

UNIVERSITY OF PENNSYLVANIA - PERELMAN SCHOOL OF MEDICINE
Curriculum Vitae

Date: 08/27/2019

David John Irwin, MD

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If you are not a U.S. citizen or holder of a permanent visa, please indicate the type of visa you have:
none (U.S. citizen)

Education:

2001	BA	Drew University
2006	MD	Drexel University College of Medicine
2015	MTR	University of Pennsylvania Perelman School of Medicine

Postgraduate Training and Fellowship Appointments:

2006-2007	Intern in Medicine, Hahnemann Hospital, Philadelphia
2007-2010	Resident in Neurology, Hahnemann Hospital, Philadelphia
2009-2010	Chief Resident in Neurology, Hahnemann Hospital, Philadelphia
2010-2014	Fellowship in Cognitive Neurology/Neurodegenerative Disease, Hospital of the University of Pennsylvania, Philadelphia

Military Service:

[none]

Faculty Appointments:

2014-2015	Instructor of Neurology, University of Pennsylvania Perelman School of Medicine Hospital of the University of Pennsylvania
2015-2018	Assistant Professor of Neurology at the Hospital of the University of Pennsylvania, University of Pennsylvania School of Medicine
2018-present	Assistant Professor of Neurology, University of Pennsylvania School of Medicine

Hospital and/or Administrative Appointments:

[none]

Other Appointments:

2012-present	Institute for Translational Medicine and Therapeutics, University of Pennsylvania
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2013-present	Institute of Aging (Associate Fellow), University of Pennsylvania
2017-present	Neuroscience Graduate Group, University of Pennsylvania

Specialty Certification:

2010	American Board of Psychiatry and Neurology
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Licensure:

2010-present	Pennsylvania State Board of Medicine
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Awards, Honors and Membership in Honorary Societies:

2006	Student prize for excellence in neurology, The American Academy of Neurology
2006	David Dunn MD award for excellence in neurology, Drexel University College of Medicine
2008	Discovery day outstanding clinical resident/fellow poster award 3rd prize, Drexel University College of Medicine
2008	Resident symposium travel scholarship award, The American Neurological Association
2010	Annual meeting resident scholarship award, The American Academy of Neurology
2010	Golden apple award for excellence in teaching, Drexel University College of Medicine
2011	National Institutes of Health Extramural Clinical Research Loan Repayment Program Award
2012	Institute for Translational Medicine and Therapeutics Fellowship Award
2014	National Institutes of Health Extramural Clinical Research Loan Repayment Program Award
2014	Annual Meeting travel award, American Neurological Association
2016	1st Place Prize- Penn Institute on Aging-Sylvan M. Cohen Annual Retreat Poster Session

Memberships in Professional and Scientific Societies and Other Professional Activities:International:

2016-Present	Lewy body disease Association (Scientific Advisory Council Member 2016- Present, Co-Chair of Clinical Trial Work Group)
2016-Present	MDS-PSP Workgroup (Member)

National:

2007-Present	The American Academy of Neurology (Member, Behavioral Neurology Section, 2012- present Course Director, Educational Program, 2017-present Member, Annual Meeting Abstract Review Panel, 2017-present)
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- 2017-Present American Neurological Association (Scientific Abstract Review Panel Member
2018-Present)
- 2017 National Institute of Neurological Disorders and Stroke Special Emphasis Panel ZNS1
SRB-T(29) Parkinsonism Biomarker Review (Member)
- 2018 National Institute of Neurological Disorders and Stroke Special Emphasis Panel
ZNS1SRBT35 Biomarkers Discovery In Parkinsonism (Member)

Local:

- 2007-Present Philadelphia Neurological Society (Member)

Editorial Positions:

