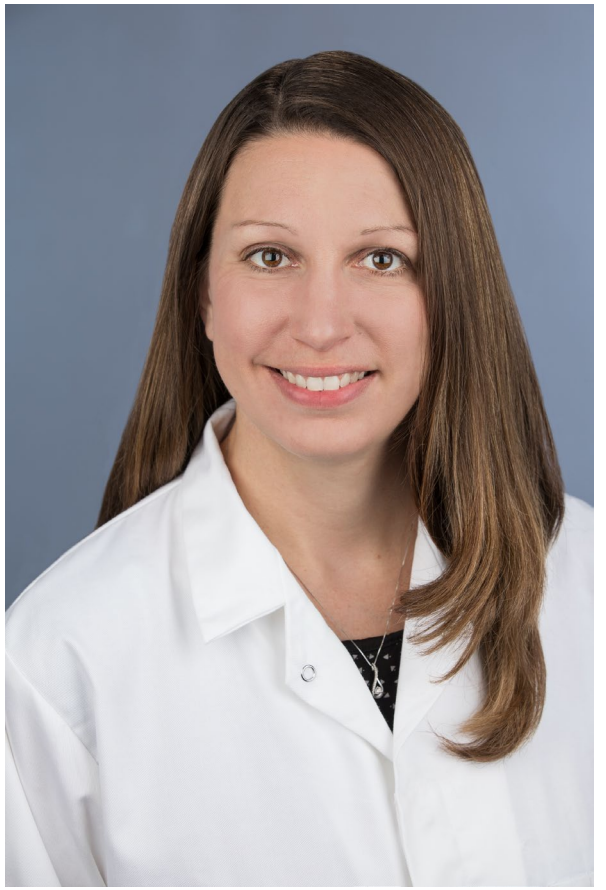
2022 Fall ADRC Meeting

Neuropathology Core Session

Changing of the guard …

Thank you Dr. Ann McKee!

Welcome Dr. Brittany Dugger!



Brain Donation Resources

Brain Donation: A Gift for Future Generations

Brain donation helps researchers study brain disorders, such as Alzheimer's disease and related dementias, that affect millions of people. Learn about why people donate their brains, the process of brain donation, and how you can enroll to make this generous gift.

Collaboration, culture, coordination: Keys to supporting brain donation

March 04, 2020

Brain Donation Resources for ADRCs

- Brain Donation FAQs
- Tips on Communicating About Brain Donation

RESEARCH HIGHLIGHTS

Inside the brain: The role of neuropathology in Alzheimer's disease research

March 14, 2022

SCIENCE

Why My Grandmother Carried a Plastic Brain in Her Purse

She is donating her brain to science, so I visited the place where it will end up.

DARA BRAMSON APRIL 11, 2018

LATE Meeting 2022

Virtual Workshop Tackles LATE, a Cause of Late-life Dementia

25 Feb 2022

At LATE 2022, researchers hashed out neuropathological and clinical characteristics of limbic predominant age-related TDP-43 encephalopathy, a major contributor to late-life cognitive decline and potential bungler of AD clinical trials.

Scientists Say LATE Worsens Cognitive Decline

02 Mar 2022

Limbic predominant age-related TDP-43 encephalopathy is strikingly common among octo- and nonagenarians, and it causes their cognition to slide. LATE dramatically boosts the risk of dementia among people who also have plaques and tangles.

Does LATE Subvert Alzheimer's Trials? Biomarkers, Please!

1 COMMENTS

04 Mar 2022

Limbic TDP-43 pathology accelerates cognitive decline in people with or without AD. Exosome and imaging biomarkers look promising.

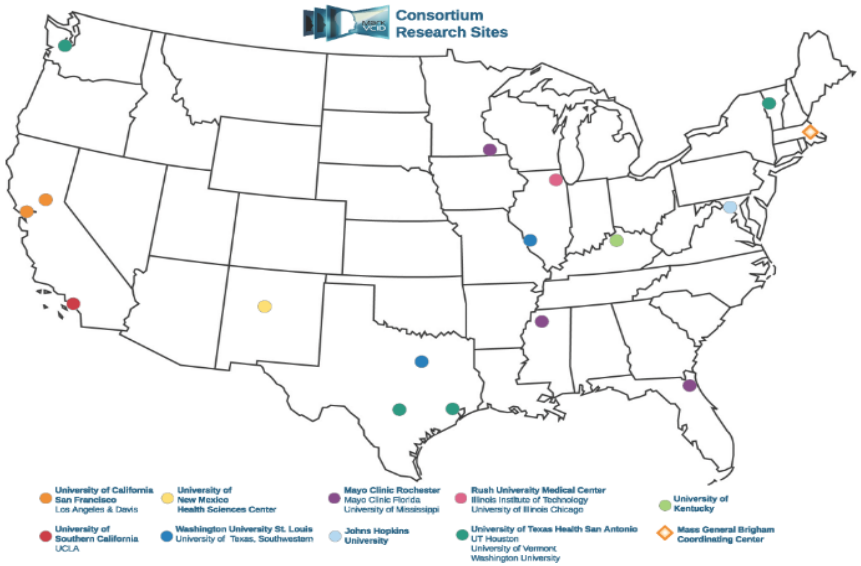
More than 350 attendees from 14 different countries

