UC Irvine 趙 Chao Family Comprehensive Cancer Center

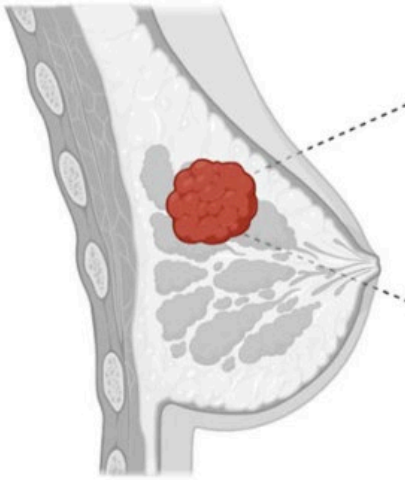
UHRF1 as an Epigenetic Driver of Tumorigenicity and Tumor Immune Evasion in Triple-Negative Breast Cancer

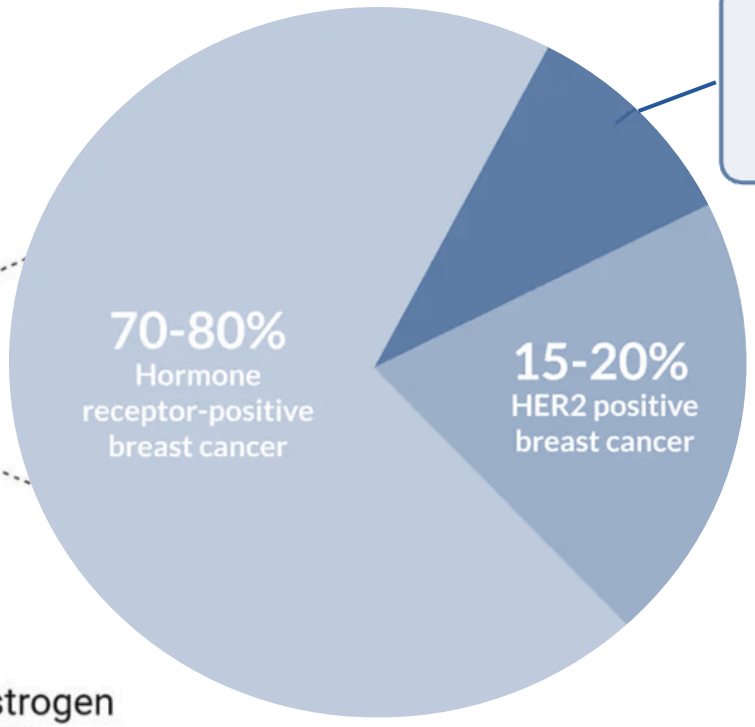
Marina Suarez Pizarro
PhD student, Benavente lab
Poster #6

2026 Scientific Retreat
November 5, 2026

Triple-Negative Breast Cancer (TNBC)

