nutrients* 9.pii:E856. doi:10.3390/nu9080856.
9. Ristic B., **Bhutia Y.D.** and Ganapathy V. (2017) Cell-surface G-protein coupled receptors for tumor-associated metabolites: A direct link to mitochondrial dysfunction in cancer. *Biochim Biophys Acta* 1868:246-257.
10. **Bhutia Y.D.**, Ogura, J., Sivaprakasam, S. and Ganapathy, V. (2017). Gut microbiome and colon cancer: Role of bacterial metabolites and their molecular targets in the host. *Curr Colorectal Cancer Rep* 13:111-118.
11. **Bhutia, Y.D.**, Kopel, J.J., Lawrence, J.J., Neugebauer, V. and Ganapathy V. (2017). Plasma membrane Na⁺- coupled citrate transporter (SLC13A5) and neonatal epileptic encephalopathy. *Molecules* 22(3),378; doi:10.3390/molecules22030378.
12. Coothankandaswamy, V., Cao, S., Xu, Y., Prasad, P. D., Singh, P. K., Reynolds, C.P., Yang, S., Ogura, J., Ganapathy, V., and **Bhutia, Y. D.** (2016) Amino acid transporter SLC6A14 is a novel and effective drug target for treatment of pancreatic cancer. *Br J Pharmacol* 173; 3292-3306.
13. **Bhutia, Y.D.**, Babu, E. and Ganapathy, V. (2016). Re-programming tumor cell metabolism to treat cancer: no lone target for lonidamine. *Biochem J* 473:1503-6.
14. **Bhutia, Y.D.**, Babu, E., Ramachandran, S., Yang, S., Thangaraju, M. and Ganapathy, V. (2016). SLC transporters as a novel class of tumor suppressors: identity, function and molecular mechanisms. *Biochem J* 473:1113-24.
15. Arjunan, P., Gnanaprakasam, J.P., Ananth, S., Romej, M.A., Rajalakshmi V.K., Prasad, P.D., Martim, P.M., Gurusamy, M., Thangaraju, M., **Bhutia, Y.D.** and Ganapathy, V. (2016). Increased retinal expression of the pro-angiogenic receptor GPR91 via BMP6 in a mouse model of juvenile hemochromatosis. *Invest Ophthalmol Vis Sci* 57:1612-9.
16. **Bhutia, Y.D.** and Ganapathy, V. (2015) Glutamine transporters in mammalian cells and their function in physiology and cancer. *Biochim Biophys Acta* 1863:2531-9. (Invited Review for a special issue entitled “Mitochondrial channels”).
17. **Bhutia, Y.D.**, and Ganapathy, V. (2015) Short, but smart: SCFAs train T cells in the gut to fight autoimmunity in the brain. *Immunity* 43(4): 629-31.
18. Babu, E., **Bhutia, Y.D.**, Ramachandran, S., Gnana-Prakasam, J.P., Thangaraju, M., Prasad, P.D. and Ganapathy, V. (2015). Deletion of the amino acid transporter Slc6a14

suppresses tumor growth in spontaneous models of breast cancer. *Biochem J* 469: 17-23. **(Accelerated Publication)**