In initial planning stages for 2023 meeting on preliminary criteria for clinical diagnosis of LATE

https://www.alzforum.org/news/conference-coverage/late-limbic-predominant-age-related-tdp-43-encephalopathy-2022
https://www.nia.nih.gov/research/dn/late-2022

MarkVCID II Biomarker Kit Protocols

MRI ARTS
MRI Cerebrovascular Reactivity
MRI Peak Skeletonized Mean Diffusivity
MRI Free Water
Plasma Neurofilament



MarkVCID2 Protocols & Resources

Manual of Operating Procedures (v7.8.22)

Participant Screening & Registration

Case Report Form Packets

Clinical & Cognitive Measures Collection Manuals

Biospecimen Collection Best Practices & Shipping Procedures

- Fluid Best Practices (v6.23.22)
- Shipping Human Biospecimens Guideline (v12.14.21)
  To request the FedEx-MarkVCID login and password, contact hsingh6@mgh.harvard.edu
- Template Biosample Manifest (v10.22.18)
  Email your biosample manifest to the receiving site and hsingh6@mgh.harvard.edu
- Biorepository Sample Tracking Instructions Manual (v3.1.22)

Imaging Management Resources

MarkVCID2 Biomarker Kit Protocols

Required Trainings Now Available in SkyPrep

CURRENT NACC VASCULAR DATA COLLECTION

THE NACC NEUROPATHOLOGY DATA FORM

ADC subject ID:_____ Completed by: _____

1. MDS, UDS, or BDS patient ID	____ ____ ____ ____ ____ ____ ____ ____ ____ ____
2. Date form completed (MM/DD/YYYY)	____ ____ / ____ ____ / ____ ____ ____ ____
3. Neuropath ID	____ ____ ____ ____ ____ ____ ____ ____ ____ ____

2. Cerebral amyloid angiopathy (CHECK ONE)
- ☐ 0 None
- ☐ 1 Mild
- ☐ 2 Moderate
- ☐ 3 Severe
- ☐ 8 Not assessed
- ☐ 9 Missing/unknown

12. CEREBROVASCULAR DISEASE (CVD). Report all CVD, macroscopic vascular brain injury (VBI), and microinfarcts or microhemorrhages.

a. Old infarcts observed grossly, including lacunes? (CHECK ONE)
- ☐ 0 No **(SKIP TO QUESTION 12b)**
- ☐ 1 Yes **(COMPLETE QUESTIONS 12a1–12a4)**
- ☐ 8 Not assessed **(SKIP TO QUESTION 12b)**
- ☐ 9 Missing/unknown **(SKIP TO QUESTION 12b)**

NOTE: Number column cannot be left blank if Question 12a=Yes. Size of infarct columns should be left blank if not applicable. ***Not assessed = 88*** ***Missing = 99***

Location of old infarcts	Number	Size of largest (greatest dimension in cm)	Size of next (greatest dimension in cm)	Size of next (greatest dimension in cm)
1. Cerebral cortex	___ ___	___ ___ . ___	___ ___ . ___	___ ___ . ___
2. Subcortical cerebral white matter and peri-ventricular white matter	___ ___	___ ___ . ___	___ ___ . ___	___ ___ . ___
3. Deep cerebral gray matter or internal capsule	___ ___	___ ___ . ___	___ ___ . ___	___ ___ . ___
4. Brainstem or cerebellum	___ ___	___ ___ . ___	___ ___ . ___	___ ___ . ___

NOTE: For large cortical infarcts that include underlying white or gray matter, indicate as cortical infarct. For subcortical infarcts that include both white matter and gray matter, indicate whichever region is primarily affected.

b. Were single or multiple old hemorrhages observed grossly?
- ☐ 0 No **(SKIP TO QUESTION 12c)**
- ☐ 1 Yes **(COMPLETE QUESTIONS 12b1–12b3)**
- ☐ 8 Not assessed **(SKIP TO QUESTION 12c)**
- ☐ 9 Missing/unknown **(SKIP TO QUESTION 12c)**

(CHECK ONE BOX PER ROW)	No	Yes	Not assessed	Missing/ unknown
1. Subdural or epidural hemorrhage	☐ 0	☐ 1	☐ 8	☐ 9
2. Primary parenchymal hemorrhage *Include those >5mm. If ≤5mm, include as microbleed; see Question 12d.*	☐ 0	☐ 1	☐ 8	☐ 9
3. Secondary parenchymal hemorrhage (e.g., tumor, vascular malformation)	☐ 0	☐ 1	☐ 8	☐ 9

c. Old microinfarcts (not observed grossly)? (CHECK ONE)
- ☐ 0 No **(SKIP TO QUESTION 12d)**
- ☐ 1 Yes **(COMPLETE QUESTIONS 12c1–12c4)**
- ☐ 8 Not assessed **(SKIP TO QUESTION 12d)**
- ☐ 9 Missing/unknown **(SKIP TO QUESTION 12d)**

