Pigment-epithelium-derived factor (PEDF) is a versatile protein with effects in cancer, diabetes, oxidative stress, eye diseases, cardiovascular disease, hearing loss, depression, reproductive disorders, amongst other ailments. Recently, my lab metabolically profiled two types of breast cancer cells lines and found intriguing similarities and differences that may be leveraged as the protein is moved towards clinical testing in the near future. This talk discusses the progress in preclinical work of PEDF in the field of cancer for the past two decades, the major challenges that have been overcome and remain ahead, and few ways which my lab has chosen to overcome these hurdles very recently. The talk will bring together various angles of research to depict how this one protein is linked deeply with cancer, and how it can be used therapeutically.