25% of all new cancers in women are breast cancer





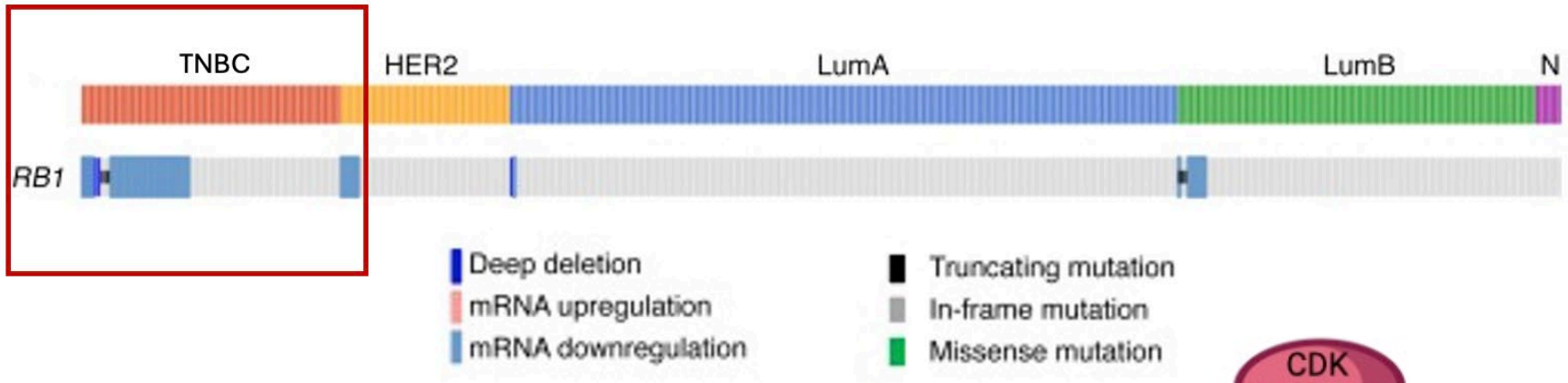
Hormone receptors: Estrogen (ER) & Progesterone (PR)
HER2: Human epidermal growth factor receptor 2

10-20% TNBC

- ER-, PR-, HER2-
- Most aggressive subtype → ~40% mortality rate 5 years after diagnosis
- Often occurs in younger women → Worst prognosis and lack of target therapies

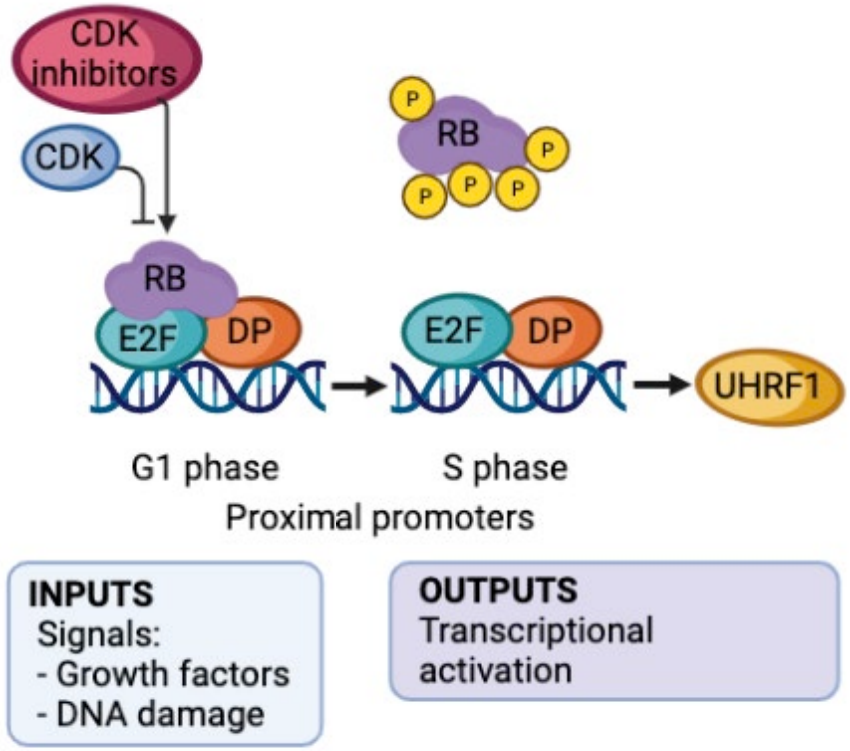
Molecular alterations in TNBC?
New therapeutic targets?