19. Gurav, A., Sivaprakasam, S., **Bhutia, Y.D.**, Boettger, T., Singh, N., and Ganapathy, V. (2015) Slc5a8, a Na⁺-coupled high-affinity transporter for short-chain fatty acids, is a conditional tumor suppressor in colon that protects against colitis and colon cancer under low-fiber dietary conditions. *Biochem J* 469: 267-278.
20. **Bhutia, Y.D.**, Babu, E., Ramachandran, S., and Ganapathy, V. (2015) Amino Acid Transporters in Cancer and Their Relevance to “Glutamine Addiction”: Novel Targets for the Design of a Brand New Class of Anticancer Drugs. *Cancer Res* 75:1782-1788. (Invited Review)
21. Bardhan, K., Paschall, A.V., Yang, D., Chen, M.R., Simon, P.S., **Bhutia, Y.D.**, Martin, P.M., Thangaraju, M., Browning, D.D., Ganapathy, V., Heaton, C.M., Gu, K., Lee, J.R., Liu, K. (2015) IFN γ induces DNA methylation-silenced GPR109A expression via pSTAT1/p300 and H3K18 acetylation in colon cancer. *Cancer Immunol Res* 3: 795-805.
22. Gopal, E., Babu, E., Ramachandran, S., **Bhutia, Y. D.**, Prasad P.D., and Ganapathy, V. (2015) Species-specific influence of Lithium on the activity of SLC13A5 (NaCT): Lithium-induced activation is specific for the transporter in primates. *J Pharmacol Exp Ther* 353 (1): 17-26.
23. Hung, S. W., Marrache, S., Cummins, S., **Bhutia, Y. D.**, Mody, H., Hooks, S. B., Dhar, S., and Govindarajan, R. (2015) Defective hCNT1 transport contributes to gemcitabine chemoresistance in ovarian cancer subtypes: Overcoming the transport defects using a nanoparticle approach. *Cancer Lett* 359(2): 233-40.
24. **Bhutia, Y.D.**, Babu, E., Prasad, P.D., and Ganapathy, V. (2014). The amino acid transporter SLC6A14 in cancer and its potential use in chemotherapy. *Asian Journal of Pharmaceutical Sciences. Review Article.*
25. **Bhutia, Y.D.**, Ellappan, B. and Ganapathy, V. (2014). Interferon- γ induces a tryptophan-selective amino acid transporter in human colonic epithelial cells and mouse dendritic cells. *Biochim Biophys Acta* 1848: 453-462.
26. Ananth, S., Gnana-Prakasam, J. P., **Bhutia, Y. D.**, Martin, P. M., Smith, S. B., and Ganapathy, V. (2013) Regulation of the cholesterol efflux transporters ABCA1 and ABCG1 in retina in hemochromatosis and by the endogenous siderophore 2,5-dihydroxybenzoic acid. *Biochim Biophys Acta* 1842: 603-612.
27. Hung, S.W., Mody, H., Marrache, S., **Bhutia, Y.D.**, Davis, F., Cho, J.H., Zastre, J., Dhar, S., Chu, C.K., and Govindarajan, R. (2013) Pharmacological reversal of histone methylation presensitizes pancreatic cancer cells to nucleoside drugs: In vitro optimization and novel nanoparticle delivery studies. *PLoS One* 8: e71196.

28. **Bhutia, Y.D.**, Hung, S.W., Krentz, M., Patel, D., Lovin, D., Manoharan, R., Thomson, M., and Govindarajan, R. (2013) Differential processing of *let-7a* precursors influences RRM2 expression and chemosensitivity in pancreatic cancer: Role of LIN-28 and SET oncoprotein. *PLoS One* 8: e53436.
29. **Bhutia, Y.D.**, Hung, S.W., Patel, B., Lovin, D., and Govindarajan, R. (2011) CNT1 expression influences proliferation and chemosensitivity in drug-resistant pancreatic cancer cells. *Cancer Res* 71: 1825-1835.
30. **Bhutia, Y.D.**, Hung, S.W., Patel, B., Lovin, D., and Govindarajan, R. (2011) Modification of chemotherapy resistance in pancreatic cancer cells. *Breaking Advances Highlights from Recent Cancer Literature. Cancer Research* 71: 3173-3174.
31. Kang, N., Jun, A.H., **Bhutia, Y.D.**, Kannan, N., Unadkat, J., and Govindarajan, R. (2010). Human equilibrative nucleoside transporter- 3 (hENT3) spectrum disorder mutations impair nucleoside transport, protein localization and stability. *J Biol Chem* 285: 28343–28352.
32. **Bhutia, Y.D.**, Saini, M., Sharma, A.K., Sharma, B., and Swarup, D. (2009). Efficacy of *Curcuma longa* extract against DMBA induced skin cancer. *Journal of Applied Animal Research* 36: 291-296.
33. **Bhutia Y.D.**, Ogura J., Grippo P.J., Torres C., Sato, T., Wachtel M., Ramachandran S., Babu E., Sivaprakasam S., Rajasekaran, D., Schniers, B., On, N., Smoot, L., Thangaraju M., Gnanaprakasam J.P. and Ganapathy, V. (2018). Chronic exposure to excess iron promotes EMT and cancer via p53 loss in pancreatic cancer. *Asian J Pharmaceutical Sciences* (under revision).