(OLD MICROINFARCTS – CHECK ONE BOX PER ROW)	0	1	2	3 or more	Not assessed	Missing/ unknown
1. Number in screening sections of cerebral cortex (gray matter of cerebral cortex)	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
2. Number in screening sections of subcortical white matter and periventricular white matter	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
3. Number in screening sections of subcortical gray matter	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
4. Number in brainstem and cerebellum	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9

d. Old cerebral microbleeds? (CHECK ONE)
Include old hemorrhages that are ≤5mm.
- ☐ 0 No **(SKIP TO QUESTION 12e)**
- ☐ 1 Yes **(COMPLETE QUESTIONS 12d1–12d4)**
- ☐ 8 Not assessed **(SKIP TO QUESTION 12e)**
- ☐ 9 Missing/unknown **(SKIP TO QUESTION 12e)**

(OLD MICROBLEEDS – CHECK ONE BOX PER ROW)	0	1	2	3 or more	Not assessed	Missing/ unknown
1. Number in screening sections of cerebral cortex	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
2. Number in screening sections of subcortical white matter and periventricular white matter	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
3. Number in screening sections of subcortical gray matter	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
4. Number in brainstem and cerebellum	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9

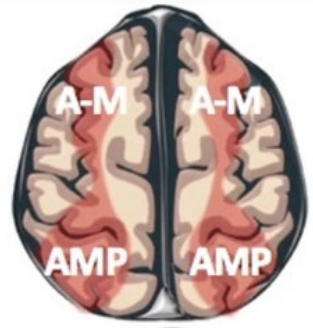
(CHECK ONE BOX PER ROW)	None	Mild	Moderate	Severe	Not assessed	Missing/ unknown
e. Arteriolosclerosis? (CHECK ONE) *(Assessed in subcortical white or gray matter)*	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9
f. White matter rarefaction? (CHECK ONE) *(H&E or myelin stain may be used)*	☐ 0	☐ 1	☐ 2	☐ 3	☐ 8	☐ 9

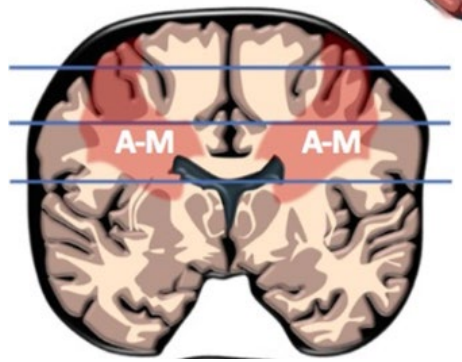
g. Other pathologic changes related to ischemic or vascular disease not previously specified?
- ☐ 0 No **(SKIP TO QUESTION 13)**
- ☐ 1 Yes **(COMPLETE QUESTIONS 12g1–12g12)**
- ☐ 8 Not assessed **(SKIP TO QUESTION 13)**
- ☐ 9 Missing/unknown **(SKIP TO QUESTION 13)**

(CHECK ONE BOX PER ROW)	No	Yes	Not assessed	Missing/ unknown
1. Laminar necrosis	☐ 0	☐ 1	☐ 8	☐ 9
2. Acute neuronal necrosis	☐ 0	☐ 1	☐ 8	☐ 9
3. Acute/subacute gross infarcts	☐ 0	☐ 1	☐ 8	☐ 9
4. Acute/subacute microinfarcts	☐ 0	☐ 1	☐ 8	☐ 9
5. Acute/subacute gross hemorrhage	☐ 0	☐ 1	☐ 8	☐ 9
6. Acute/subacute microhemorrhage	☐ 0	☐ 1	☐ 8	☐ 9
7. Vascular malformation of any type	☐ 0	☐ 1	☐ 8	☐ 9
8. Aneurysm of any type	☐ 0	☐ 1	☐ 8	☐ 9
9. Vasculitis of any type	☐ 0	☐ 1	☐ 8	☐ 9
10. CADASIL	☐ 0	☐ 1	☐ 8	☐ 9
11. Mineralization of blood vessels	☐ 0	☐ 1	☐ 8	☐ 9
12. Other (SPECIFY): _____	☐ 0	☐ 1		

Vascular Data Collection for MarkVCID

Chacko, et al.
Insights into
Imaging 2020; 11;1





- Encourage ex-vivo imaging (EPVS, microbleeds, WMH)
- Add blocking of anterior and posterior watershed regions (more microinfarcts)
  - Frontal subcortical white matter
  - Posterior parietal cortex, including precuneus and underlying white matter.
- Add location codes for each infarct/hemorrhage and size in greatest dimension (for gross infarcts)
- Inter-rater reliability for infarcts/arteriolosclerosis other (via MarkVCID) with clear guidelines for assessment.
- Recommendations for other vascular pathology that should be collected?
- Is there interest from the ADRC's to be involved in this, and if so support it as a "vascular module" to Npath NACC form or change to NACC form, or can unroll at MarkVCID sites only?
- Question/Comments: julie_a_schneider@rush.edu