- 2011-2014 Ad hoc peer reviewer for Journal of Neurology Neurosurgery &
Psychiatry
- 2012-Present Ad hoc peer reviewer for Alzheimer's & Dementia
- 2012-Present Ad hoc peer reviewer for Neurology
- 2012-Present Ad hoc peer reviewer for PLOS One
- 2012-Present Ad hoc peer reviewer for Movement Disorders
- 2013-Present Ad hoc peer reviewer for Acta Neuropathologica
- 2013-Present Associate Editor for BMC Neurology, Dementia section
- 2013-Present Ad hoc peer reviewer for JAMA Neurology
- 2014-Present Ad hoc peer review for Lancet Neurology
- 2014 Ad hoc peer reviewer for Ireland Health Research Board (HRB)
Research Training Fellowships for Healthcare Professionals Grant
- 2014-Present Ad hoc peer review for Neuropathology and Applied Neurobiology
- 2014-2104 Ad hoc peer reviewer for UK Medical Research Council (MRC)
Neurosciences and Mental Health Board Research Grant
- 2015 Ad hoc peer reviewer for Parkinson's UK Project Grant
- 2015 Ad hoc peer reviewer for Neurological Foundation of New Zealand
- 2015 Ad hoc peer reviewer for Alzheimer's Society Research Programme
Grant
- 2016-Present Ad hoc peer reviewer for Weston Brain Institute
- 2018 Ad hoc peer reviewer for Wellcome Trust Senior Research
Fellowship in Clinical Science
- 2018-Present Ad hoc peer reviewer Annals of Neurology

Academic and Institutional Committees:

- 2013 Member, Institutional Review Board#2
- 2013-2015 Member, Institutional Review Board #6
- 2014-2015 Member, Internal Review Committee for Masters of Science
Program in Health Policy Research
- 2015-Present Member/Mentor, PASS (Penn Access Summer Scholars Program)
- 2015-Present Member, Interview Panel for the Perelman School of Medicine

2015-Present	Physician Mentor, Penn Pre-Medical Association Physician Shadowing Program
2015-Present	Member, Institutional Review Board #4
2017-Present	Mentor, Penn Undergraduate Research Mentoring Program (PURM)
2017-Present	PI, Lewy body disease association research center of excellence
2018-Present	Member, Richards Society

Major Academic and Clinical Teaching Responsibilities:

2010-Present	Neurology clerkship lecturer for medical students, 6 lectures/year.
2010-Present	Behavioral Neurology/Psychology lecturer for neurology residents; 2 one-hour lectures/year.
2010-Present	Cognitive neurology clinic; 1 day (2 sessions) per week with periodic resident and fellow supervision.
2014-Present	Clinical Neuroscientist Training Program (CNST) Seminar Lecturer; Annual Lecture 2014, 2016, 2018.
2014-Present	Attending rounds at HUP; 2 weeks of full-day rounds/year.
2014-Present	Resident clinic supervision at HUP; 5 clinics/year.
2014-Present	"This Month in Neurology" Resident Lecture Series; 1-2 lectures per year.
2015-Present	Guest Lecturer BIBB475 Cellular and Molecular Mechanisms of Neurodegenerative Disease; One hour lecture/group discussion 2015, 2018.
2015	Panel member for "Writing a Career Development/K Award" panel session, Institute for Translational Medicine Junior Investigators Symposium, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA.
2015-2017	Primary Research Mentor for Penn Perelman School of Medicine Student Pathology Program; G. Michael Baer; Weekly meetings.
2016-Present	Pathology Slide Review for Resident Neurodegenerative Disease Elective; Perform two-three one-hour 1:1 slide review didactic for each of 2-3 residents per year on neurodegenerative disease elective.
2016-Present	Brain and Behavior Small Group Lecturer; Facilitate one small group session on neuropathology per year.
2017-Present	Co-Director, Neurology Resident Lecture Series: Behavioral Neurology/Psychology; Develop curriculum and schedule faculty lecture series each year.
2017	"A Translational Approach to Digital Histopathology in Neurodegenerative Disease", Tissue Microarray Workshop and Quantitative Digital Proteomics in Pathology, CHOP, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA.
2017-Present	Resident Faculty Mentor; Sheena Baratono; Three 1:1 meetings/year.
2017-2019	Primary Research Mentor for PENN ITMAT MTR Program, David Coughlin. Weekly 1:1 meetings.
2018-Present	Brain and Behavior Lecture: "Aphasia"; Annual lecture.

