



**National Institute of
Neurological Disorders
and Stroke**

**PFNCA Parkinson's Pointers Lecture:
NIH's role in the fight against
Parkinson's**

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Disclosures

- All information presented today is provided for information purposes and does not represent endorsement by or an official position of the National Institutes of Health or any other federal agency.
- Dr. Ehrlich is an employee of the NIH
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Outline

- Brief history of the NIH
- The NIH and Clinical Center of today
- Divisions of the NIH
- NIH/NINDS Parkinson's Disease Clinic
- Is clinical research participation right for me?
- How do I find a study?

Early history of the NIH

- 1798: Marine Hospital Service (MHS) established
- 1880s: MHS tasked to examine passengers on arriving ships for signs of infectious disease
- 1887: A single room federal laboratory created within the MHS for the study of bacteria called the Hygienic Laboratory



Early History of the NIH

- 1891-Hygeienc Laboratory moved to Washington, DC
- 1930- Ransdell Act established the National Institute of Health



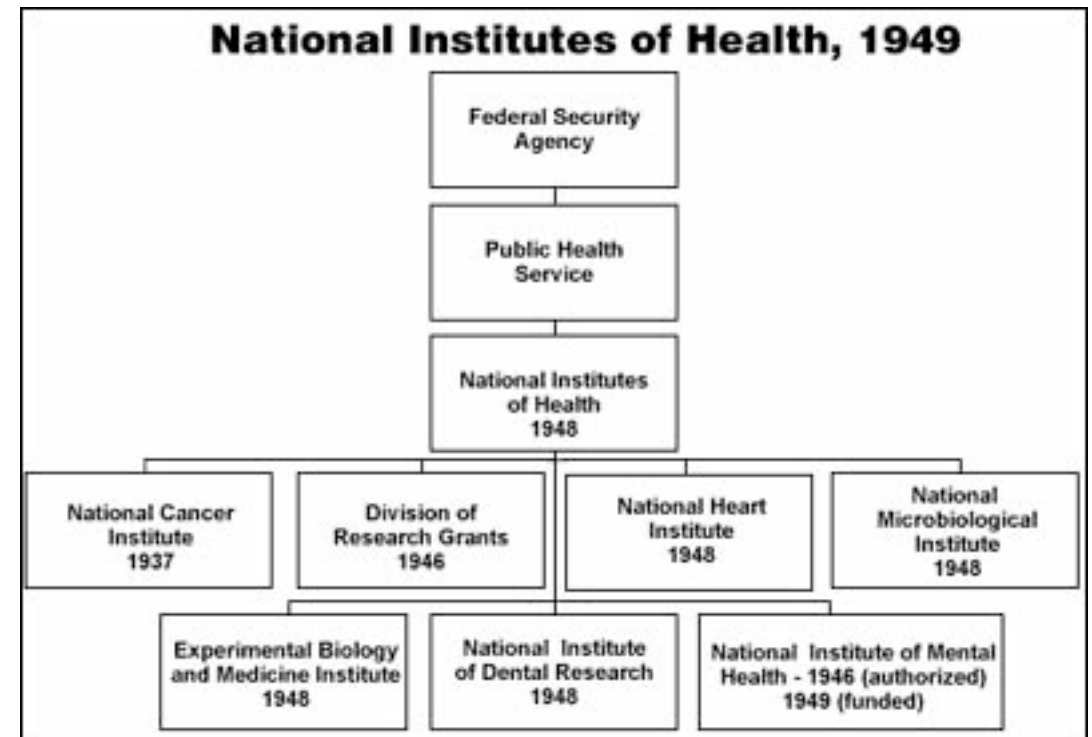
Early History of the NIH

- 1935: Wilsons gift 45 acres of their “Tree Tops” estate in Bethesda, MD for use of the NIH
- Wilsons gifted more land over upcoming years
- 1940: President Franklin D. Roosevelt dedicated the buildings and grounds of the NIH



Early History of the NIH

- 1937: The National Cancer Institute was created
- Several institutes established over next 2 decades
- 1948: the name changed to National Institutes of Health



NIH Clinical Center

- After WWII, Congress provided funding to build a research hospital
- 1953: NIH Clinical Center opened
- Designed with research laboratories in close proximity to hospital wards



The NIH Today

- Currently composed of 27 institutes
- Main campus remains in Bethesda
- Over 50 buildings on campus

