PD GENEration for Clinicians: Genetics Behind Parkinson's

PD GENEration is a Parkinson's Foundation research study that offers genetic testing and counseling at no cost to people living with Parkinson's disease (PD).

Primary Parkinson's Genes

PD GENEration uses a comprehensive genetic test to detect changes (known as variants) in seven primary genes associated with Parkinson's that include:

1. GBA: The most common genetic PD risk factor.

2. LRRK2: Associated with dominant PD.

3. PRKN: The most common cause of recessive young-onset PD.

4. SNCA: Associated with dominant young-onset PD.

5. PINK1: Associated with recessive young-onset PD.

6. PARK7: Associated with recessive young-onset PD.

7. VPS35: Associated with dominant PD.

Secondary Parkinson's Genes

If the person with PD chooses, the PD GENEration test can also include DNA sequencing and analysis of additional genes, called "secondary findings" genes. These genes are either associated with rare types of PD or are currently being studied for potential associations with Parkinson's. Secondary findings genes include:

ATP13A2, ATP1A3, ATP7B, CHCHD2, DCTN1, DNAJC6, FBXO7, GCH1, GRN, MAPT, PLA2G6, POLG, PTRHD1, RAB32, RAB39B, SLC6A3, SYNJ1, TBK1, TH, VCP, VPS13C

CDC-10 Tier 1 Genes

Additionally, if the person with PD chooses, the test can also include the DNA sequencing and variant assessment of the Centers for Disease Control and Prevention (CDC)-10 Tier 1. These genes are not related to PD, but cause other diseases that have successful intervention and prevention options available.

CDC-10 Tier 1 genes include:

- Hereditary breast and ovarian cancer genes: ***BRCA1 & BRCA2***
- Lynch syndrome genes: ***EPCAM, MLH1, MSH2, MSH6, & PMS2***
- Familial hypercholestrolemia genes: ***APOB, LDLR, & PCSK9***