

# Assessing the Effects of Inherited Mutations on PALB2 Structure and Function

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*Davis Martin*

# ASSESSING THE EFFECTS OF INHERITED MUTATIONS ON PALB2 STRUCTURE AND FUNCTION

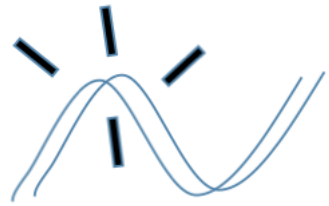
By: Davis Martin

Supervisor: Dr. Mikaela Stewart

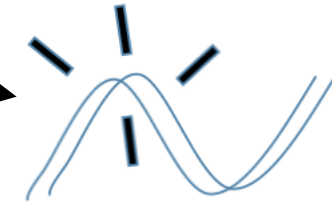
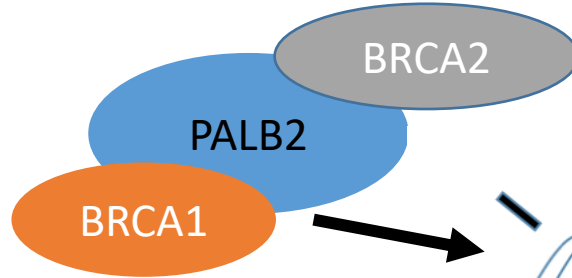
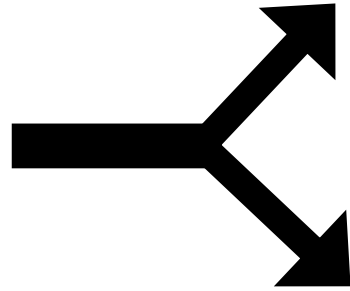


# PALB2 Repairs DNA Damage with BRCA1 and BRCA2

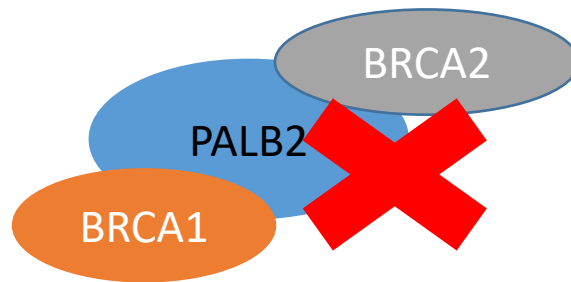
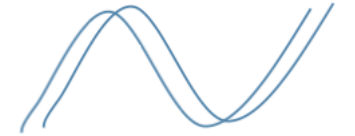
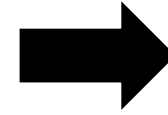
Radiation,  
chemicals, stress,  
etc.



