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Protein based diagnostic, prognostic biomarkers for parkinsons disease

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Parkinson's disease (PD) exists as both an idiopathic and familial disorder. Although the exact mechanisms underlying all forms of PD are unknown, the common pathway for most, perhaps all, forms of PD results in damage to an subsequent loss of dopamine (DA) neurons Much of the advances made recently in understating PD pathogenesis can be attributed to characterizations of monogenic forms of familial PD, especially those with mutations in a-synuclein, parkin, DJ- 1, PINK 1, and LRRK2 genes. As all of these gene mutations give rise to a final outcome, nigrostriatal neurodegeneration there has been intense interest in studying the molecular mechanisms played by the proteins encoded by these key genes. One way of probing these mechanisms is to study the novel proteins that are expressed early even before the onset of the full pathology of Parkinson's disease by proteomics. In the current study, an animal model in female Wistar rats was developed by treatment with vehicle or a Parkinsonian toxicant rotenone that can not only produce Parkinsonism in animals but also induce formation of Lewy body-like inclusions (a pathological hallmark of PD) in surviving neurons. Next, serum proteins were screened at regular time intervals of disease progression by 1D SDS PAGE and 2 D Electrophoresis to see the protein expression changes. Some low molecular weight proteins were identified and are subjected to further validation for the prospective diagnostic biomarkers. Further characterization of these proteins will likely shed more light on the mechanisms by which a-synuclein, parkin, DJ- 1, and PINK1 contribute to the development of PD.

Biography

Deepshikha Pande Katare has completed her Ph.D in 2006 Hamdard University, New Delhi, India. She has seventeen years of Research and Teaching experience and presently working as Professor and Assistant Director in Amity Institute of Biotechnology. She has received various scientific honors and awards for her scientific contributions. She has published 03 text books and more than 45 research papers/review articles in International journals of repute Dr Katare has field more than 20 patents. She is also serving as an editorial and review board member of various International journals like BBA Cancer Review, Protoplasma, Critical Reviews in Biotechnology, International Journal of Pharmacy & Pharmaceutical Sciences repute.

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