Retinoblastoma (RB1) is mutated in up to 35-50% of TNBC cases

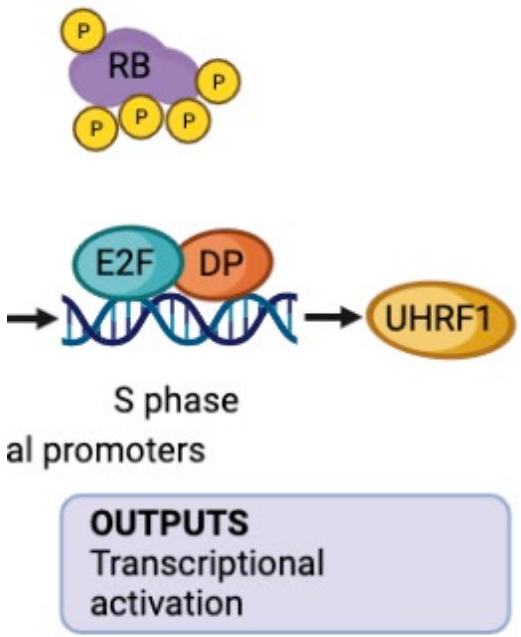


RB1

- Tumor suppressor gene
- Cell cycle regulator
- Poor prognosis and therapeutic outcome

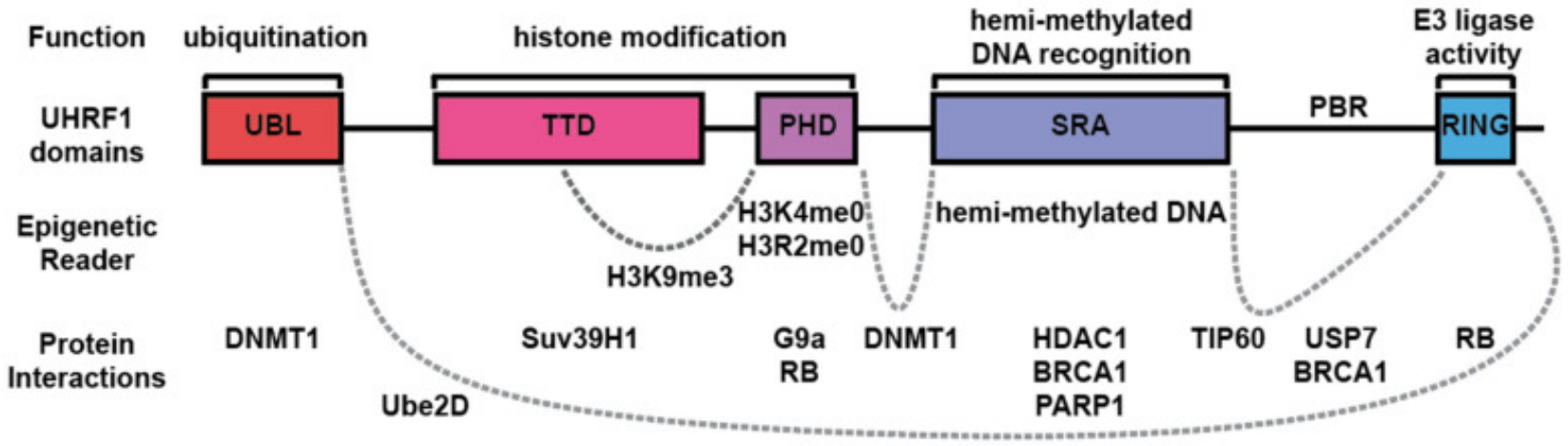


RB1 inactivation is associated with increased UHRF1 expression



What is UHRF1?

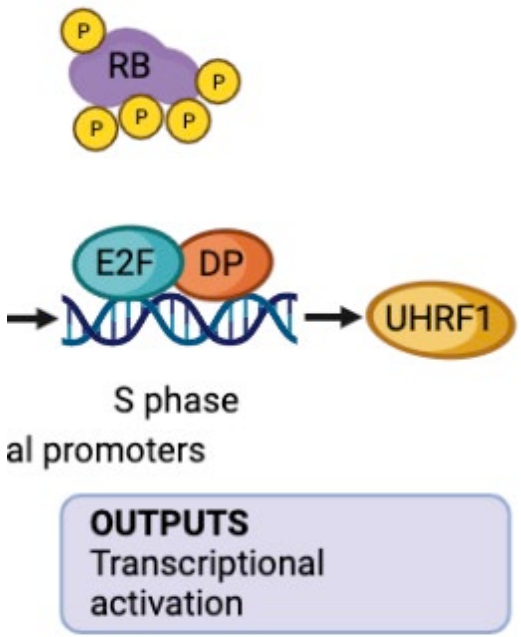
Ubiquitin Like With PHD And RING Finger Domains 1 (UHRF1)

