Biomarkers in the Mexican Health and Aging Study (MHAS)

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www.MHASweb.org
MHAS Samples of Biomarkers

- **MHAS 2012 and Mex-Cog 2016**
  - Finger prick: glucose (HbA1c), hemoglobin (Hb) (n=3,177)
  - Intravenous Red Tube (n=2,834)
    - C-reactive Protein (CRP) (High Sensitivity)
    - Thyroid-Stimulating Hormone (TSH)
    - Total and HDL Cholesterol
    - Vitamin D
  - Intravenous EDTA - Lavender Tube (n=2,759)
    - For DNA studies

- **MHAS 2018**
  - Saliva Samples (n=7,860)
    - AD genetic risk factors
  - Hair samples (n=2,500)
    - Environmental risk factors

www.MHASweb.org
MHAS Timeline – Biomarkers Sub-Samples

Baseline sample: Born in 1951 or earlier

- 2001: 15,186 Interviews
- 2003: 14,250 Interviews

New sample added: Born 1952-1962

- 2012: 18,465 Interviews

Sub-Sample

- Red Top n=2,086
- Finger Prick HbA1c n=2,036
- Lavender Top (EDTA) n=2,009

New sample added: Born 1963-1968

- 2015: 15,988 Interviews
- 2018*: 19,289 Interviews

Sub-Sample for MEX-COG 2016:

- Red Top n=748
- Finger Prick HbA1c n=1,141
- Lavender Top (EDTA) n=750

Sub-Sample

- 2,500* for hair samples
- 7,860* for saliva samples

* Preliminary
Genetics Biomarkers

- DNA extracted from EDTA samples in Mexico (n=2,759).
  - Sent to the Taub Institute at Columbia University.
  - GWAS for risk of Alzheimer’s disease conducted in 2019.
  - Whole genome sequencing will be performed.

- Saliva samples from aged 60+ were obtained in 2018 (n=7,860).
  - Samples shipped to the National Cell Repository for Alzheimer’s Disease (NCRAD) at Indiana University.
  - GWAS for risk of Alzheimer’s disease will be conducted.
Other Biomarkers - Under Process

- Using the GWAS (from saliva 7,860 participants), whole genome sequencing will be obtained from a predetermined sub-sample.

- Using hair samples - metal exposure levels (lead, magnesium, mercury, manganese) will be measured in Mexico.
Mortality

- Cumulative deaths to 2015, n=4,497
- Cumulative to 2018, n=5,616 (*)
- Death rates of panel track death rates (age 50+ but not disaggregated).
- Next of kin interview
  - No unique ID to link to death registration
  - Pilot ongoing to try a matching algorithm - assess whether losses-to-follow up may be deaths