Aims: Parkinson’s disease (PD) is a chronic neurodegenerative disorder. Many drug therapies are available but the effective brain drug delivery is limited by the blood-brain barrier (BBB). Plentiful strategies have been employed to circumvent the BBB; an emerging approach is to use nanoparticles (NPs), possessing invading potential to the BBB. Therefore present study was design to use Nanoparticles containing ropinirole as to reach deep inside the brain for better care of Parkinsonism.

Methods: Nanoparticles were prepared with PLGA polymers using a solvent displacement technique (Panagi et al., 2001). Briefly, polymers-drug solution were transferred dropwise into a stirred solution of PVA in distilled water. Dichloromethane was allowed to evaporate and the resulting suspension of nanoparticles was carefully dried using freeze dryer. The obtained nanoparticles were characterized by mean particle size, zeta potential, TEM,SEM, entrapment efficiency (EE) and loading capacity (LC).

Results: The mean particle size distribution (PSD) and zeta potential were found to be 165.59 ± 11.64 nm with -28.32 ± 2.17 respectively. The yield was 77.14± 3.3 with encapsulation and loading were 37.33 ± 0.4% and 2.61 ± 3.98. TEM and SEM authenticated a regular spherical surfaces. Further, optimized formulations were administered through tracheal intubation in Swiss albino rat, to estimate the potential of NP to invade brain through olfactory lobe by ex-vivo analysis.

Conclusions: In-vitro and Ex-vivo results suggested that Nano vector showed particle size less than 200 nm, high %EE as well LC with a satisfactory drug absorption into the brain.