**Understanding the cellular roles of protein kinase C in *Neurospora crassa***

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**Abstract**

Protein Kinase C (PKC) is a highly conserved serine-threonine kinase. PKC performs as a secondary messenger in signal transduction for a wide range of cellular processes like cell proliferation, differentiation, and activation, cell cycle control, autophagy, and apoptosis, hence, it has been studied widely. Members of the protein kinase C family are single polypeptides. There are around ten different isozymes of PKC identified in mammals that require different co-factors for the activation, based on which they are classified into three groups classic, novel and atypical. Protein kinase C in *Neurospora crassa* is encoded by a single putative gene and it is Ca2+ independent, hence it has properties like novel PKC. PKC in *N. crassa* has a very unique role of regulating blue light sensing. The White Collar-1 (WC-1) protein, a blue light photoreceptor, is phosphorylated by PKC*,* which regulates blue light sensitivity. In this study, we have investigated the role of PKC in cellular functions in *N. crassa*. We found that PKCmutant showed a similar growth rate in comparison to the wild type. However, the ΔPKC showed sensitivity towards exposure to UV rays, indicating a probable role of PKC in DNA repair mechanism in *N. crassa.*

**Keyword:** *Neurospora crassa,* Protein Kinase C (PKC)