UC Irvine 趙 Chao Family Comprehensive Cancer Center

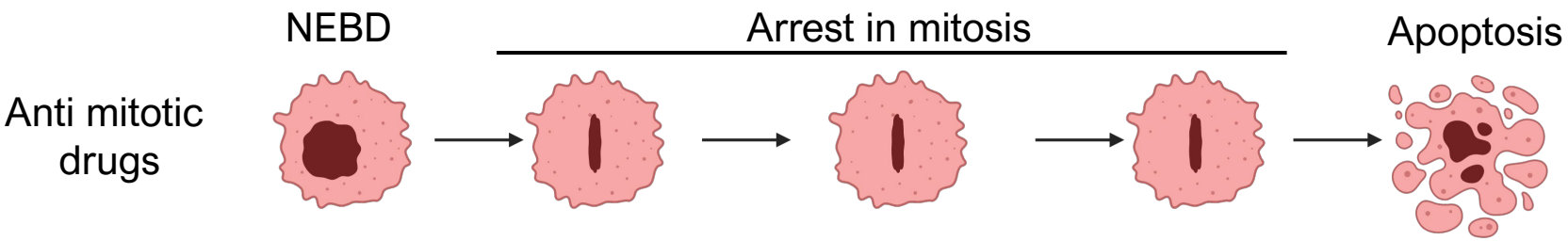
# Evaluating a novel anti-mitotic combinational therapy for targeting colorectal cancer cells

**Amrutha Kizhedathu, PhD**

**2026 Scientific Retreat**

November 5, 2026

# Leveraging mitotic vulnerabilities in cancer for chemotherapy




**Limitations**

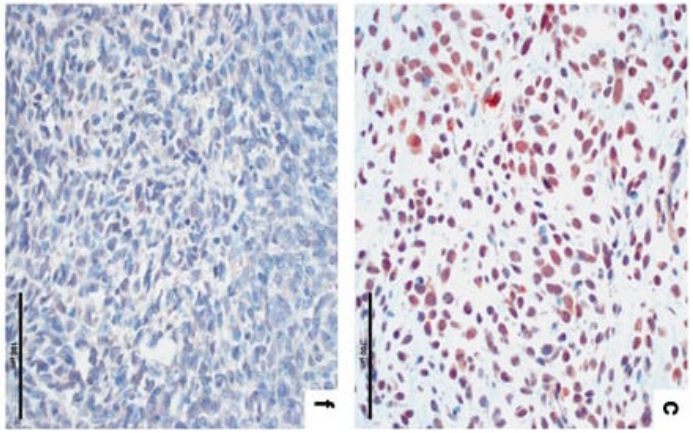
- Toxicity
- Mitotic slippage
- Selective efficiency

**Ideal target**

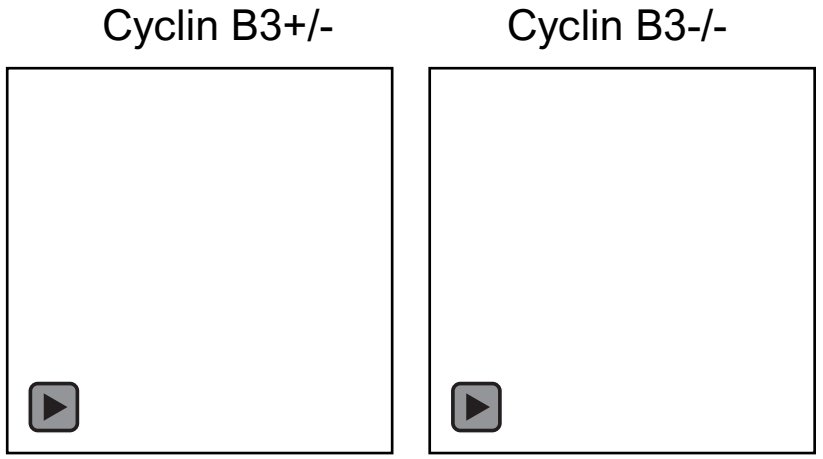
- Limited Toxicity
- Prevent Mitotic slippage
- Improved efficiency

