

MMI 291 Seminar Series

Current Theme: Interdisciplinary Research
Fall Quarter 2024 – CRN 39234

**Friday Seminar at 12:10-1 p.m.
GBSF Auditorium, Room 1005**

“Impact of genetic ancestry on normal breast heterogeneity and breast cancer biology”

Research Bio

Harikrishna Nakshatri, B.V.Sc., Ph.D studies the molecular drivers of therapy resistance in breast cancer. His laboratory was the first to identify the role of the protein complex, NF-kappaB, which controls genes that respond to environmental stress and infection, in triple negative breast cancer. He also identified biomarkers that may predict response to anti-estrogen therapy. Utilizing normal breast tissues of women of different ethnic/racial background, his group has discovered genetic ancestry-dependent heterogeneity in the normal breast, which has important implications on how tumors are characterized for genomic abnormalities. His recently published studies may enable to understand why hormone-responsive breast tumors are more common in women of European ancestry and why triple negative breast cancers are aggressive in women of African ancestry. His group has developed various model systems to study breast cancer initiation and progression in both women and men. Additionally, his group has mapped the normal breasts as well as the breasts of BRCA1/2 mutation carriers at single cell resolution using single cell sequencing techniques and has made those data available to wider research community. These efforts may lead to classification of breast cancer based on “cell-of-origin” of tumor. He is using systems biology approaches to understand organ specific breast cancer metastasis and developing patient-derived tumor models that reflect organ-specific metastasis and therapy resistance. His current focus is to improve cancer drug discovery by developing experimental conditions that reflect oxygen levels in which tumors typically grow inside the body.

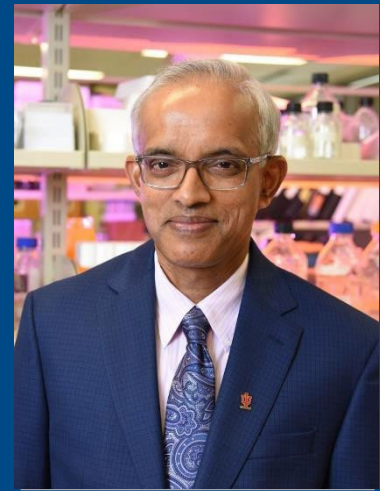
Nakshatri, is the Marian J. Morrison Professor of Breast Cancer Research and professor of surgery, biochemistry and molecular biology at the Indiana University School of Medicine. He is also the Associate Director for Education, Director of the Translational Biology Ph.D. program and Co-leader of the Breast Cancer working group at the Indiana University Simon Comprehensive Cancer Center. He serves as a Research Career Scientist at the VA Roudebush Medical Center. In addition, he is the Chief Scientific Officer of the Susan G. Komen Tissue Bank. He served as a Susan G. Komen Scholar 2010-2020 and re-selected to serve as the Susan G Komen Scholar 2023-2026. He was elected as a Fellow of the American Association for the Advancement of Sciences (AAAS) in 2021. He has authored more than 180 publications with >21,000 citations and ranked top 1% of scientists in the world.

Publications

“Single-nucleus chromatin accessibility and transcriptomic map of breast tissues of women of diverse genetic ancestry”. *Nat Med*. 2024 Aug 9. doi: 10.1038/s41591-024-03011-9. Epub ahead of print. PMID: 39122969.

“Stromal heterogeneity may explain increased incidence of metaplastic breast cancer in women of African descent”. *Nat Commun*. 2023 Sep 14;14(1):5683. doi: 10.1038/s41467-023-41473-6. PMID: 37709737; PMCID: PMC10502140.

Nov.
15



Harikrishna Nakshatri, B.V.Sc., Ph.D.

Marian J. Morrison Professor of
Breast Cancer Research
Professor of Surgery,
Biochemistry and Molecular Biology
Indiana University
School of Medicine

**Nov. 15, 2024
12:10 – 1 p.m.
GBSF Auditorium
Room 1005
In-person presentation**

Medical Microbiology
and Immunology
School of Medicine

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We hope to see you there!