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Introduction

The AMYPAD Prognostic and Natural History Study (PNHS) is an open-label, prospective, multi-centre cohort study (<http://amypad.eu/>) to evaluate the additional value of quantitative amyloid PET imaging in determining Alzheimer's Disease (AD) dementia risk. The AMYPAD PNHS aims at recruiting 2000 non-demented individuals with a particular focus on those with emerging amyloid pathology. Here, we provide preliminary results of AMYPAD PNHS.

Methods

- As of December 2019, **383 participants have been enrolled** into the study
- Of those, **307 underwent a scanning session with either [¹⁸F]flutemetamol (FTM) or [¹⁸F]florbetaben (FBB) in 5 sites** (VUmc Amsterdam, University of Edinburgh, Barcelonaβeta Brain Research Center; University of Geneva and Centre Hospitalier Universitaire de Toulouse)
- 122 PET scans** and their corresponding T1-weighted MR images had been **analyzed with IXICO's LEAP pipeline**
- The **primary variable is the Centiloid value (CL)** [1] using the whole cerebellum as reference region, in order to enable quantitative comparability between the two tracers in the study
- Gaussian mixture modeling of the distribution of CL values was performed by fitting 3 Gaussians curves
- Subjects were categorized as **negative (CL < 12)**; in the **gray-zone (12 < CL < 50)** or **positive (CL > 50)** [2]
- Finally, the association between continuous CL values and age was assessed using Spearman's rho

Results

- The majority of scans so far have been performed in Amsterdam (Sponsor site), followed by Barcelona, Edinburgh, Toulouse and Geneva (**Figure 1**)
- On average, the global cortical CL values of the scanned subjects are **33.6 ± 35.89 CL**, and the values cover the full range, with **58.1% of non-negative cases**
- The CL distribution can be **modeled by three Gaussian curves**, resulting in three groups that roughly correspond to the pre-defined 'negative', 'gray-zone' and 'positive' categories (**Figure 2 and Table 1**)
- Centiloid values showed a positive association with age (rho = 0.43, p < 0.001, **Figure 3**)

