**Lay Description of Important Outcomes**

1. With the partial support of METAvivor funding, we have successfully published three papers as listed above. One research paper with the direct support of METAvivor funding has been submitted to Nature Biotechnology.

2. In the past funding year, we have successfully synthesized the HSP90-hijacking PROTAC and tested the BRD4 protein degradation on the 4T1 metastatic breast cancer cells, in which the results showed over 70% of degradation during a 24 h co-culture period. Furthermore, we encapsulated the HSP90-hijacking PROTAC into platelet and also achieved comparable degradation results with free PROTAC. This exciting results laid a solid foundation for the following in vivo studies and further combination with immune checkpoint inhibitors with a goal of eliminating the breast cancer metastasis.

3. Based on the preliminary data achieved from the METAvivor grant, we have submitted a NIBIB Trailblazer grant to further extend the application of our developed HSP90-hijacking PROTAC. This grant proposal is currently under review.

4. Impact: Our study is expected to significantly impact the current TNBC treatment by creating a platelet-based drug delivery system to address the delivery issue of a new treatment modality—PROTAC, which has great efficiency in degrading BRD4 protein to inhibit metastatic TNBC growth while with off-tissue toxicity and poor pharmacokinetics. Furthermore, the combination of the platelet-PROTAC treatment strategy with immune checkpoint inhibitors holds the potential to eliminate metastatic TNBC.