- 2018 "Bringing the microscope to clinic: improving antemortem diagnosis of neurodegenerative disease," Department of Neurology Grand Rounds, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA.
- 2018-Present Penn NGG Graduate Student Lab Rotation Talk Faculty Evaluator; Evaluate and give feedback on NGG student rotation talks in one 4 hour session per semester.
- 2019 "Bringing the microscope to clinic: translating human histopathology into biomarkers for neurodegenerative disease," Department of Neuropathology Grand Rounds, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA.
- 2019 Lab Rotation Mentor for Penn Neuroscience Graduate Group; Nicholas Cullen, weekly meetings

Lectures by Invitation (Last 5 years):

- Mar, 2014 "Parkinson's disease dementia: convergence of convergence of alpha synuclein, tau and amyloid- β pathologies," 13th International Geneva/Springfield Symposium on Advances in Alzheimer Therapy, Geneva, CH.
- Oct, 2014 Panel member for "Discussion- Future directions for ALS Genetics, Data Sharing, New Technologies." ALS association Investigator Meeting. Philadelphia, PA.
- Nov, 2014 "Tauopathies in behavioral-variant frontotemporal dementia" Biennial meeting of World Federation of Neurology Research Group on Aphasia, Dementia and Cognitive Disorders. Hong Kong, China.
- Nov, 2014 "Genetic and Pathological Associations in ALS" Biennial meeting of World Federation of Neurology Research Group on Aphasia, Dementia and Cognitive Disorders. Hong Kong, China.
- Apr, 2015 "Research strategies for improving Alzheimer's disease diagnosis and treatment," Alzheimer's Association 2015 Annual Southeastern Pennsylvania Dementia Conference, King of Prussia, PA.
- Dec, 2015 "What is new on Tauopathies," XXI World Congress on Parkinson's Disease and Related Disorders. Milan, Italy.
- Mar, 2016 "Endophenotypes of behavioral-variant frontotemporal dementia," Johns Hopkins University, Baltimore, MD.
- Aug, 2016 "Cerebrospinal fluid phosphorylated tau levels are associated with post-mortem tau inclusion burden in frontotemporal degeneration," International Conference for Frontotemporal Dementias, Munich, Germany.
- Nov, 2016 "Imaging Histopathology in Frontotemporal Lobar Degeneration," Cold Spring Harbor Laboratories, Cold Spring Harbor, NY.
- Apr, 2017 "FTLD-TDP Type C is a unique clinicopathological entity" American Academy of Neurology Annual Meeting, Boston, MA.
- Apr, 2017 "Cerebrospinal fluid p-tau levels are associated with post-mortem tau inclusion burden in frontotemporal degeneration," American Academy of Neurology Annual Meeting, Boston, MA.

- May, 2017 "Dementia: Clinicopathological Correlations," Bryn Mawr Hospital Department of Internal Medicine Grand Rounds, Bryn Mawr, PA.
- May, 2017 "Medications and Non-Pharma Approaches to Treatment," Association for Frontotemporal Dementia Annual Education Conference, Baltimore, MD.
- Jul, 2017 "Bringing the microscope to clinic: improving the diagnosis of Alzheimer's disease and related disorders," Friends of the NIA Day on the Hill, Washington, DC.
- Oct, 2017 "To lump or to split diagnoses?: Improving antemortem diagnosis of underlying molecular pathology in Lewy body disorders," University of Washington, Puget Sound VA Geriatric Research Education Clinical Center, Seattle, WA.
- Feb, 2018 "Translational Neuropathology in Neurodegenerative Disease Research," Michael J. Fox Foundation S4 Scientific Planning Meeting, New York, NY.
- Feb, 2018 "Penn DLBC Recruitment Update," Dementia with Lewy Bodies Consortium Annual Meeting, Las Vegas, NV.
- Apr, 2018 "Translational Neuropathology in Neurodegenerative Disease Research," Rising Star Data Blitz at NIA Alzheimer's disease center annual meeting, Los Angeles CA.
- Jul, 2018 "Improving antemortem diagnosis of neurodegenerative disease using a translational approach to neuropathology," Columbia College of Physicians and Surgeons Department of Neurology Division of Aging and Dementia, New York, NY.
- Oct, 2018 "How to Utilize the LBDA Research Centers of Excellence (RCOE) Program" Lewy Body Disease Association Webinar, Philadelphia, PA.
- Mar, 2019 "Cognitive Impairment in Parkinson's Disease and Dementia with Lewy Bodies" 11th PADRECC/MIRECC Symposium: Update on Psychiatric and Cognitive Complications in Parkinson's Disease (PD) and Dementia with Lewy Bodies (DLB), Philadelphia, PA.
- Apr, 2019 "Frontotemporal Dementia: A Tale of Two Brains," Drexel University Department of Neurology Grand Rounds, Philadelphia, PA.
- Apr, 2019 "Distribution of Hippocampal Tau Pathology in Amnesic and Non-Amnesic Forms of Alzheimer's Disease," Platform Session American Academy of Neurology Annual Meeting, Philadelphia, PA.
- Jun, 2019 "Genetic Risk and Clinical Expression of Tauopathy Across Alzheimer's Disease and Frontotemporal Dementia," An Evening of BrightFocus; Brightfocus Foundation, Washington, DC.
- Jun, 2019 "Biomarkers: What are they? Why do they matter?" International Lewy Body Dementia Conference, Las Vegas, NV.
- Jun, 2019 "Should protein aggregates be the primary focus for disease modifying therapies?-YES" Invited Scholarly Debate, International Lewy Body Dementia Conference, Las Vegas, NV.

