**SWARNALI ACHARYYA**

**Overview**

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**Academic Appointments**

* Assistant Professor of Pathology & Cell Biology

**Research**

The Acharyya laboratory is focused on understanding mechanisms of cancer progression and metastasis as well as the systemic effects of metastasis.Over 90% of cancer-related deaths in solid tumors are due to metastasis, which is the process of dissemination and growth of cancer cells in vital organs. During cancer progression, tumors systemically reprogram host physiology, metabolism, and immune responses. These systemic effects are mediated by the release of soluble factors, exosomes, and metabolites by tumors into the circulation. In metastatic disease, these systemic effects even impact tissues where cancer cells rarely metastasize, such as skeletal muscle, and leads to a debilitating muscle-wasting syndrome, known as cachexia. Cachexia is associated with a reduced tolerance to anti-neoplastic therapy, which contributes to poor prognosis and accelerated death in cancer patients. The Acharyya laboratory seeks to understand the mechanisms that drive cachexia, and to develop strategies that can treat cachexia.

**Selected Publications**

1. **Understanding cachexia in the context of metastatic progression**Biswas AK, Acharyya S  
   Nat Rev Cancer. 2020.  
   PMID: 32235902, DOI: 10.1038/s41568-020-0251-4
2. **Upregulation of ZIP14 and Altered Zinc Homeostasis in Muscles in Pancreatic Cancer Cachexia**Shakri AR, Zhong TJ, Ma W, Coker C, Kim S, Calluori S, Scholze H, Szabolcs M, Caffrey T, Grandgenett PM, Hollingsworth MA, Tanji K, Kluger MD, Miller G, Biswas AK, Acharyya S  
   Cancers (Basel). 2019.  
   PMID: 31861290, DOI: 10.3390/cancers12010003
3. **The Etiology and Impact of Muscle Wasting in Metastatic Cancer**Biswas AK, Acharyya S  
   Cold Spring Harb Perspect Med. 2019.  
   PMID: 31615873, DOI: 10.1101/cshperspect.a037416
4. **Metastatic cancers promote cachexia through ZIP14 upregulation in skeletal muscle**Wang G, Biswas AK, Ma W, Kandpal M, Coker C, Grandgenett PM, Hollingsworth MA, Jain R, Tanji K, Lόpez-Pintado S, Borczuk A, Hebert D, Jenkitkasemwong S, Hojyo S, Davuluri RV, Knutson MD, Fukada T, Acharyya S  
   Nat Med. 2018.  
   PMID: 29875463, DOI: 10.1038/s41591-018-0054-2
5. **An analysis of the relationship between metastases and cachexia in lung cancer patients**Shiono M, Huang K, Downey RJ, Consul N, Villanueva N, Beck K, Fenn K, Dietz D, Yamaguchi T, Kato S, Divgi C, Kalinsky K, Wei Y, Zhang Y, Borczuk AC, Inoue A, Halmos B, Acharyya S  
   Cancer Med. 2016.  
   PMID: 27485414, DOI: 10.1002/cam4.841
6. **Monitoring Metastasis and Cachexia in a Patient with Breast Cancer: A Case Study**Consul N, Guo X, Coker C, Lopez-Pintado S, Hibshoosh H, Zhao B, Kalinsky K, Acharyya S  
   Clin Med Insights Oncol. 2016.  
   PMID: 27660506, DOI: 10.4137/CMO.S40479
7. **A CXCL1 paracrine network links cancer chemoresistance and metastasis**Acharyya S, Oskarsson T, Vanharanta S, Malladi S, Kim J, Morris PG, Manova-Todorova K, Leversha M, Hogg N, Seshan VE, Norton L, Brogi E, Massagué J  
   Cell. 2012.  
   PMID: 22770218, DOI: 10.1016/j.cell.2012.04.042
8. **Breast cancer cells produce tenascin C as a metastatic niche component to colonize the lungs**Oskarsson T, Acharyya S, Zhang XH, Vanharanta S, Tavazoie SF, Morris PG, Downey RJ, Manova-Todorova K, Brogi E, MassaguÃ© J  
   Nat Med. 2011.  
   PMID: 21706029, DOI: 10.1038/nm.2379
9. **Interplay of IKK/NF-kappaB signaling in macrophages and myofibers promotes muscle degeneration in Duchenne muscular dystrophy**Acharyya S, Villalta SA, Bakkar N, Bupha-Intr T, Janssen PM, Carathers M, Li ZW, Beg AA, Ghosh S, Sahenk Z, Weinstein M, Gardner KL, Rafael-Fortney JA, Karin M, Tidball JG, Baldwin AS, Guttridge DC  
   J Clin Invest. 2007.  
   PMID: 17380205, DOI: 10.1172/JCI30556
10. **Dystrophin glycoprotein complex dysfunction: a regulatory link between muscular dystrophy and cancer cachexia**Acharyya S, Butchbach ME, Sahenk Z, Wang H, Saji M, Carathers M, Ringel MD, Skipworth RJ, Fearon KC, Hollingsworth MA, Muscarella P, Burghes AH, Rafael-Fortney JA, Guttridge DC  
    Cancer Cell. 2005.  
    PMID: 16286249, DOI: 10.1016/j.ccr.2005.10.004
11. **Cancer cachexia is regulated by selective targeting of skeletal muscle gene products**Acharyya S, Ladner KJ, Nelsen LL, Damrauer J, Reiser PJ, Swoap S, Guttridge DC  
    J Clin Invest. 2004.  
    PMID: 15286803, DOI: 10.1172/JCI20174