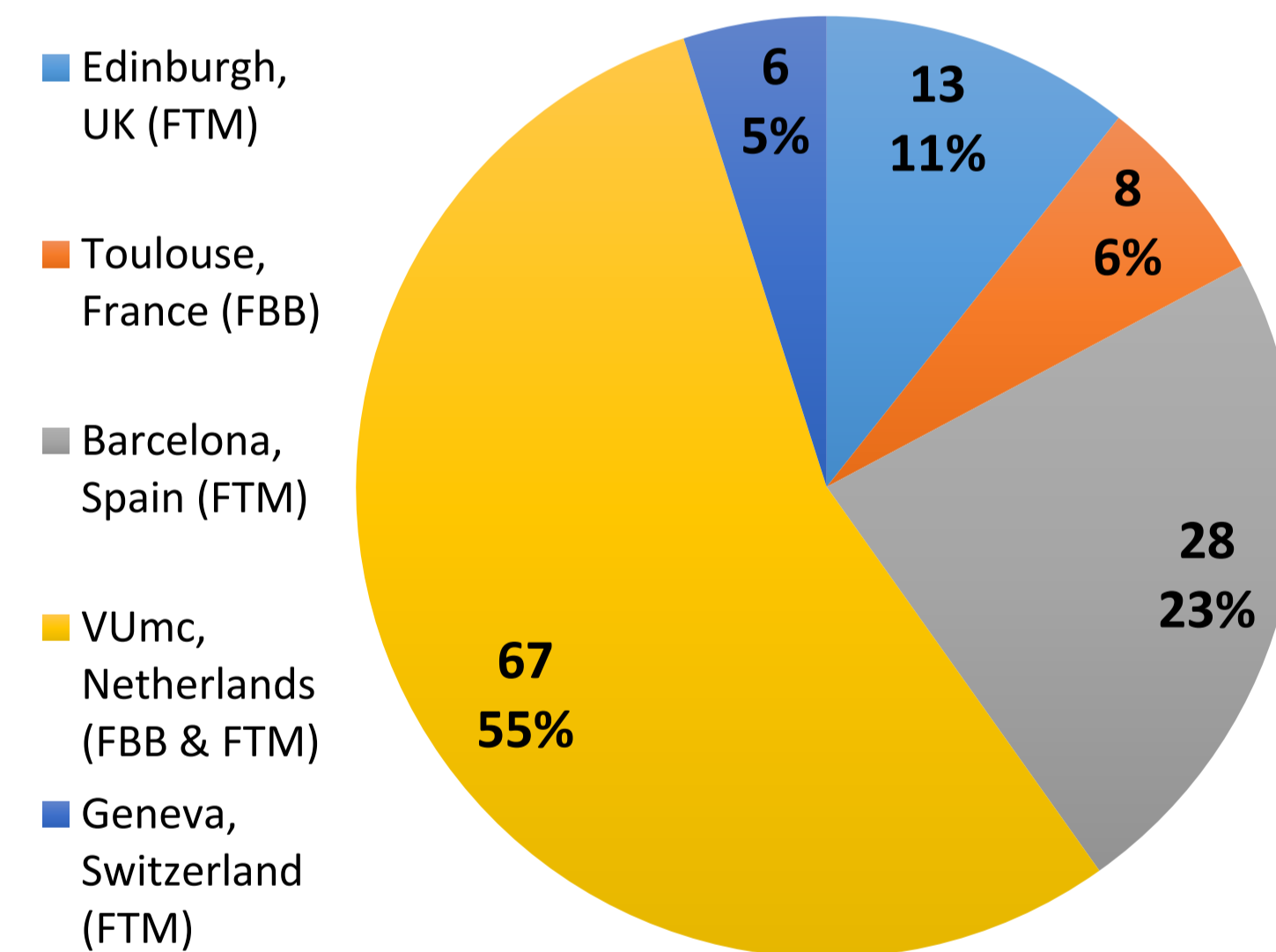


Figure 1: Scan distribution by center (and tracer) of the 122 PET scans analyzed

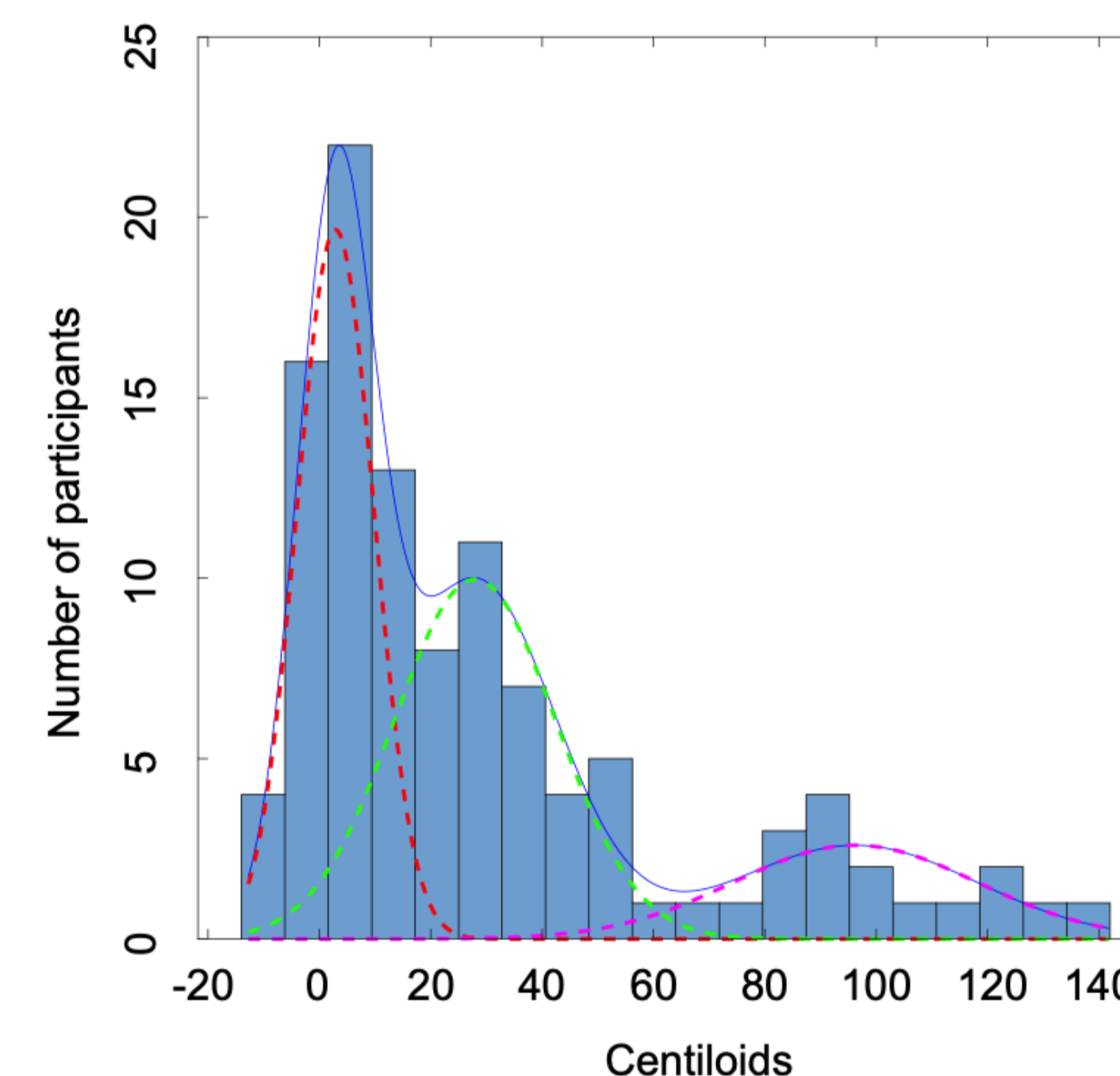


Figure 2: Histogram of CL values. Three Gaussians were fitted using a Gaussian Mixture Modeling