- Jul, 2019 "Alzheimer's and Lewy Body Disease: Pathologic Perspective," Alzheimer's Association International Conference, Los Angeles, CA.
- Oct, 2019 "Update on Lewy Body Diseases," American Neurological Association Annual Meeting, St. Lois, MO.
- Nov, 2019 "Distinct Microscopic Signatures of Tau and TDP-43 Proteinopathies in Frontotemporal Dementia Clinical Syndromes," Mesulam Center for Cognitive Neurology and Alzheimer's Disease Seminar Series, Northwestern University, Chicago, IL.

Organizing Roles in Scientific Meetings:

- Dec, 2017 Co-Chair, Clinical Trial Design and Optimization Work Group for the Lewy Body Disease Association Centers of Excellence Annual Meeting
New Orleans, LA
- Apr, 2018 Course Director, "Clinicopathological Case Studies in Neurodegenerative Disease," American Academy of Neurology Annual Meeting
Los Angeles, CA
- May, 2018 Program Director, "Early Diagnosis: The Road to Better Therapies and LBD Care"
Perelman School of Medicine, Philadelphia, PA
- Apr, 2019 Course Director, "Clinicopathological Case Studies in Neurodegenerative Disease," American Academy of Neurology Annual Meeting
Philadelphia, PA
- Jun, 2019 Co-Chair, Clinical Trial Design and Optimization Work Group for the Lewy Body Disease Association Centers of Excellence Annual Meeting
Las Vegas, NV
- Nov, 2019 Moderator, Center for Neurodegenerative Disease Research Annual Retreat, "Genetics and Genomics: What have they taught us about neurodegeneration?"
Perelman School of Medicine, Philadelphia PA.
- Nov, 2019 Co-Chair, Society for Neuroscience Annual Meeting
Nanosymposium on Tauopathies
Chicago, IL
- Apr, 2020 Course Director, "Clinicopathological Case Studies in Neurodegenerative Disease," American Academy of Neurology Annual Meeting
Toronto, CA
- May, 2020 Program Director, "Crossing the translational divide from basic science to clinical research in neurodegenerative disease" Sylvan M. Cohen Institute on Aging/ Marian Ware Center for Neurodegenerative Disease Annual Retreat
Perelman School of Medicine, Philadelphia, PA

Bibliography:Research Publications, peer reviewed (print or other media):

