

Assembly of a Braf35:Kif4 complex

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Abstract:

BRAF35 was initially isolated from a 2Mda complex also containing the Breast Cancer susceptibility gene product BRCA2. BRAF35 is believed to have a dual role in cell cycle progression and also DNA damage repair by potentially recruiting BRCA2 to recombinogenic sites by virtue of a HMG box domain.

In 2003 Lee and Kim utilised yeast two hybrid screens and immunoprecipitation to show that BRAF35 could also bind to truncated Human Kinesin KIF4 in a complex of 540kDa. KIF4 has a poorly defined but essential role in the spindle formation during Mitosis. The interaction between the BRAF35 and KIF4 proteins is believed to be through respective α helical coiled-coil domains and this complex may play a role in regulating cell cycle progression during mitosis.

Ultimately this work aims to determine the structural basis of interaction between BRAF35 and KIF4/BRCA2 to guide future cell biology studies. Towards this end, it has been possible to over-express and purify both BRAF35 and KIF4. It has also been possible to assemble and purify a BRAF35/Kif4 complex. The methods used and challenges faced will be presented.