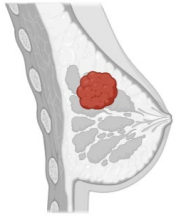


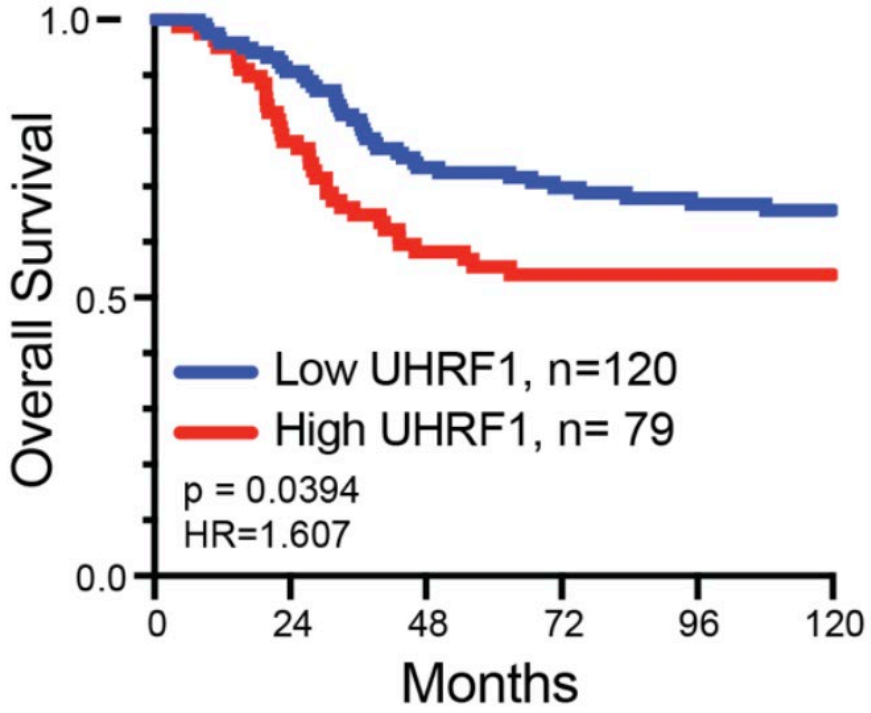
Kim et al. (2024)

- Epigenetic regulator
- Multiple domains, multiple functions
- Overexpressed human cancers

RB1 inactivation is associated with increased UHRF1 expression





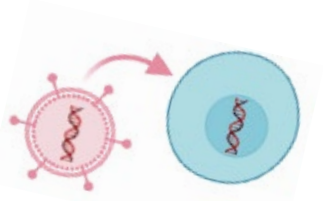


UHRF1 overexpression correlates with lower overall survival in TNBC

Is UHRF1 promoting TNBC malignancy?

Exploring the role of UHRF1 in TNBC progression

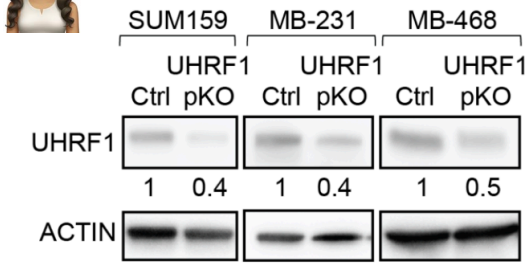
Does the loss of UHRF1 impact TNBC progression and metastases?



