

INVESTIGATION OF THE BIOLOGICAL ROLE OF THE POLYCYSTIC KIDNEY
DISEASE PROTEIN BICAUDAL C (BICC1) USING COMPARATIVE ANIMAL MODELS

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ABSTRACT

Polycystic kidney disease (PKD) is a common inherited disorder affecting 600,000 Americans and more than 12 million people worldwide. Clinical manifestations include renal enlargement, abnormal tubular development and accumulative cyst formation. PKD is the leading cause of end stage renal disease in adults and children. Currently, there is no cure for PKD and treatment is limited to dialysis and transplantation. The molecular mechanisms involved in cystogenesis remain unclear. *Bicaudal C (Bicc1)* is the disease-causing gene in the juvenile congenital polycystic kidney (*jcpk*) mouse model for PKD. The function of *Bicc1* is unknown; however the Bicc1 protein contains two conserved functional domains, three K-homology (KH) domains which are known to bind RNA and a sterile alpha motif (SAM) domain which are predicted to participate in protein-protein interactions. We hypothesize that *Bicc1* plays an integral role in normal kidney development. In this study, we investigated in vitro RNA and protein interactions of the Bicc1 protein and generated an alternative, comparative zebrafish model to further study the function of *Bicc1* in vivo.