1. Irwin David, Rosso Andrea, Lippa Carol F: Progranulin (PGRN) expression in ALS: An immunohistochemical study. Journal of the neurological sciences 276(1-2), Oct 2009.
2. Lippa Carol F, Rosso Andrea, Hepler Marjorie, Jenssen Sigmund, Pillai Joyti, Irwin David: Levetiracetam: A Practical Option for Seizure Management in Elderly Patients with Cognitive Impairment. American journal of Alzheimer's disease and other dementias 25(2): 149-154, Mar 2010.
3. Irwin David, Rosso Andrea, Lippa Carol F: Effects of prescribed medications on cognition and behavior in frontotemporal lobar degeneration. American journal of alzheimer's disease and other dementias 25(7): 566-571, Nov 2010.
4. Pantelyat Alexander, Gross Rachel, Moore Peachie, Dreyfuss Micheal, Schuck Theresa, Irwin David J, Trojanowski John Q, Grossman Murray: Acalculia in autopsy-proven corticobasal degeneration. Neurology 76(7): Suppl 2: S61-3, Feb 2011.
5. McMillian Corey T, Avants Brian, Irwin David J, Toledo Jon B, Wolk David A, Shaw Leslie M, Trojanowski John Q, Grossman Murray: Can MRI screen for CSF biomarkers in neurodegenerative disease? Neurology 80(2): 132-8, Jan 2012.
6. Irwin David J, Cohen Todd J, Grossman Murray, Arnold Steven E, Xie Sharon X, Lee Virginia M-Y, Trojanowski John Q: Acetylated tau, a novel pathological signature in Alzheimer's disease and other tauopathies. Brain : a journal of neurology 135(Pt 3): 807-18, Mar 2012.
7. Brettschneider Johannes, Van Deerlin Vivianna M, Robinson John L, Kwong Linda, Lee Edward B, Ali Yousuf O, Safren Nathaniel, Monteiro Mervyn J, Toledo Jon B, Elman Lauren, McCluskey Leo, Irwin David J, Grossman Murray, Molina-Porcel Laura, Lee Virginia M-Y, Trojanowski John Q: Pattern of ubiquilin pathology in ALS and FTLN indicates presence of C9ORF72 hexanucleotide expansion. Acta neuropathologica 123(6): 825-39, Jun 2012.
8. Irwin David J, McMillan Corey T, Toledo Jon B, Arnold Steven E, Shaw Leslie M, Wang Li-San, Van Deerlin Vivianna, Lee Virginia M-Y, Trojanowski John Q, Grossman Murray: Comparison of cerebrospinal fluid levels of tau and A β 1-42 in Alzheimer disease and frontotemporal degeneration using 2 analytical platforms. Archives of neurology 69(8): 1018-25, Aug 2012.
9. Irwin David J, White Matthew T, Toledo Jon B, Xie Sharon X, Robinson John L, Van Deerlin Vivianna, Lee Virginia M-Y, Leverenz James B, Montine Thomas J, Duda John E, Hurtig Howard I, Trojanowski John Q: Neuropathologic substrates of Parkinson disease dementia. Annals of neurology 72(4): 587-98, Oct 2012.

10. Irwin David J, McMillan Corey T, Brettschneider Johannes, Libon David J, Powers John, Rascovsky Katya, Toledo Jon B, Boller Ashley, Bekisz Jonathan, Chandrasekaran Keerthi, Wood Elisabeth McCarty, Shaw Leslie M, Woo John H, Cook Philip A, Wolk David A, Arnold Steven E, Van Deerlin Vivianna M, McCluskey Leo F, Elman Lauren, Lee Virginia M-Y, Trojanowski John Q, Grossman Murray: Cognitive decline and reduced survival in C9orf72 expansion frontotemporal degeneration and amyotrophic lateral sclerosis. Journal of neurology, neurosurgery, and psychiatry 84(2): 163-9, Feb 2013.
11. Tsuang Debby, Leverenz James B, Lopez Oscar L, Hamilton Ronald L, Bennett David A, Schneider Julie A, Buchman Aron S, Larson Eric B, Crane Paul K, Kaye Jeffrey A, Kramer Patricia, Woltjer Randy, Trojanowski John Q, Weintraub Daniel, Chen-Plotkin Alice S, Irwin David J, Rick Jacqueline, Schellenberg Gerard D, Watson G Stennis, Kukull Walter, Nelson Peter T, Jicha Gregory A, Neltner Janna H, Galasko Doug, Masliah Eliezer, Quinn Joseph F, Chung Kathryn A, Yearout Dora, Mata Ignacio F, Wan Jia Y, Edwards Karen L, Montine Thomas J, Zabetian Cyrus P: APOE ϵ 4 increases risk for dementia in pure synucleinopathies. JAMA neurology 70(2): 223-8, Feb 2013.
12. Irwin David J, Abrams Joseph Y, Schonberger Lawrence B, Leschek Ellen Werber, Mills James L, Lee Virginia M-Y, Trojanowski John Q: Evaluation of potential infectivity of Alzheimer and Parkinson disease proteins in recipients of cadaver-derived human growth hormone. JAMA neurology 70(4): 462-8, Apr 2013.
13. Ash Sharon, Evans Emily, O'Shea Jessica, Powers John, Boller Ashley, Weinberg Danielle, Haley Jenna, McMillan Corey, Irwin David J, Rascovsky Katya, Grossman Murray: Differentiating primary progressive aphasia in a brief sample of connected speech. Neurology 81(4): 329-36, Jul 2013.
14. Brettschneider Johannes, Del Tredici Kelly, Toledo Jon B, Robinson John L, Irwin David J, Grossman Murray, Suh EunRan, Van Deerlin Vivianna M, Wood Elisabeth M, Baek Young, Kwong Linda, Lee Edward B, Elman Lauren, McCluskey Leo, Fang Lubin, Feldengut Simone, Ludolph Albert C, Lee Virginia M-Y, Braak Heiko, Trojanowski John Q: Stages of pTDP-43 pathology in amyotrophic lateral sclerosis. Annals of neurology 74(1): 20-38, Jul 2013.
15. Irwin David J, Cohen Todd J, Grossman Murray, Arnold Steven E, McCarty-Wood Elisabeth, Van Deerlin Vivianna M, Lee Virginia M-Y, Trojanowski John Q: Acetylated tau neuropathology in sporadic and hereditary tauopathies. The American journal of pathology 183(2): 344-51, Aug 2013.