Generate CRISPR KOs



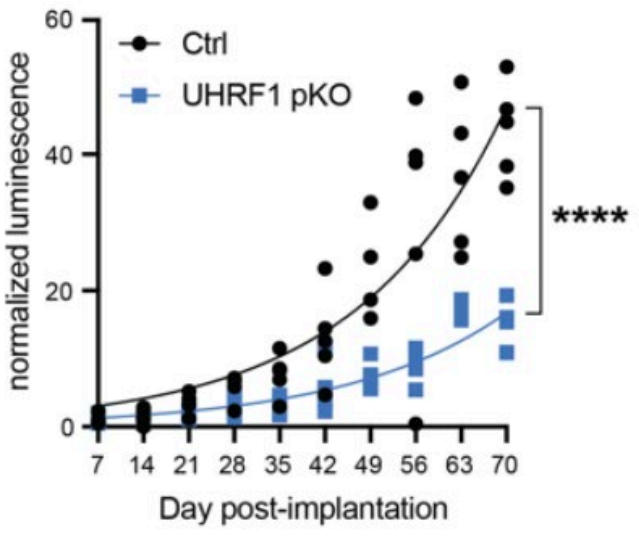
Human TNBC cells

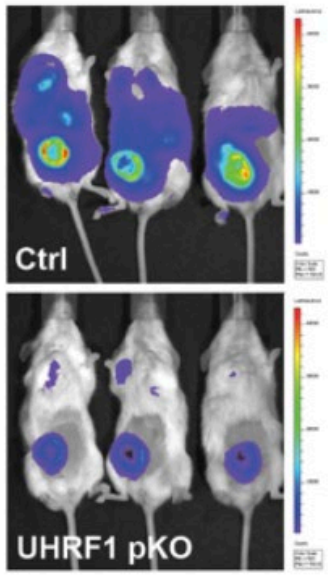


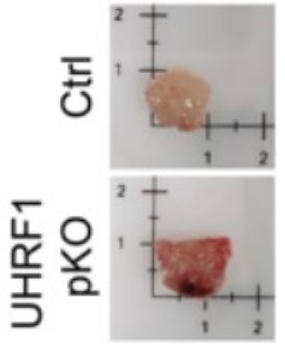


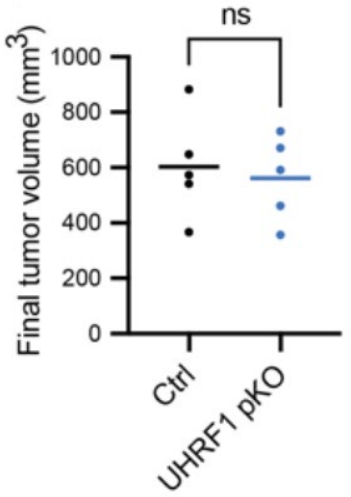
Bioluminescence signal

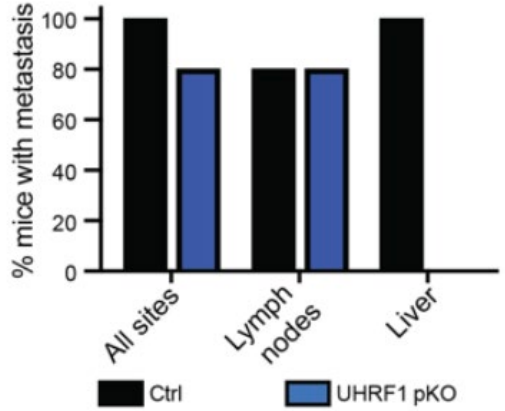
Differences in tumor growth?
Differences in metastases?











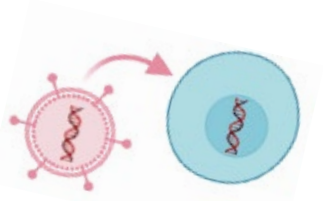
Loss of UHRF1 reduces tumor fitness and metastases



Ahhyun Kim (PhD)

Exploring the role of UHRF1 in TNBC

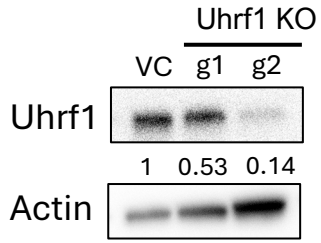
Does the loss of UHRF1 impact anti-tumor immune response?