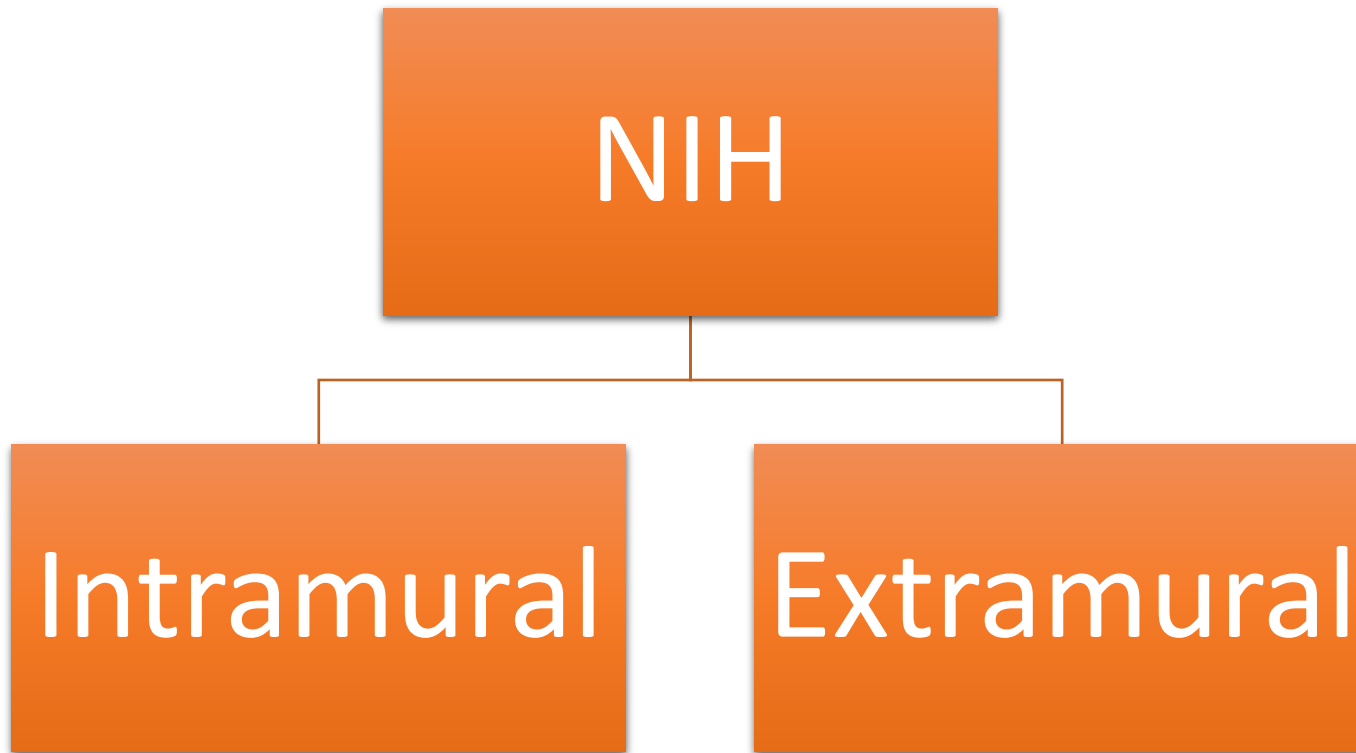


NIH Clinical Center of Today

- NIH Clinical Center is the nation's largest hospital devoted entirely to clinical research
- 1,200 physicians, dentists, and PhD researchers
- More than 500,000 research participants
- About 1,600 clinical research studies in progress at the NIH Clinical Center
- No charge for participation and treatment in clinical studies



Divisions of the NIH



NIH Funding for Parkinson's Disease

<u>Research/Disease Areas</u> <u>(Dollars in millions and</u> <u>rounded)</u>	<u>FY 2015</u> <u>Actual</u>	<u>FY 2016</u> <u>Actual</u>	<u>FY 2017</u> <u>Actual</u>	<u>FY 2018</u> <u>Actual</u>	<u>FY 2019</u> <u>Estimated</u>	<u>FY 2020</u> <u>Estimated</u>	<u>2017</u> <u>US</u> <u>Mortality</u> <u>19/</u>	<u>2017</u> <u>US</u> <u>Prevalence</u> <u>(Standard</u> <u>Error) 19/</u>
Parkinson's Disease	<u>\$146</u>	<u>\$161</u>	<u>\$168</u>	<u>\$193</u>	\$201	\$175	47,478	-