16. Libon David J, Rascovsky Katya, Powers John, Irwin David J, Boller Ashley, Weinberg Danielle, McMillan Corey T, Grossman Murray: Comparative semantic profiles in semantic dementia and Alzheimer's disease. Brain : a journal of neurology 136(Pt 8): 2497-509, Aug 2013.
17. McMillan Corey T, Irwin David J, Avants Brian B, Powers John, Cook Philip A, Toledo Jon B, McCarty Wood Elisabeth, Van Deerlin Vivianna M, Lee Virginia M-Y, Trojanowski John Q, Grossman Murray: White matter imaging helps dissociate tau from TDP-43 in frontotemporal lobar degeneration. Journal of neurology, neurosurgery, and psychiatry 84(9): 949-55, Sep 2013.
18. Kang Ju-Hee, Irwin David J, Chen-Plotkin Alice S, Siderowf Andrew, Caspell Chelsea, Coffey Christopher S, Waligórska Teresa, Taylor Peggy, Pan Sarah, Frasier Mark, Marek Kenneth, Kieburz Karl, Jennings Danna, Simuni Tanya, Tanner Caroline M, Singleton Andrew, Toga Arthur W, Chowdhury Sohini, Mollenhauer Brit, Trojanowski John Q, Shaw Leslie M: Association of cerebrospinal fluid β -amyloid 1-42, T-tau, P-tau181, and α -synuclein levels with clinical features of drug-naive patients with early Parkinson disease. JAMA neurology 70(10): 1277-87, Oct 2013.
19. Wood Elisabeth M, Falcone Dana, Suh Eunran, Irwin David J, Chen-Plotkin Alice S, Lee Edward B, Xie Sharon X, Van Deerlin Vivianna M, Grossman Murray: Development and validation of pedigree classification criteria for frontotemporal lobar degeneration. JAMA neurology 70(11): 1411-7, Nov 2013.
20. Brettschneider Johannes*, Del Tredici Kelly*, Irwin David J*, Grossman Murray, Robinson John L, Toledo Jon B, Fang Lubin, Van Deerlin Vivianna M, Ludolph Albert C, Lee Virginia M-Y, Braak Heiko, Trojanowski John Q: Sequential distribution of pTDP-43 pathology in behavioral variant frontotemporal dementia (bvFTD). Acta neuropathologica 127(3): 423-439, Mar 2014 Notes: *These authors contributed equally.
21. Charles Dorothy, Olm Christopher, Powers John, Ash Sharon, Irwin David J, McMillan Corey T, Rascovsky Katya, Grossman Murray: Grammatical comprehension deficits in non-fluent/agrammatic primary progressive aphasia. Journal of neurology, neurosurgery, and psychiatry 85(3): 249-56, Mar 2014.
22. Kwong Linda K, Irwin David J, Walker Adam K, Xu Yan, Riddle Dawn M, Trojanowski John Q, Lee Virginia M Y: Novel monoclonal antibodies to normal and pathologically altered human TDP-43 proteins. Acta neuropathologica communications 2: 33, Mar 2014.

