UT Southwestern Medical Center

Translational Breast Cancer Research

Postdoctoral training positions are available in the laboratory of Carlos L. Arteaga, M.D. in the Simmons Comprehensive Cancer Center at UT Southwestern Medical Center. The laboratory has a longstanding interest in understanding the molecular pathways that drive breast cancer progression and influence response to therapies. Our laboratory has a strong mechanism-based translational focus, aimed at developing therapeutic strategies and identifying biomarkers of drug sensitivity and resistance.

Current projects include:

- Discovery of **mechanisms of resistance** to breast cancer therapies (i.e., estrogen receptor antagonists, CDK4/6 inhibitors, HER2 inhibitors, PI3K/AKT inhibitors)
- **Genomic and transcriptomic** profiling of drug-resistant breast cancers
- Identifying **rational combinations** to overcome resistance to targeted therapies

We incorporate molecular profiling (DNA/RNA sequencing, single cell-seq) of patient tumors and cell lines, CRISPR, whole genome screens, and mechanistic studies using breast cancer cell lines, cell line-derived xenografts, and patient-derived organoids and xenografts, with the goal of using insights from the laboratory to inform clinical trials.

Relevant recent publications that apply to these topics include:

- PRMT5 is an actionable therapeutic target in CDK4/6 inhibitor-resistant ER+/RB-deficient breast cancer. ***Nat Commun.*** 2024 Mar 13;15(1):2287. doi: 10.1038/s41467-024-46495-2. PMID: 38480701
- Acquired secondary HER2 mutations enhance HER2/MAPK signaling and promote resistance to HER2 kinase inhibition in breast cancer. ***Cancer Res.*** 2023 Sep 15;83(18):3145-3158. doi: 10.1158/0008-5472.CAN-22-3617
- Co-occurring gain-of-function mutations in HER2 and HER3 modulate HER2/HER3 activation, oncogenesis, and HER2 inhibitor sensitivity. ***Cancer Cell*** 2021 Aug 9;39(8):1099-1114
- Proline rich 11 (PRR11) overexpression amplifies PI3K signaling and promotes antiestrogen resistance in breast cancer. ***Nat Commun.*** 2020 Oct 30;11(1):5488.
- Hyperactivation of TORC1 Drives Resistance to the Pan-HER Tyrosine Kinase Inhibitor Neratinib in HER2-Mutant Cancers. ***Cancer Cell*** 2020 Feb 10;37(2):183-199.e5.
- Aberrant FGFR signaling mediates resistance to CDK4/6 inhibitors in ER+ breast cancer. ***Nat Commun.*** 2019 Mar 26;10(1):1373.
- Genomic profiling of ER+ breast cancers after short-term estrogen suppression reveals alterations associated with endocrine resistance. ***Sci Transl Med.*** 2017 Aug 9;9(402):eaai7993.
- An Acquired HER2(T798I) Gatekeeper Mutation Induces Resistance to Neratinib in a Patient with HER2 Mutant-Driven Breast Cancer. ***Cancer Discov.*** 2017 Jun;7(6):575-585.

Applicants with a Ph.D., M.D., or M.D./Ph.D. and a strong background in molecular & cell biology and genomics with an interest in translational research in cancer are encouraged to apply.

Information on our postdoctoral training program, benefits, and a virtual tour can be found at http://www.utsouthwestern.edu/postdocs.

Interested individuals should send a CV, statement of interests, and a list of at least two references (email preferred) to:

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