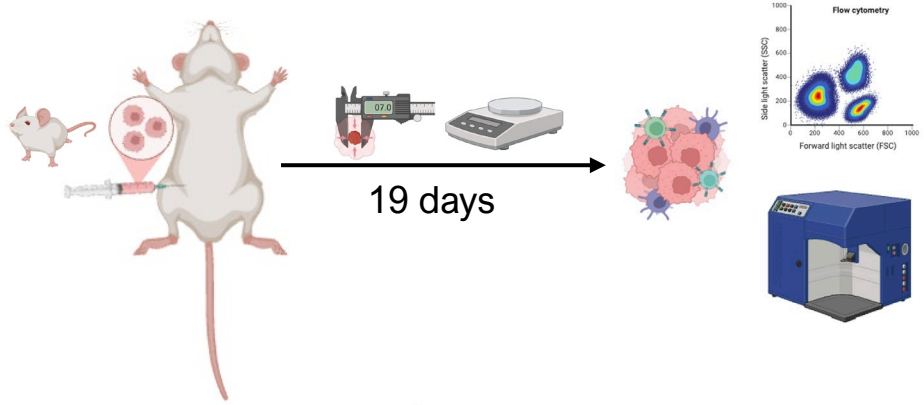


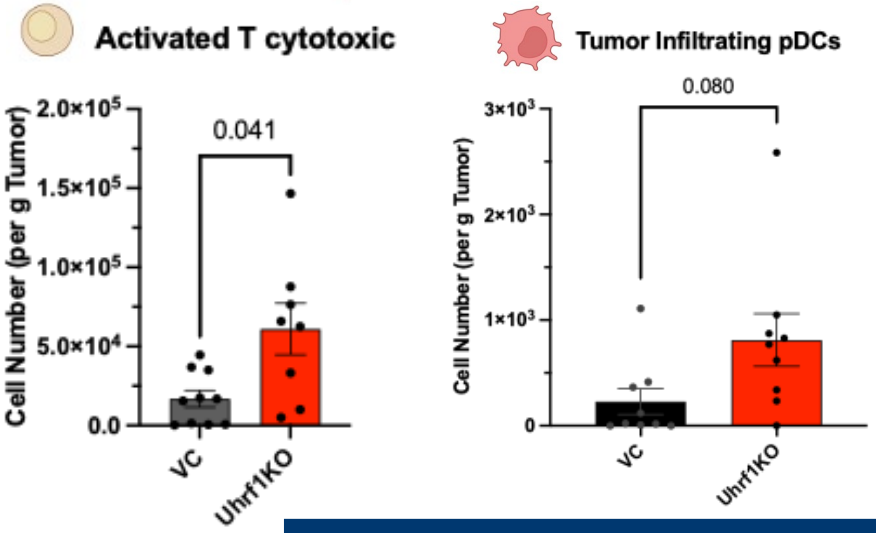
Generate CRISPR KOs

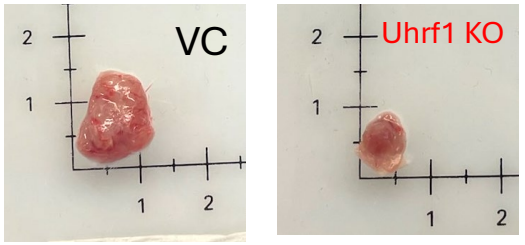
Mouse TNBC model: 4T1 cells

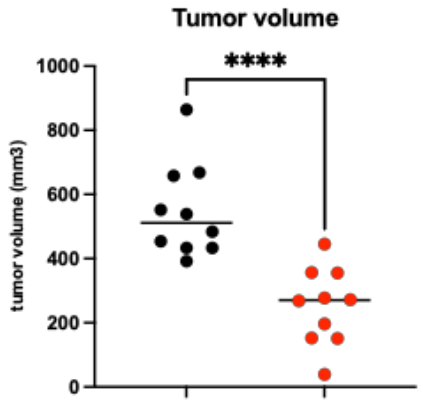










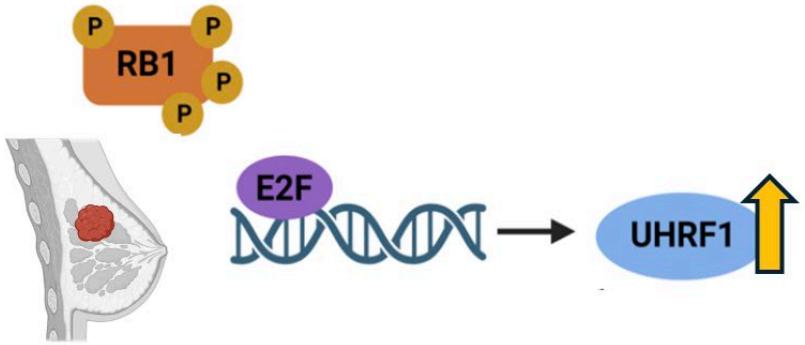


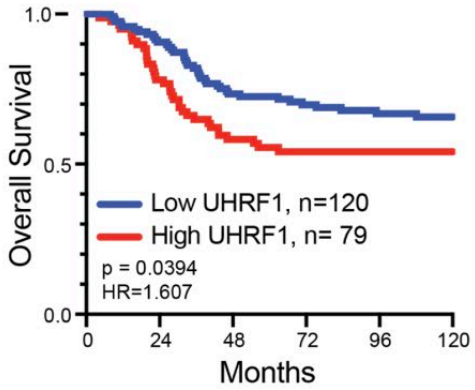