23. Grossman Murray, Elman Lauren, McCluskey Leo, McMillan Corey T, Boller Ashley, Powers John, Rascovsky Katya, Hu William, Shaw Les, Irwin David J, Lee Virginia M-Y, Trojanowski John Q: Phosphorylated tau as a candidate biomarker for amyotrophic lateral sclerosis. JAMA neurology 71(4): 442-8, Apr 2014.
24. McMillan Corey T, Toledo Jon B, Avants Brian B, Cook Philip A, Wood Elisabeth M, Suh Eunran, Irwin David J, Powers John, Olm Christopher, Elman Lauren, McCluskey Leo, Schellenberg Gerard D, Lee Virginia M-Y, Trojanowski John Q, Van Deerlin Vivianna M, Grossman Murray: Genetic and neuroanatomic associations in sporadic frontotemporal lobar degeneration. Neurobiology of aging 35(6): 1473-82, Jun 2014.
25. Toledo Jon B, Van Deerlin Vivianna M, Lee Edward B, Suh EunRan, Baek Young, Robinson John L, Xie Sharon X, McBride Jennifer, Wood Elisabeth M, Schuck Theresa, Irwin David J, Gross Rachel G, Hurtig Howard, McCluskey Leo, Elman Lauren, Karlawish Jason, Schellenberg Gerard, Chen-Plotkin Alice, Wolk David, Grossman Murray, Arnold Steven E, Shaw Leslie M, Lee Virginia M-Y, Trojanowski John Q: A platform for discovery: The University of Pennsylvania Integrated Neurodegenerative Disease Biobank. Alzheimer's & dementia : the journal of the Alzheimer's Association 10(4): 477-84.e1, Jul 2014.
26. Ash Sharon, Menaged Anna, Olm Christopher, McMillan Corey T, Boller Ashley, Irwin David J, McCluskey Leo, Elman Lauren, Grossman Murray: Narrative discourse deficits in amyotrophic lateral sclerosis. Neurology 83(6): 520-8, Aug 2014.
27. Irwin David J*, McMillan Corey T, Suh EunRan, Powers John, Rascovsky Katya, Wood Elisabeth M, Toledo Jon B, Arnold Steven E, Lee Virginia M-Y, Van Deerlin Vivianna M, Trojanowski John Q, Grossman Murray: Myelin oligodendrocyte basic protein and prognosis in behavioral-variant frontotemporal dementia. Neurology 83(6): 502-9, Aug 2014 Notes: *Corresponding author.
28. Brettschneider Johannes, Arai Kimihito, Del Tredici Kelly, Toledo Jon B, Robinson John L, Lee Edward B, Kuwabara Satoshi, Shibuya Kazumoto, Irwin David J, Fang Lubin, Van Deerlin Vivianna M, Elman Lauren, McCluskey Leo, Ludolph Albert C, Lee Virginia M-Y, Braak Heiko, Trojanowski John Q: TDP-43 pathology and neuronal loss in amyotrophic lateral sclerosis spinal cord. Acta neuropathologica 128(3): 423-37, Sep 2014.
29. Boluda Susanna, Toledo Jon B, Irwin David J, Raible Kevin M, Byrne Michael D, Lee Edward B, Lee Virginia MY, Trojanowski John Q: A comparison of A β amyloid pathology staging systems and correlation with clinical diagnosis. Acta Neuropathologica 128(4): 543-50, Oct 2014.