## Potential pool of targets - Meiosis-specific and germline genes in somatic cancer cells

Cancer tissue



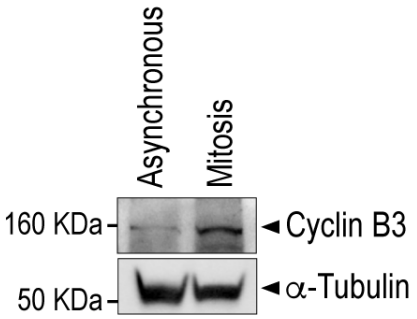
Cyclin B3 -ve  Cyclin B3 +ve

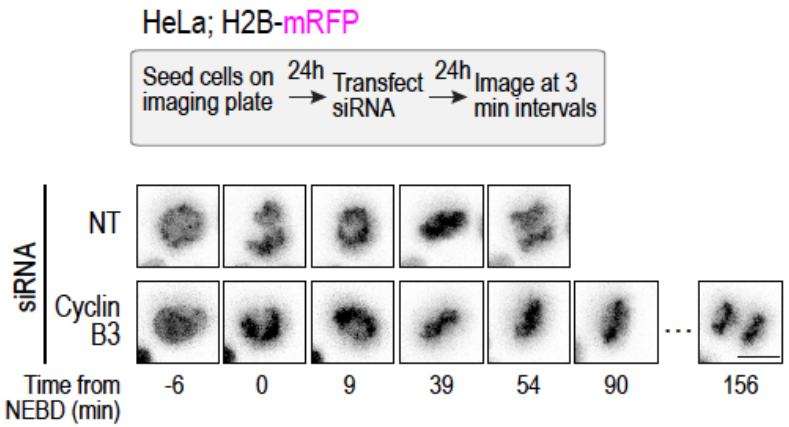


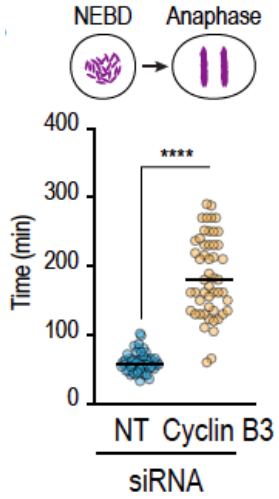

Mouse oocytes

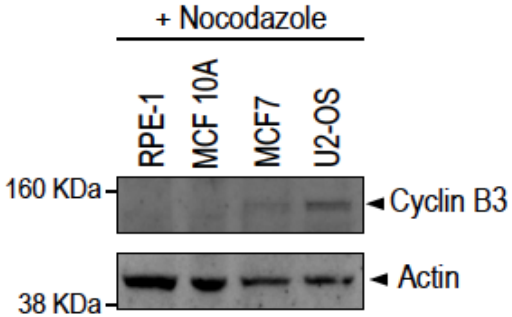
Karasu et al, *J Cell Biol* (2019)
Li et al, *J Cell Biol* (2019)

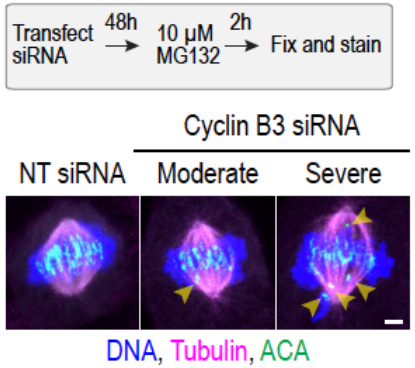
# Cyclin B3 drives mitotic progression and fidelity in cancer cells