	Negative (CL < 12)	Gray-zone (12 ≤ CL < 50)	Positive (CL ≥ 50)
n (%)	44 (41.9)	38 (36.2)	23 (21.9)

Table 1: Number of participants classified in each class by their Centiloid (CL) value

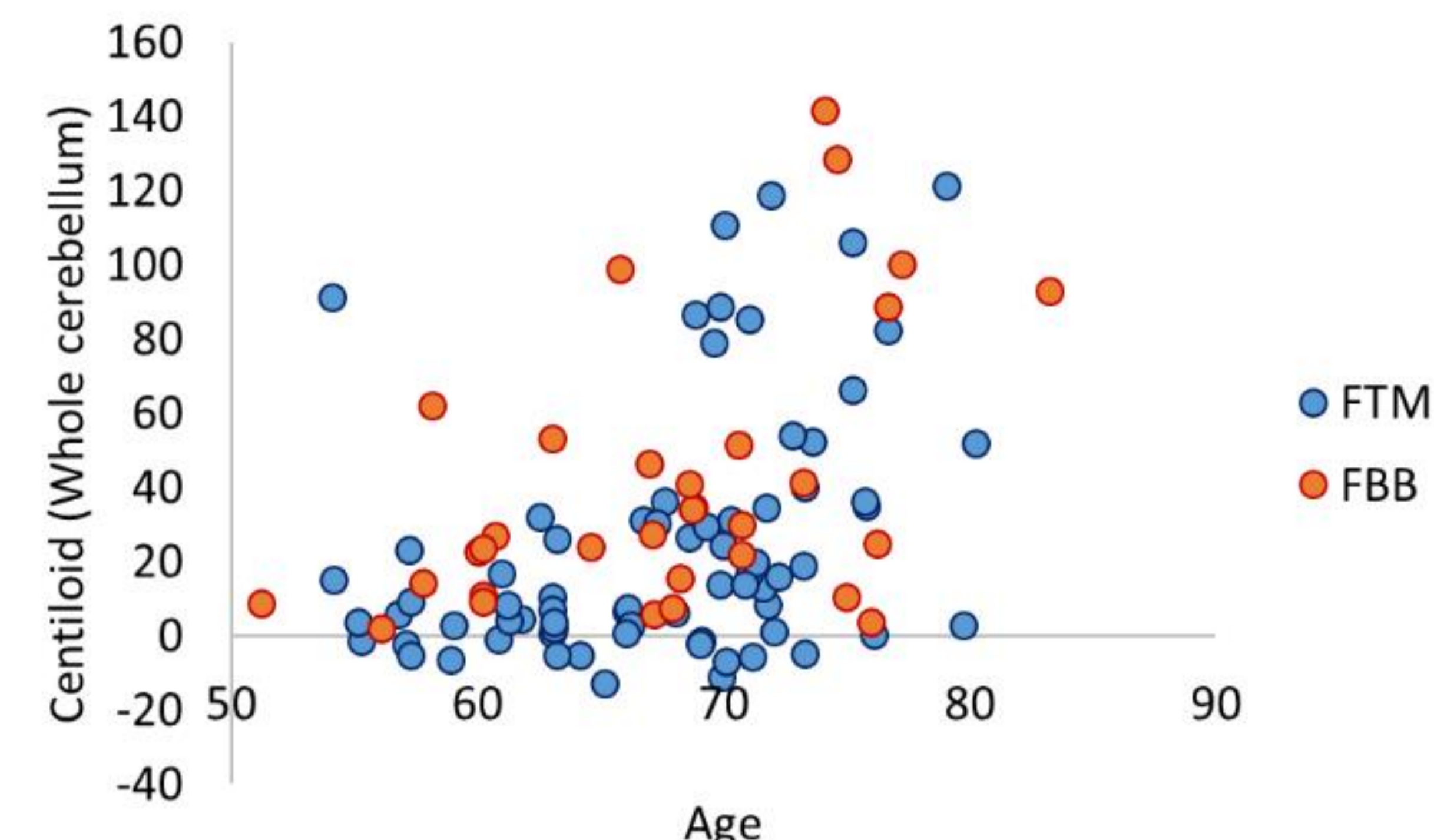


Figure 3: Scatterplot of CL values and age by tracer. Blue and orange dots show PET scans with [¹⁸F]flutemetamol (FTM) and [¹⁸F]florbetaben (FBB), respectively

References: [1] Klunk W.E., et al, Alz & Dem (2015); [2] Salvadó G., et al, Alz Res & Ther (2019)

Conclusion

- ✓ The AMYPAD Prognostic and Natural History Study is currently **ongoing** and a total of **12 sites are active and enrolling** subjects at the moment
- ✓ Preliminary quantitative results indicate that the trial is **succeeding at identifying and enrolling** the target population, i.e. **subjects in the 'gray zone'**
- ✓ Recruitment source has **expanded from the original EPAD LCS** to also include the **EMIF-AD, ALFA+, and FACEHBI cohorts** with others expected to join soon

Academic partners



SMEs



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