Goals of NINDS Supported Research

- Mission of NINDS: to seek fundamental knowledge about the brain and nervous system and to use the knowledge to reduce the burden of neurological disease
- Goals of NINDS research in PD
 - To better understand and diagnosis PD
 - Develop new treatments
 - Prevent PD

NIH/NINDS Parkinson's Clinic

- Part of the NIH/NINDS Intramural research program
- Located within the NIH Clinical Center
- Committed to facilitating and advancing PD research at the NIH
- Primary goals
 - Characterize and maintain a cohort of people with Parkinson's Disease
 - Screen and refer patients for other studies at the NIH
 - Explore research topics of interest
 - Assist other researchers in carrying out clinical trials

Current Focuses of Research in the PD Clinic

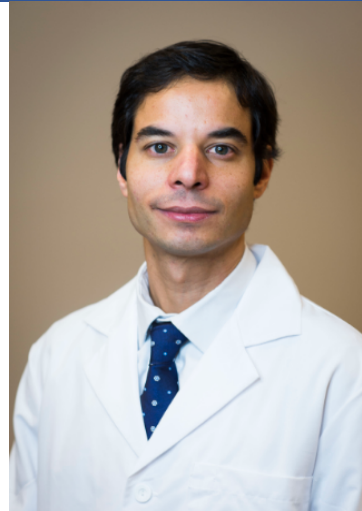
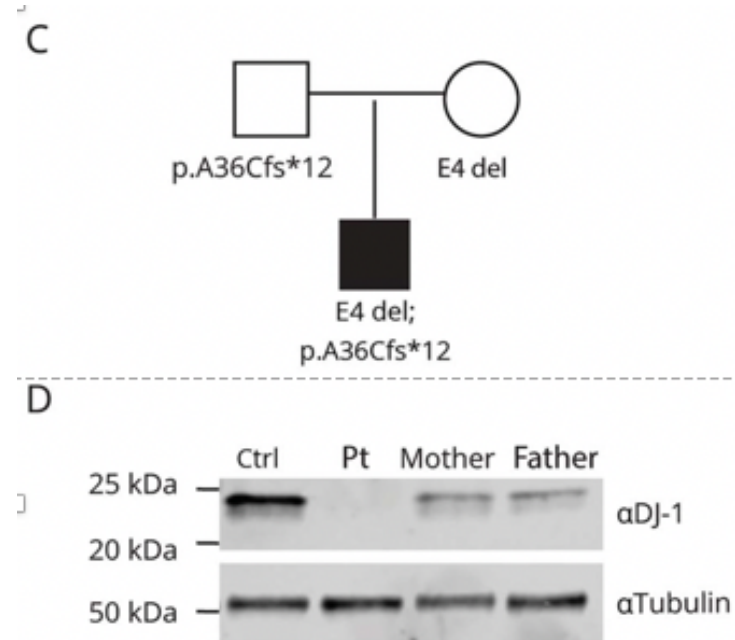
- Genetics of Parkinson's Disease
- Young-onset Parkinson's Disease
- Deep Brain Stimulation
- GDNF

Phenotype-Genotype Correlations

- **Phenotype:** physical characteristics, clinical features of disease
- **Genotype:** heritable genetic identity or sets of genes carried by an individual
- Parkinson's example:
 - Phenotype: Tremor predominant Parkinson's Disease, slow progression
 - Genotype: LRRK2 G2019S
- The NIH PD clinic is committed to deep phenotyping of patients and advancing knowledge of phenotypic/genotypic correlations

Genotyping

- Patient had mutations in each copy of DJ1 gene
- Both genetic variants previously unreported
- Mother and father each had 1 mutation
- Patient not producing any normal DJ1 protein