BOOK CHAPTERS

1. **Bhutia Y.D** and Ganapathy V. (2018). Digestion and absorption of dietary carbohydrate, protein, and fat. In: **Sleisenger and Fordtran's Gastrointestinal and Liver Disease: Pathophysiology/Diagnosis/Management** (ed. Lawrence, B.J.), 11th Edition, in press.
2. **Bhutia Y.D** and Ganapathy V. (2018). Protein digestion and absorption. In: **Physiology of the Gastrointestinal Tract** (ed. Said, H.M.), 6th Edition, pp.1063-1086.in press.
3. **Bhutia Y.D** and Ganapathy V. (2015). A novel tryptophan-selective amino acid transporter that is functionally coupled to IDO1-dependent signaling pathways. In: **New Developments in Tryptophan Research** (edited by V. Haynes), pp. 143-153. Nova Science Publishers.

ABSTRACTS

1. **Bhutia, Y.D.** and Ganapathy, V. SLC6A14 as a molecular target for metformin and its relevance to the therapeutic potential of the drug for pancreatic cancer. Biomedical Transporters Conference 2019, Lucerne, Switzerland. August 4-8, 2019.
2. On, N., Rajasekaran, D. **Bhutia, Y.D.** Metformin inhibits SLC6A14, an amino acid transporter that drives pancreatic cancer growth. The 10th Texas Tech Annual Biological Sciences Symposium, at Texas Tech University, Lubbock TX. April 26-27, 2019.
3. Smoot, L. and **Bhutia, Y.D.** Mechanism of upregulation of SLC6A14 in pancreatic cancer. Undergraduate Research Conference (TTU URC) 2019 at Texas Tech University, Lubbock TX. April 2- 3, 2019.
4. Schniers, B.K. and **Bhutia, Y.D.** PEPT1 as a tumor promoter and novel drug target to treat pancreatic cancer. AACR Annual meeting 2019, Atlanta, GA March 29-April 3, 2019 (Abst. #).
5. Rajasekaran, D., Ogura, J., Wachtel, M., Ramachandran, S., Babu, E., Sivaprakasam, S., Grippo, P.J., Torres, C., Thangaraju, M., Gnanaprakasam, J.P. and **Bhutia, Y.D.** Chronic exposure to excess iron promotes EMT and cancer via p53 loss in pancreatic cancer. AACR Annual meeting 2019, Atlanta, GA March 29-April 3, 2019 (Abst. # 1889).
6. **Bhutia, Y.D.** and Ogura, J. 2016. Chronic exposure to excess iron promotes metastatic phenotype and couples the process to amino acid nutrition in pancreatic cancer cells. AAPS Annual meeting and exposition, Denver, CO November 13- November 17, 2016 (Abst. # 36W0230).
7. **Bhutia, Y. D.**, Coothankandaswamy, V., Cao, S., Xu, Y., Ganapathy, V. 2014. The amino acid transporter SLC6A14 is an effective drug target for treatment of pancreatic cancer. AACR Annual Meeting, San Diego, CA, April 5- 9 (Abst. # 4340).
8. Ellappan, B., **Bhutia, Y.D.**, Thangaraju, M., Prasad, P.D. and Ganapathy, V. 2014. Genetic deletion or pharmacologic blockade of the amino acid transporter Slc6a14 in mice suppresses breast cancer induced by Polyoma middle T oncogene. AACR Annual Meeting, San Diego, CA, April 5- 9 (Abst. # 3928).
9. Hung, S.W., Mody, H., Marrache, S., **Bhutia, Y.D.**, Davis, F., Cho, J.H., Dhar, S., Chu, K.K. and Govindarajan, R. 2013. Optimized DZNep exposure presensitizes pancreatic cancer cells to anticancer nucleoside analogues: potential clinical implications. AACR Annual Meeting, San Diego, CA, April 5- 9 (Abst. # 1025).
10. **Bhutia, Y.D.**, Hung, S.W., Thomson, M. and Govindarajan, R. 2012. Differential processing of let 7a precursors influences gemcitabine chemosensitivity in pancreatic cancer: Role of ribonucleotide reductase subunit M2. AACR Annual Meeting, Washington, DC, April 6- 10 (Abst. # A31).
11. **Bhutia, Y.D.**, Singh, N. and Ganapathy, V. 2012. Deletion of slc5a8 in mice promotes metabolic syndrome, colonic inflammation, and colon cancer: A phenomenon dependent on dietary fiber content. AACR Annual Meeting, Chicago, IL, March 14-March 16 (Abst. # 26).

