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Citation (summary) on the outstanding research work on which award is claimed in about 250 words **signed by the nominator**.

Dr. Dey's major contributions are fundamental. He has discovered **(1)** the cross-talks between kinases and phosphatases in regulating neuronal insulin signaling and insulin resistance **(2)** strong association of impaired insulin signalling in brain with Alzheimer's disease (AD); **(3)** role of isoform specific kinases and phosphatases in regulating neuronal insulin signaling, insulin resistance and AD; and **(4)** repurposing of drug Metformin for ameliorating neuronal insulin resistance in AD; **(5)** neuronal insulin-signaling is fundamentally different than other insulin sensitive tissues. His research has depicted the picture that neuronal insulin signaling as an entangled web, woven through the threads of kinases and phosphatases. He established that the insulin signaling in neuronal system happens thorough a complicated network and it is under a tight and complicated control of different kinases and phosphatases. Understanding the role of each component of neuronal insulin signaling will lead towards better understanding of the cascade. This might solve the progression of neuronal insulin resistance which could reduce the risk of various neurodegenerative disorders. It can be expected, in future, that some of these components of neuronal insulin signaling, especially isoform specific kinases and phosphatases, be considered as possible drug targets. Knowledge of complete regulation of neuronal insulin signaling through kinases and phosphatases will not only overcome insulin resistance but will be beneficial for the neurodegenerative disorders in future.

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