DNA damage



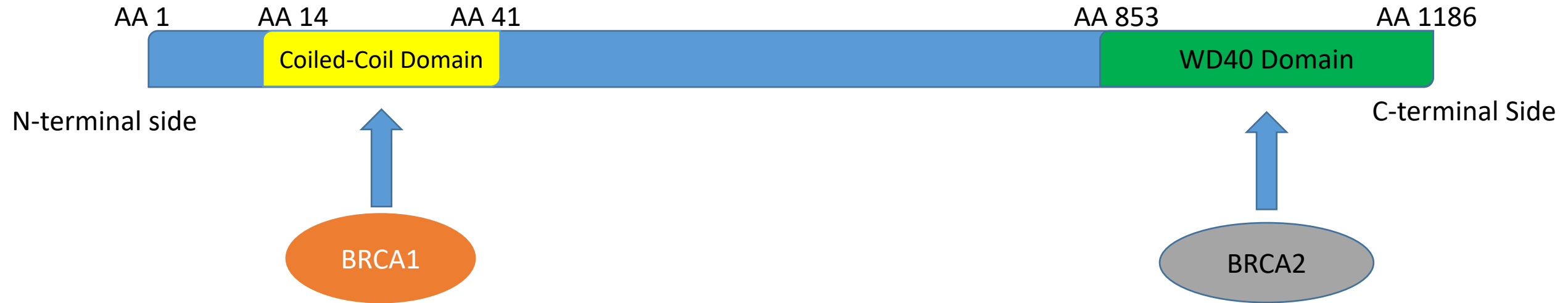
DNA damage



CANCER FORMATION



# The Structure of PALB2



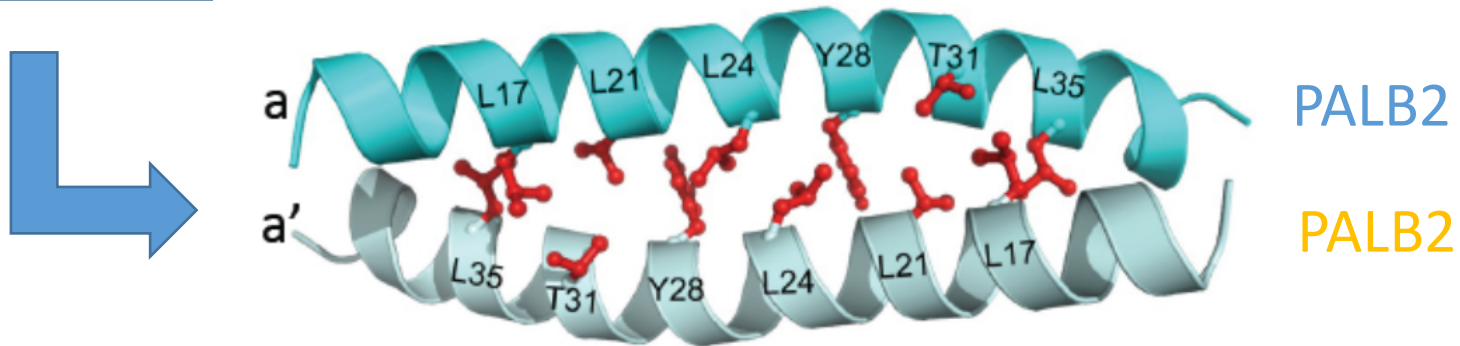
Variants of Unknown Significance (VUS)

# Project Goals

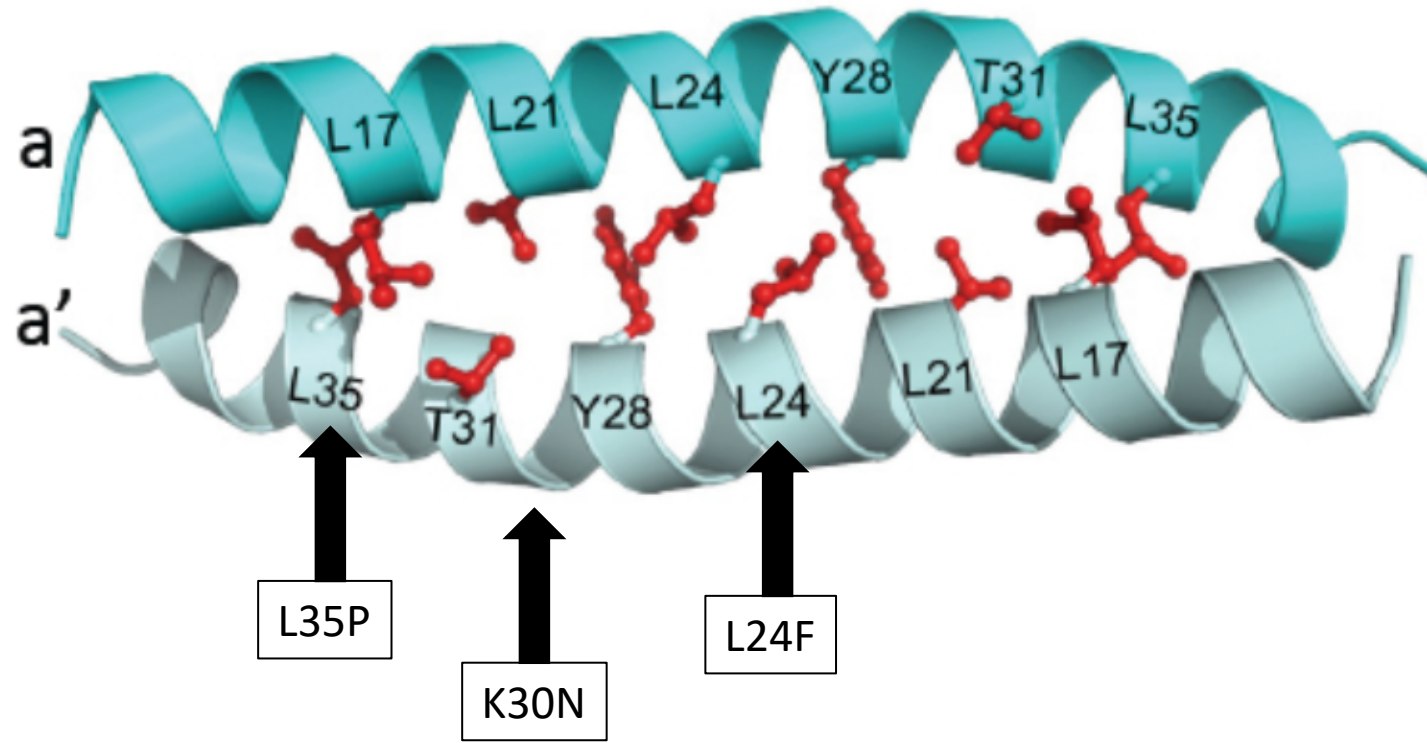
**1. Test a new *in vitro* method for determining the effects of VUS on PALB2 function**

