



Obituary



Kalyan Banerjee (1937-2021)

Dr Kalyan Banerjee, an internationally acclaimed virologist and a pioneering director (1988-1997) of the ICMR-National Institute of Virology (NIV), Pune, is no more. He breathed his last on April 14, 2021 at a private hospital in Pune.

Dr Banerjee initially joined the then Virus Research Centre (VRC) as a Senior Research Fellow on April 4, 1962. He completed his Ph.D. under the guidance of Dr Charles Anderson (Director, VRC, 1958-1961) in 1967 and joined the centre as a Research Officer in 1969. He was one of the 'Titans' of the VRC with his stellar academic qualifications of Bachelor of Medicine and Bachelor of Surgery, Doctor of Philosophy from the prestigious University of Kolkata. At the ICMR-National Institute of Virology, he started a fascinating and challenging career that lasted almost 36 years. His lifelong love in this field was initiated with his early readings on the 'slow virus' disease, leading to his abiding passion towards fundamental studies on the natural history of viruses and their public health perspective. Over a period of three decades, he established comprehensive field and the laboratory study platforms for research in different domains of

virology using conventional and molecular methods. He always maintained that virology cannot be done by sitting in 'Ivory Towers', and he always 'walked the talk' in this context. During his career span, he contributed significantly on many facets of virology such as immunology, serology, diagnostics and virus isolations, field virology, virus and host interactions, vector-virus interactions and vaccines and their social and economic impacts.

Dr Banerjee's achievements and his traits can be characterized as multidimensional. His work transformed his talent into a genius. He had over 200 publications, book chapters, compendium contributions, *etc.* that were documented across the spectrum of many important scientific journals and books. Of these, in more than 60 he was the first author and many of these are cited world over in virus research. Over a period of more than three decades, Dr Banerjee along with his small and talented team of students and colleagues contributed towards the basic building blocks of the discipline of virology, the niche area of public health for the institute and the nation.

During the initial phase of his service and career, he worked extensively in the field and on laboratory aspects of many unique arboviruses prevalent in India. He had stellar research achievements in outbreak investigations, viral vaccine and efficacy studies. During this period, his major interests and contributions were focussed on diseases such as Kyasanur Forest Disease (KFD), Japanese encephalitis (JE), West Nile virus (WNV), dengue and chikungunya. His research interests later on shifted to other major non-arbovirus diseases such as poliomyelitis, hepatitis, AIDS, measles and influenza.

His profound and prudent contributions in these areas are outstanding. Some of his thought-provoking and trend setting research showed a multidimensional and varied spectrum, displaying vision that was ahead of his time. His research interests were characterized by being at the interface of research work in the field and the laboratory such as dengue virus and its vectors in the context of urban–rural continuum, poliomyelitis surveillance, buffalo pox activity and outbreak studies. Studies on HIV and AIDS including the simian AIDS, extensive field and laboratory aspects on hepatitis, animal studies of viruses in the context of vaccine research, molecular virology studies such as those on the genetic markers of dengue, chikungunya and JE virus, phylogenetic analysis of the envelop gene of JE virus and finding the evidence suggestive of positive selection, immune stimulating complexes of JE, monoclonal antibodies of dengue serotypes, establishment and characterization of fish cell lines and its applications, *etc.* Despite his training and background in the medical sciences, he contributed immensely to the understanding of the vector biology and host interactions of KFD, JE and chikungunya viruses, and WNV. His numerous publications in this fascinating and interesting branch of biology are testimony of his contributions to this knowledge base.

He became the director of NIV in 1988. Among the significant and important developments that took place during his tenure were the establishment of the NIV Field Station at Gorakhpur for the study of JE and acute encephalitis syndrome (AES) in Eastern Uttar Pradesh, haematophagus arthropod surveys in the Andaman and Nicobar Islands, *etc.*

Dr Kalyan Banerjee will always be remembered in the virology research community for his prudent contributions from virus isolations (Barur, Chobargeorge and Sripur) to field evaluations and efficacy of vaccine candidates for KFD and JE viruses. His active contributions in the development of the indigenous inactivated KFD vaccine are well documented. This vaccine is still being used in the immunization programme in the endemic areas of Karnataka. Even after retirement from NIV, he pursued his research interests in the phage studies at the Agharkar Research Institute (ARI), Pune, and continued to do so till the end.

Besides academics and research in virology, he had a very profound understanding and deep love towards the ancient Vedic scripts. It was always an intellectual treat to listen to him speaking on Indian philosophy, world history, ancient Indian scriptures and literature. He liberally quoted ancient poets and philosophers such as Bhavbhuti, Valmiki and quotes from the Upanishada. During his free time, he used to play the violin and was a student of Hindustani classical music.

Dr Kalyan Banerjee was the recipient of several prestigious awards including the Shakuntala Amirchand Award (1970), Dr P N Raju Oration Award of ICMR (1982), Dr Gharpure memorial Award of Haffkine Institute (1991) and J B Chatterjee Medical Award of School of Tropical Medicine, Kolkata (1993). He was a Fellow of the Indian Academy of Science; Indian Virological Society and National Academy of Medical Sciences. He was also a member of the New York Academy of sciences.

Dr Kalyan Banerjee is survived by his wife, Shrimati Hemanti Banerjee.

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