30. Liu Elaine Y, Russ Jenny, Wu Kathryn, Neal Donald, Suh Eunran, McNally Anna G, Irwin David J, Van Deerlin Viviana M, Lee Edward B: C9orf72 hypermethylation protects against repeat expansion-associated pathology in ALS/FTD. Acta neuropathologica 128(4): 525-41, Oct 2014.
31. Russ Jenny, Liu Elaine Y, Wu Katherine, Neal Donald, Suh EunRan, Irwin David J, McMillan Corey T, Harms Michael B, Cairns Nigel J, Wood Elisabeth M, Xie Sharon X, Elman Lauren, McCluskey Leo, Grossman Murray, Van Deerlin Viviana M, Lee Edward B: Hypermethylation of repeat expanded C9orf72 is a clinical and molecular disease modifier. Acta Neuropathologica 129(1): 39-52, Jan 2015.
32. Ash Sharon, Olm Christopher, McMillan Corey T, Boller Ashley, Irwin David J, McCluskey Leo, Elman Lauren, Grossman Murray: Deficits in sentence expression in amyotrophic lateral sclerosis. Amyotrophic lateral sclerosis & frontotemporal degeneration 16(1-2): 31-9, Mar 2015.
33. Healey Meghan L, McMillan Corey T, Golob Stephanie, Spotorno Nicola, Rascovsky Katya, Irwin David J, Clark Robin, Grossman Murray: Getting on the same page: the neural basis for social coordination deficits in behavioral variant frontotemporal degeneration. Neuropsychologia 69: 56-66, Mar 2015.
34. McMillan Corey T, Russ Jenny, Wood Elisabeth M, Irwin David J, Grossman Murray, McCluskey Leo, Elman Lauren, Van Deerlin Vivanna, Lee Edward B: C9orf72 promoter hypermethylation is neuroprotective: Neuroimaging and neuropathologic evidence. Neurology 84(16): 1622-30, Apr 2015.
35. Massimo Lauren, Zee Jarcy, Xie Sharon X, McMillan Corey T, Rascovsky Katya, Irwin David J, Kolanowski Ann, Grossman Murray: Occupational attainment influences survival in autopsy-confirmed frontotemporal degeneration. Neurology 84(20): 2070-5, May 2015.
36. Bisbing Teagan A, Olm Christopher A, McMillan Corey T, Rascovsky Katya, Baehr Laura, Ternes Kylie, Irwin David J, Clark Robin, Grossman Murray: Estimating frontal and parietal involvement in cognitive estimation: a study of focal neurodegenerative diseases. Frontiers in human neuroscience 9: 317, Jun 2015.
37. Spotorno Nicola, McMillan Corey T, Rascovsky Katya, Irwin David J, Clark Robin, Grossman Murray.: Beyond words: Pragmatic inference in behavioral variant of frontotemporal degeneration. Neuropsychologia 75: 556-564, Jul 2015.

38. Suh EunRan, Lee Edward B, Neal Donald, Wood Elisabeth M, Toledo Jon B, Rennert Lior, Irwin David J, McMillan Corey T, Krock Bryan, Elman Lauren B, McCluskey Leo F, Grossman Murray, Xie Sharon X, Trojanowski John Q, Van Deerlin Vivianna M: Semi-automated quantification of C9orf72 expansion size reveals inverse correlation between hexanucleotide repeat number and disease duration in frontotemporal degeneration. Acta neuropathologica 130(3): 363-72, Sep 2015.
39. Spotorno Nicola, Healey Megan, McMillan Corey T, Rascovsky Katya, Irwin David J, Clark Robin, Grossman Murray: Processing ambiguity in a linguistic context: Decision-making difficulties in non-aphasic patients with behavioral variant Frontotemporal Degeneration. Frontiers in human neuroscience 27(9): 583, Oct 2015.
40. Massimo Lauren, Powers John, Evans Lois, McMillan Corey T, Rascovsky Katya, Eslinger Paul, Ersek Mary, Irwin David J, Grossman Murray: Apathy in frontotemporal degeneration: neuroanatomical evidence of impaired goal-directed behavior. Frontiers in human neuroscience 10(9): 611, Nov 2015.
41. Spotorno Nicola, Healey Meghan, McMillan Corey T, Rascovsky Katya, Irwin David J, Clark Robin, Grossman Murray: Processing ambiguity in a linguistic context: decision-making difficulties in non-aphasic patients with behavioral variant frontotemporal degeneration. Frontiers in human neuroscience 9: 583, 2015.
42. Irwin David J*, Byrne Matthew D, McMillan Corey T, Cooper Felicia, Arnold Steven E, Lee Edward B, Van Deerlin Vivianna M, Xie Sharon X, Lee Virginia M-Y, Grossman Murray, Trojanowski John Q: Semi-Automated Digital Image Analysis of Pick's Disease and TDP-43 Proteinopathy. The journal of histochemistry and cytochemistry : official journal of the Histochemistry Society 64(1): 54-66, Jan 2016 Notes: *Corresponding Author.
43. Spotorno Nicola, McMillan Corey T, Irwin David J, Clark Robin, Lee Edward B, Trojanowski John Q, Weintraub Daniel, Grossman Murray: Decision-Making Deficits Associated with Amyloidosis in Lewy Body Disorders. Frontiers in human neuroscience 10: 693, Jan 2016.
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