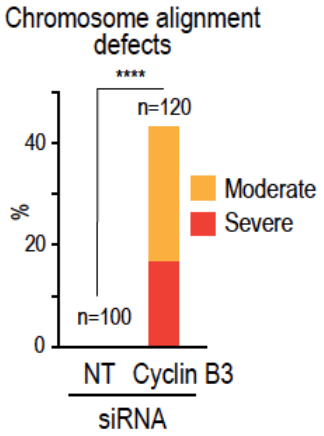


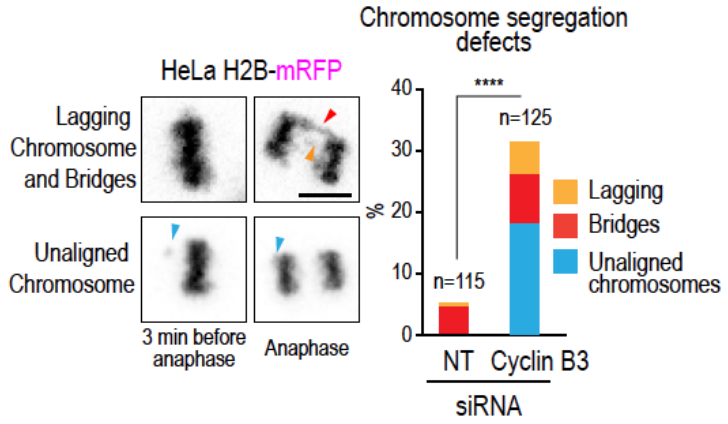




Cancer cells

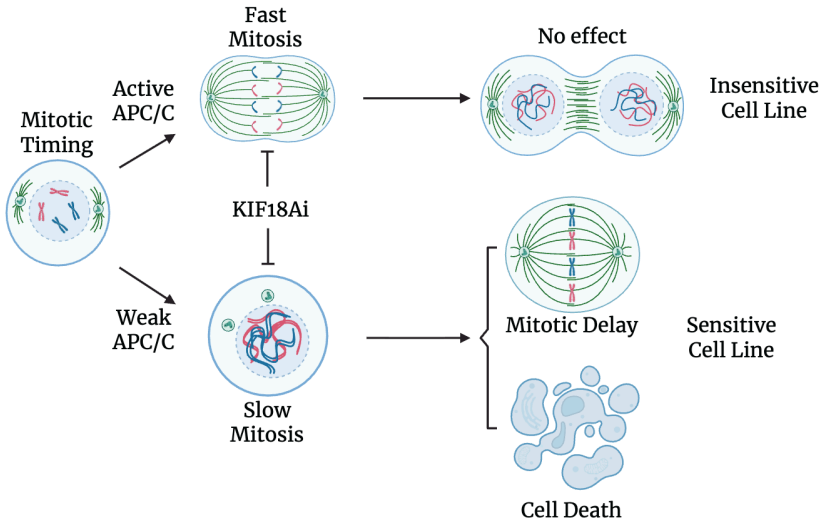
- **HeLa**
- HCT116
- U2OS
- Saos2
- 143-B
- MCF7

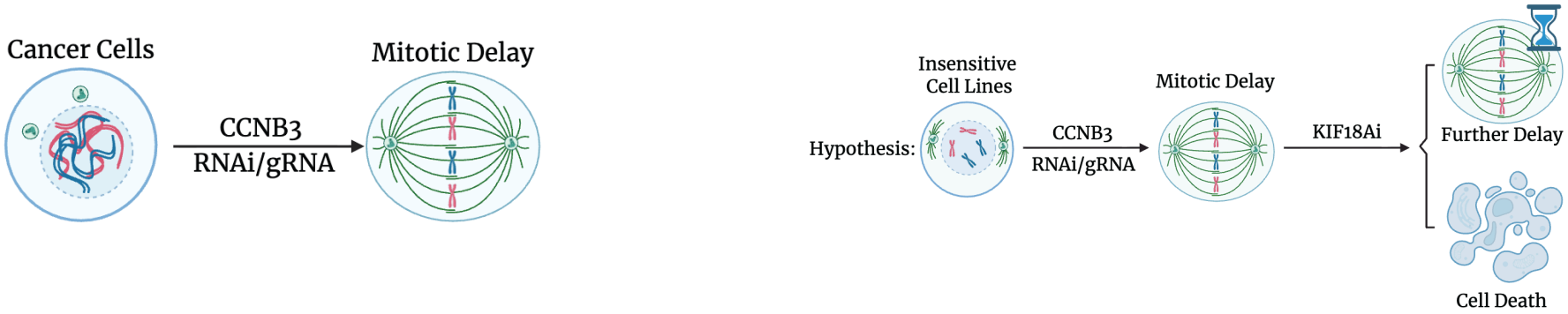
Non-transformed cells

- **RPE-1**
- MSC
- MCF10A

Kizhedathu et al, *bioRxiv* (2026)

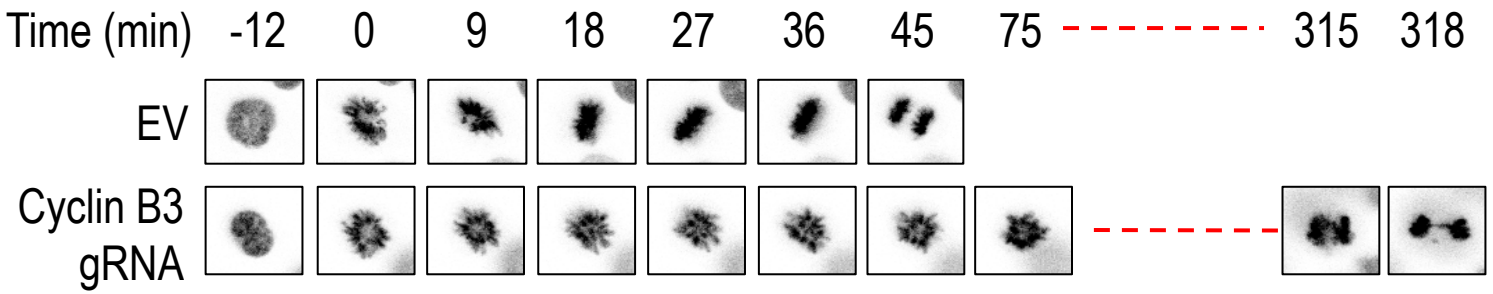
# Hypothesis




Does loss of cyclin B3 sensitize insensitive cell lines to KIF18A inhibition

# Loss of cyclin B3 sensitizes HCT116 to KIF18A inhibition



# Acknowledgements


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