Clinical and research applications of neuroimaging in Parkinson’s Disease (PD) and other parkinsonian disorders have advanced over the past decade, leading to novel diagnostic methods and contributing to the development of new therapies. Advanced MRI, PET, and SPECT are increasingly being used to study the molecular processes underlying PD symptoms, to detect subclinical and early disease, and to monitor disease progression.

**Quantitative Analysis**
- Striatal Binding Ratio (SBR) and SUVR approaches
- Kinetic analysis (Patlak and other approaches)
- FreeSurfer and template-based ROI methods

**High Quality Data – Validated QC Workflows**
- Qualification, image acquisition, central reconstruction and data analysis modeled after multi-center consortia best practices (EARL-ENCDAT, PPMI)
- Qualification of SPECT/PET centers
  - Phantom scans
  - Protocol validation and adherence
  - Tracer handling and administration
- Visual checks
  - Adequate counts
  - Artifacts
  - Uptake patterns
  - Correction measures

**Neuroimaging Modalities**
- SPECT and PET
  - DaTscan ($^{123}$I-FP-CIT)
  - Dopascan ($^{123}$I-beta-CIT)
  - $^{18}$F-fluoro-L-DOPA (FDOPA)
  - $^{18}$F-6-fluoro-L-m-tyrosine (FMT)
  - Novel radiotracer support and management
- MRI
  - Eligibility assessment
  - Safety monitoring
  - Volumetric MRI
  - Functional MRI (fMRI)
  - Diffusion Tensor Imaging (DTI)
  - Arterial Spin Labeling (ASL)
  - Neuromelanin and iron-sensitive MRI

**Parkinson’s Disease Expertise**
- MDs with clinical expertise
- PhD scientists with expertise in image acquisition and analysis
- Key clinical and academic advisors with expertise in PD imaging

*With 30+ years of experience across hundreds of neurodegenerative disease clinical trials, Bioclinica delivers proven neuroimaging science and operational expertise to advance your neuroscience drug program.*