Loss of Uhrf1 reduces tumor growth in immunocompetent mice

Loss of UHRF1 increases anti-tumor immune infiltration

Summary and Future Directions

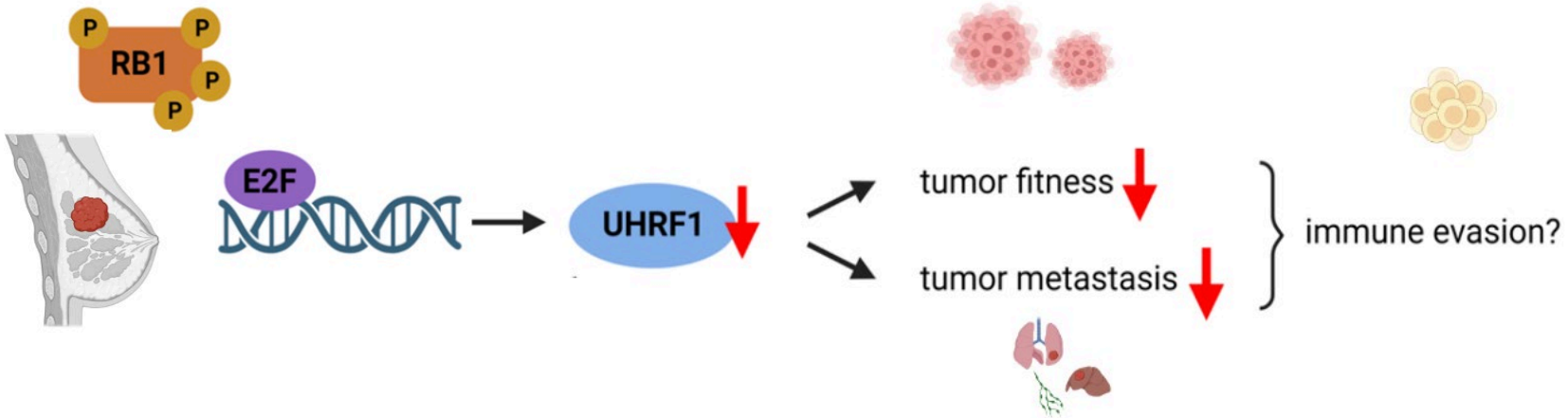
UHRF1 promotes tumor fitness and metastasis and decreases anti-tumor immune infiltration in TNBC