**2. Classify VUS as detrimental or benign**

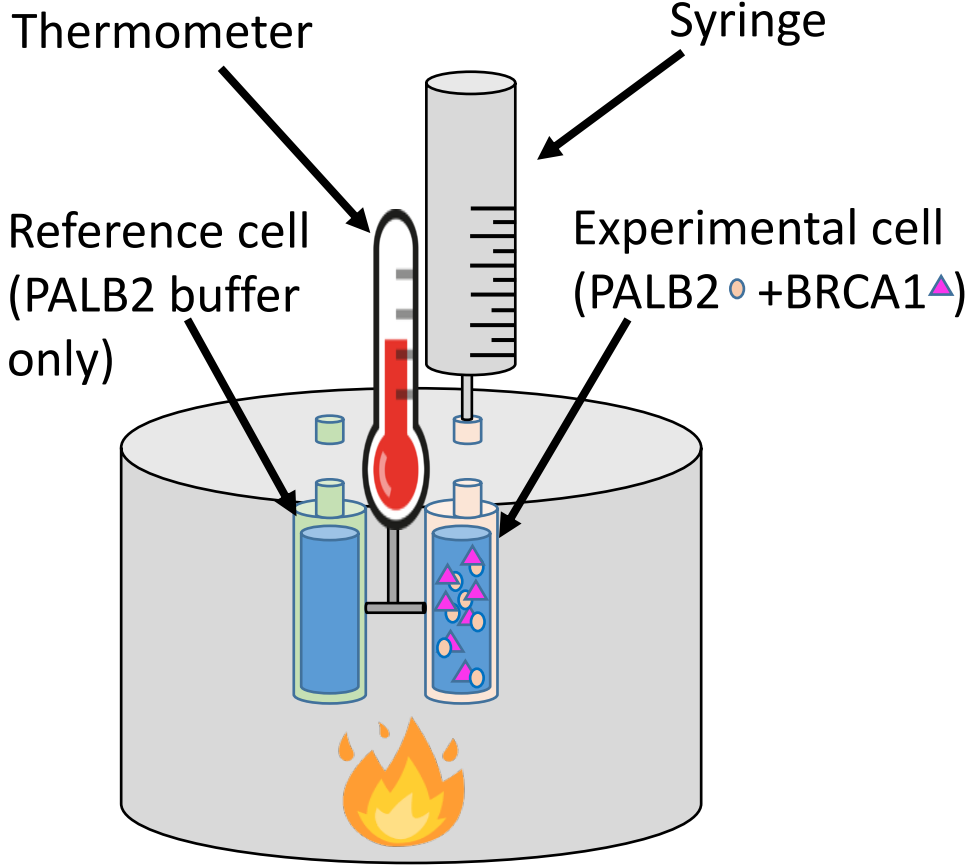
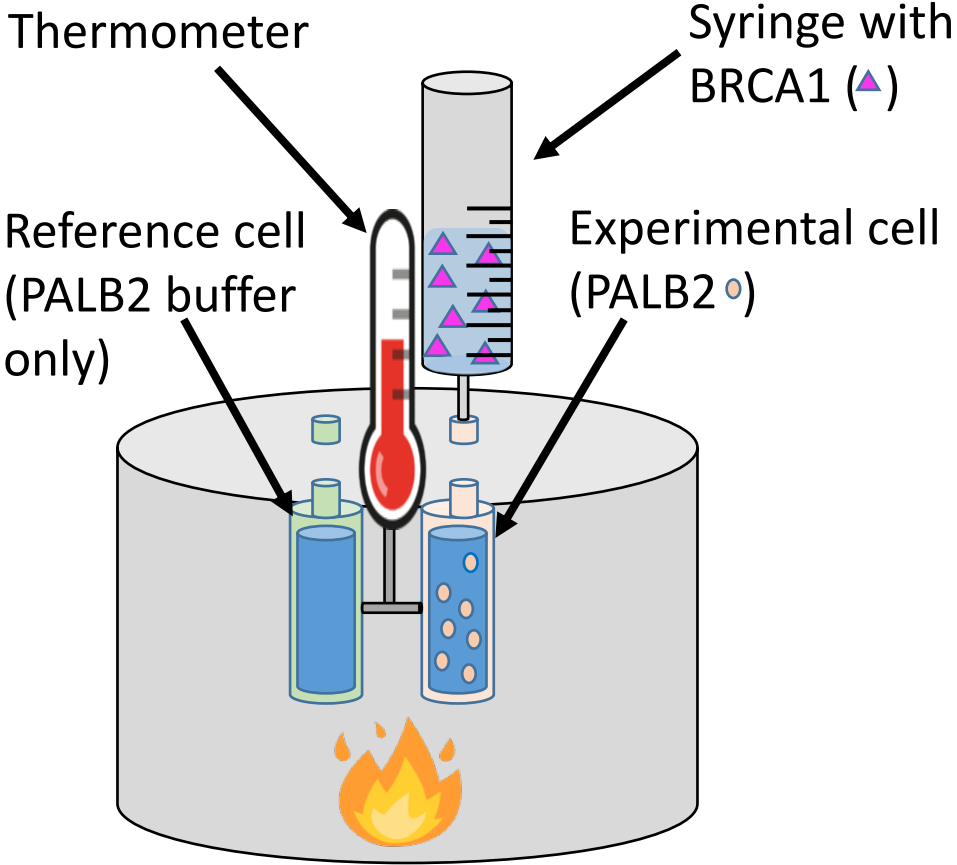
# The Structure of PALB2 and its Coiled-Coil Domain



# Identifying VUS for Testing



# Goal 1: Isothermal Titration Calorimetry (ITC)





# ITC Can be Used to Measure Differences in Binding Affinities for PALB2 Mutants