Dr. Derek Narendra

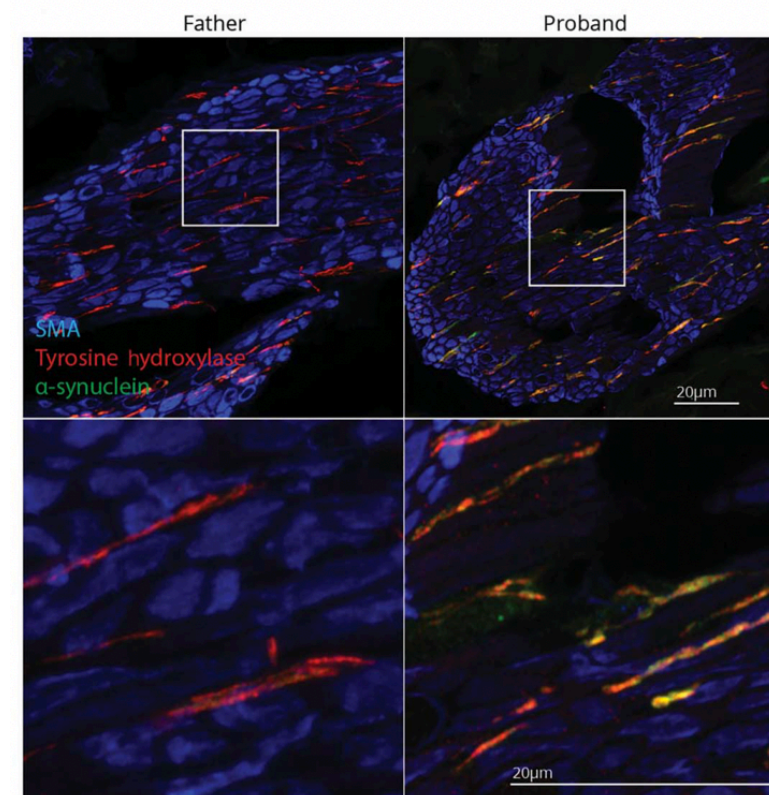
Sense of smell in DJ1

- DJ1 phenotype previously thought similar to Parkin
- PD patients with Parkin mutations have preserved sense of smell
- Olfaction severely impaired in DJ1

Patient	Variants	AAO	Course	UPDRS-III	H&Y	LEDD	UPSIT
DJ-1	(E4 del; A36Cfs*12)	20s	~10	53	4.0	1,963	16
Parkin 1	(Biallelic deletions)	22	9	25	2.0	450	36
Parkin 2	(T415N; T415N)	27	29	19	2.5	2,314	31
Parkin 3	(E11 del; G429D)	31	22	17	2.5	782	29
Parkin 4	(E11 del; G429D)	37	19	19	2.0	500	26
Parkin 5	(E7 del, V56E)	35	15	6	2.0	1,155	28
Parkin 6	(E7 del,V56E)	32	7	12	2.0	175	37

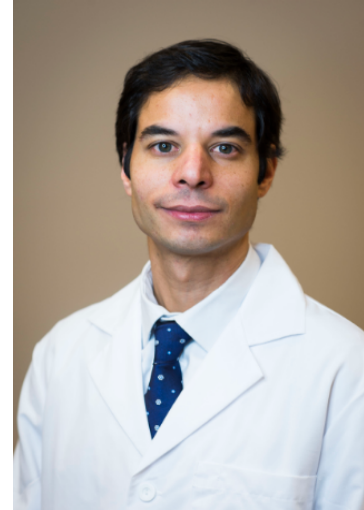
α -synuclein and DJ1

- Misfolded α -synuclein is pathological finding in brains of many people with PD
- The extent to which α -synuclein is involved in all cases of PD is unclear
- Skin biopsies can be used to test for α -synuclein outside the brain
- Deposition of α -synuclein in nerve cells in skin DJ1
- DJ1 involves synucleinopathy within both the brain and the sympathetic nervous system outside the brain



Expanding the phenotype of DJ1

- DJ1 phenotype (previously known)
 - Early-onset PD
 - Cataracts
 - Sensorineural hearing loss
- New evidence
 - Olfactory loss
 - Peripheral synucleinopathy



Much can be learned from even a single research participant

Types of PD research at the NIH

- **Basic:** scientific discoveries in the laboratory
- **Clinical:** Developing and studying therapeutic approaches to Parkinson's Disease
 - Natural history
 - Screening trials
 - Prevention
 - Treatment
- **Translational:** focused on tools and resources that speed the development of therapeutics into practice

Why should I consider participation in clinical research?

- Clinical research is key to all medical advances
- Clinical trials look for new ways to prevent, detect, or treat disease
- Early access to research treatments
- May receive regular monitoring/care by medical professionals
- Help others who may be at risk of certain diseases
- Partner in advancing medical breakthroughs



Potential risks for volunteers

- Possible unpleasant, serious, or life-threatening side-effects
- Experimental treatment may not be effective
- Placebo control, may not receive experimental treatment
- Time commitment, higher levels of care



Is research participation right for me?

- Obtain key information about the study
 - What is the purpose of the study?
 - Is there an intervention
 - New drug, device, test, etc.
 - Placebo, established treatment vs. new treatment
 - Risk and potential benefits
 - Other available options
 - Time commitment
 - Procedures, tests, surgery, etc.
 - Cost
- Discuss potential participation with your neurologist/providers



What to expect as a research participant

- Informed consent
 - Key information provided to participants
 - Opportunity to ask questions
- Screening
- Research is voluntary, may withdraw participation at any time



How do I get involved with NIH research?