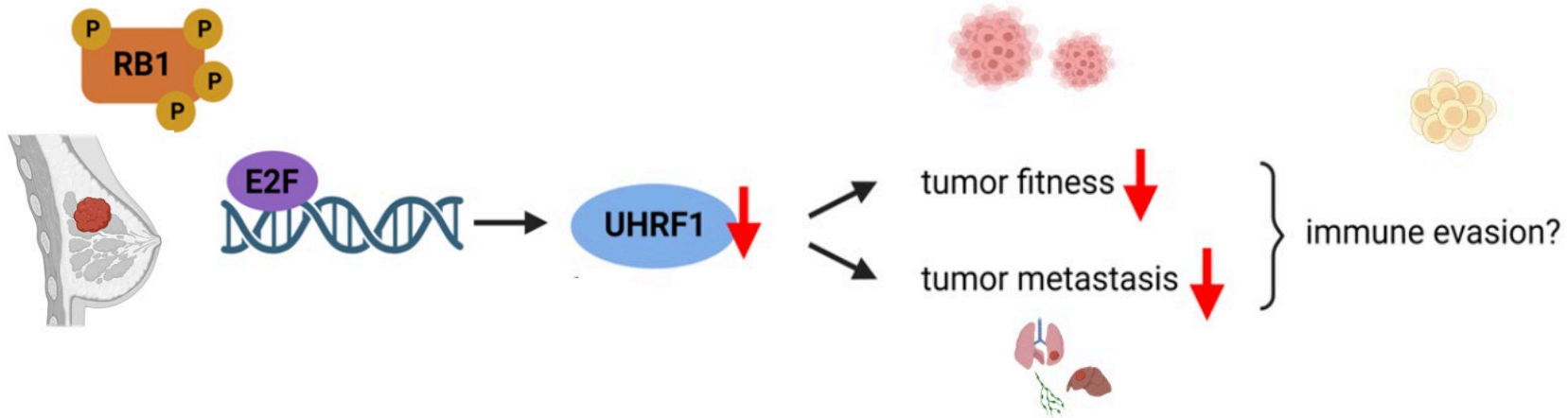
Summary and Future Directions

UHRF1 promotes tumor fitness and metastasis and decreases anti-tumor immune infiltration in TNBC

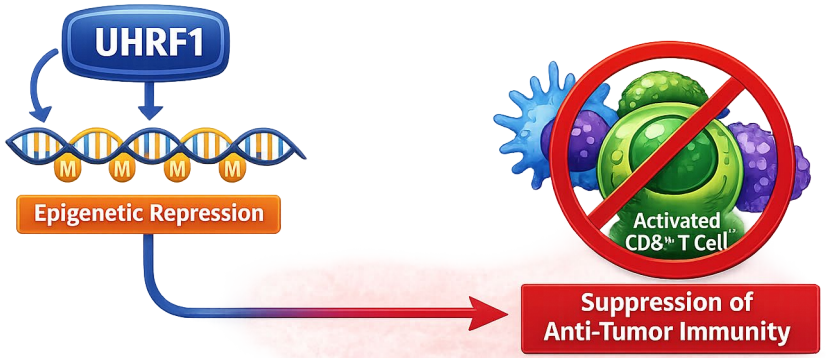


Summary and Future Directions

UHRF1 promotes tumor fitness and metastasis and decreases anti-tumor immune infiltration in TNBC



Does UHRF1 contribute to the modulation of the tumor immune environment in TNBC?



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Comprehensive Cancer Center

Thank you!

Stop by poster #6 for further discussion!