12. **Bhutia, Y.D.**, Patel, B., Hung, S.W., Lovin, D. and Govindaran, R. 2010. CNT1 expression influences proliferation and chemosensitivity in drug-resistant pancreatic cancer cells. AAPS workshop on drug transporters in ADME: From the bench to bedside, Bethesda, MD, March 14- March 16.
13. Hung, S.W., **Bhutia, Y.D.**, Patel, B., Lovin, D. and Govindarajan, R. 2010. Human equilibrative nucleoside transporter 1 (hENT1) facilitates E-cadherin-mediated increase of gemcitabine sensitivity in human pancreatic cancer cells. 2010 AAPS Annual meeting and exposition /FIP pharmaceutical sciences world congress, New Orleans, Louisiana, November 14- November 18.
14. **Bhutia, Y.D.**, Patel, B., Hung, S.W., Lovin, D. and Govindaran, R. 2010. Human concentrative nucleoside transporter-1 (hCNT1) regulates pancreatic cancer cell proliferation and improves gemcitabine efficacy. 2010 AAPS Annual meeting and exposition /FIP pharmaceutical sciences world congress, New Orleans, Louisiana, November 14- November 18.
15. Kent, J.M., **Bhutia, Y.D.** Govindarajan, R. 2009. Profiling, localization and function of nucleoside transporter expression in pancreatic cancer. 2009 AAPS Annual meeting and exposition, Los Angeles, California, November 8- November 12 (Abst. # R6103).
16. Cummins, S., Patel. B., **Bhutia, Y.D.** and Govindarajan, R. 2009. Diminution of concentrative nucleoside transporter 1 (CNT1) activity in human ovarian cancer cells: subtype-dependent gemcitabine response to exogenously expressed hCNT1. UGA conference on drug discovery, November 5, 2009.
17. **Bhutia, Y.D.**, Patel, B. and Govindarajan, R. 2009. Cell cycle dependent expression of nucleoside transporters regulates gemcitabine transport in human pancreatic cancer cells. UGA conference on drug discovery, November 5, 2009.

POSTER PRESENTATIONS

1. Biomedical Transporters Conference 2019, Lucerne, Switzerland. August 4-8, 2019.
2. American Association for Cancer Research (AACR) Annual Meeting March 29-April 3, 2019 Atlanta, GA
3. AAPS Annual meeting and exposition, Denver, CO November 13- November 17, 2016
4. American Association for Cancer Research (AACR) Annual Meeting April 2014, San Diego, California
5. American Association for Cancer Research (AACR) Annual Meeting April 2012, Washington, DC
6. American Association for Cancer Research (AACR) Annual Meeting April 2012, Chicago, IL
7. American Association of Pharmaceutical Sciences (AAPS) workshop on drug transporters in ADME: From the bench to bedside, March 2011, Bethesda, MD
8. American Association of Pharmaceutical Sciences (AAPS) Annual meeting and exposition /FIP pharmaceutical sciences world congress, November 2010, New Orleans, Louisiana
9. AAPS Annual meeting and exposition, November, 2009, Los Angeles, California

10. University of Georgia conference on Drug Discovery, November, 2009, Athens GA

CURRENT GRANT SUPPORT

1. 1 R03 CA223271-01A1, “Carbidopa as an inhibitor of the Trp/IDO1 functional complex: A novel immunotherapy agent.” (\$153,000, 01/01/2019-12/31/2020).
Bhutia (Principal Investigator)

PAST GRANT SUPPORT

1. South Plains Foundation, “Therapeutic potential of Carbidopa for treatment of pancreatic cancer as a single-agent for chemotherapy. (\$15,000, 09/01/2016-08/31/2016)
Bhutia (Principal Investigator)
2. CH Foundation Seed Grant, “Hemochromatosis promotes pancreatic cancer and induces drug resistance.” (\$75,000, 01/01/2017- 12/31/2017)
Bhutia (Principal Investigator)
3. Abbot, “Identification of transporters for HMB Part 2.” (\$43,550, 05/01/2016-12/31/2016)
Bhutia (Principal Investigator)
4. Abbot, “Identification of transporters for HMB Part 3.” (\$46,000, 03/01/2017-11/30/2017).
Bhutia (Co-Investigator)
5. LWBIWH/UMC seed grant, “SLC6A14 and GPR81 in the Pap smear derived cells as a predictive biomarker for early detection of cervical dysplasia/cancer.” (\$20,000, 01/01/2018- 12/31/2018).
Bhutia (Principal Investigator)