- [Clinicalstudiesinfo.nih.gov](https://clinicalstudiesinfo.nih.gov)



Find NIH Clinical Center Trials

The National Institutes of Health (NIH) Clinical Center Search the Studies site is a registry of publicly supported clinical studies conducted mostly in Bethesda, MD.

Keyword:

Search



[Search the Studies](#)

Your Query: **Keywords=Parkinson**

Retrieved: **15 Protocols**

(10 Protocols Actively Accruing/Recruiting New Patients 5 Protocols Actively Following Patients Currently Enrolled)


Sort by [Search Strength](#) | [Date](#)

[Go back to result listing.](#)

Protocols Actively Accruing/Recruiting New Patients

- [18-N-0140](#) Clinical Laboratory Evaluation of Chronic Autonomic Failure
Search Strength = 2, Date = 2018
- [17-N-0076](#) Does N-Acetylcysteine Decrease Spontaneous Oxidation of Central Neural Dopamine in Parkinson's Disease?
Search Strength = 4, Date = 2017
- [17-N-0035](#) Clinical and Physiological Studies of Tremor Syndromes
Search Strength = 2, Date = 2017
- [14-N-0086](#) Deep Brain Stimulation Therapy in Movement Disorders
Search Strength = 3, Date = 2014
- [12-N-0031](#) Imaging Biomarkers in Parkinson Disease
Search Strength = 6, Date = 2012
- [11-N-0211](#) Deep Brain Stimulation Surgery for Movement Disorders
Search Strength = 5, Date = 2011
- [10-H-0126](#) Cardiovascular Disease Discovery Protocol
Search Strength = 1, Date = 2010
- [03-N-0164](#) Evaluation and Treatment of Neurosurgical Disorders
Search Strength = 1, Date = 2003
- [02-H-0160](#) Peripheral Blood Stem Cell Collection from Adult Volunteers
Search Strength = 1, Date = 2002
- [01-M-0232](#) Positron Emission Tomography (PET) Scanning in Dopamine Disorders: Parkinson's Disease and Schizophrenia
Search Strength = 6, Date = 2001

Other research resources

 U.S. National Library of Medicine

ClinicalTrials.gov

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ClinicalTrials.gov is a database of privately and publicly funded clinical studies conducted around the world.

Explore 324,006 research studies in all 50 states and in 209 countries.

ClinicalTrials.gov is a resource provided by the U.S. National Library of Medicine.

IMPORTANT: Listing a study does not mean it has been evaluated by the U.S. Federal Government. Read our [disclaimer](#) for details.

Before participating in a study, talk to your health care provider and learn about the [risks and potential benefits](#).

Find a study (all fields optional)

Status ⓘ

- ☐ Recruiting and not yet recruiting studies
- ☒ All studies

Condition or disease ⓘ (For example: breast cancer)

Other terms ⓘ (For example: NCT number, drug name, investigator name)

Country ⓘ


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Other resources

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 *As of right now there are:*

volunteers	researchers	studies	institutions	publications	more metrics
145,104	7,895	764	169	425	

[En Español](#)



A Researcher's most important discovery might be you!

Medical discoveries are not possible without volunteers like **you**.

Researchers need your help! Health research changes people's lives every day, but many studies end early because there are not enough volunteers. We help by matching you with research studies. Researchers need both healthy people and people with all types of conditions. Everyone can be the perfect research match!

Join Now

 researchmatch.org

Take home points

- The NIH allocates both extramural and intramural funding to support research in Parkinson's Disease
- The NIH/NINDS Parkinson's clinic is committed to facilitating and advancing PD research at the NIH
- There are many different types of clinical research
- Every participant in research is valuable and can help advance knowledge and treatment of disease
- The decision to participate in clinical research should be carefully considered and discussed with your medical provider

For more information...

- Clinicalstudies.info.nih.gov
- Clinicaltrials.gov
- Researchmatch.org
- NIH Parkinson's Clinic:
 - Mae Brooks, Patient care coordinator
 - 301-496-4604

References

- <https://irp.nih.gov/about-us/history>
- <https://history.nih.gov/exhibits/history/docs>
- <https://www.niaid.nih.gov/about/joseph-kinyoun-indispensable-man-hygienic-laboratory>