USF NEXUS INITIATIVE 2019 AWARD RECIPIENT

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Deciphering Tamoxifen-Resistant Breast Cancer Signaling

Although a majority of breast cancers have desirable prognoses after hormone-like drug treatment such as tamoxifen, triple negative breast cancer (TNBC) still perplexes our society due, in part, to a lack of a specific therapeutic treatment. Interestingly, research has indicated that tamoxifen plays a dual role that can simultaneously serve as an antagonist in the ER signaling, while serving as an agonist in a G protein-couple receptor (GPCR) -- GPR30 signaling. This inspires us to decipher the mechanism of how hormone-like drugs such as tamoxifen engage in this GPCR and its consequent receptor conformational transition and related downstream signaling using NMR and cryo-EM spectroscopies in combination with pharmacological evaluation. We expect to gain conformational and structural insights of the GPR30 through this study, which will thereafter guide us to design agents treating tamoxifen-resistant breast cancer, potentially including TNBC.

Partnership:

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