AMYPAD
Amyloid imaging to prevent
Alzheimer´s Disease

ß-amyloid PET imaging:

improving understanding, diagnosis and management of Alzheimer's disease

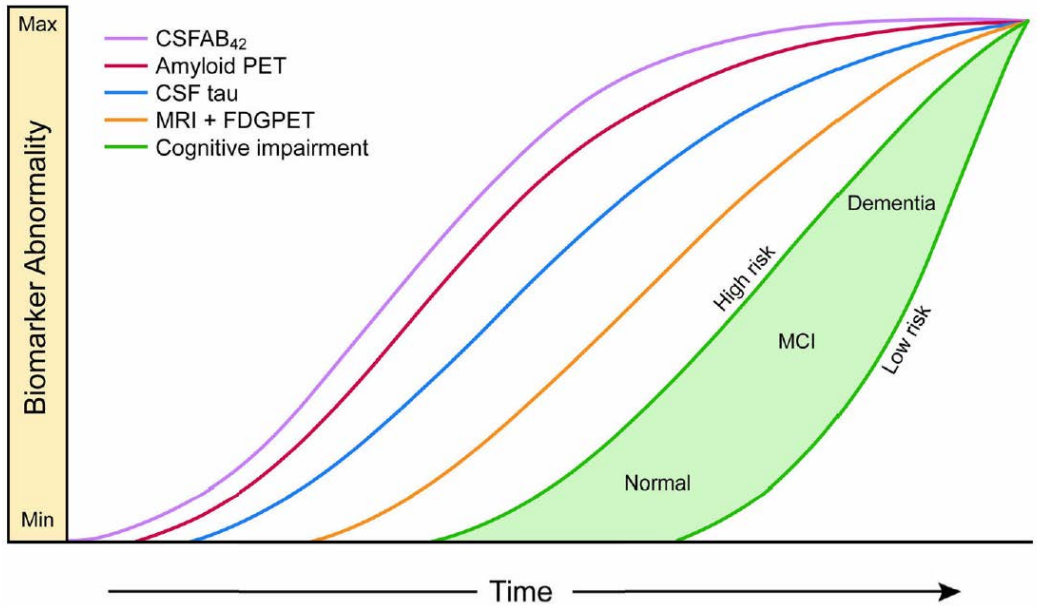
the AMYPAD Consortium

I. Lopes Alves

Alzheimer Europe 2018, Barcelona

www.amypad.eu

β-amyloid imaging – the added value



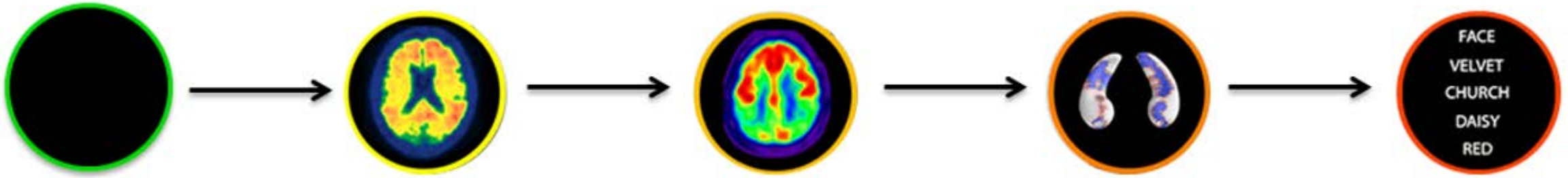
Jack et al., Lanc Neurology 2014

*Amyloid is an **early and necessary** step in the development of AD dementia*

- Clinical practice -> supporting physicians in diagnostic confidence / exclusion of AD
- Clinical trials -> slowing or modifying the course of the disease

What about prevention?

Why AMYPAD?



No observable changes

Accumulation of β-amyloid plaques

Hypometabolism

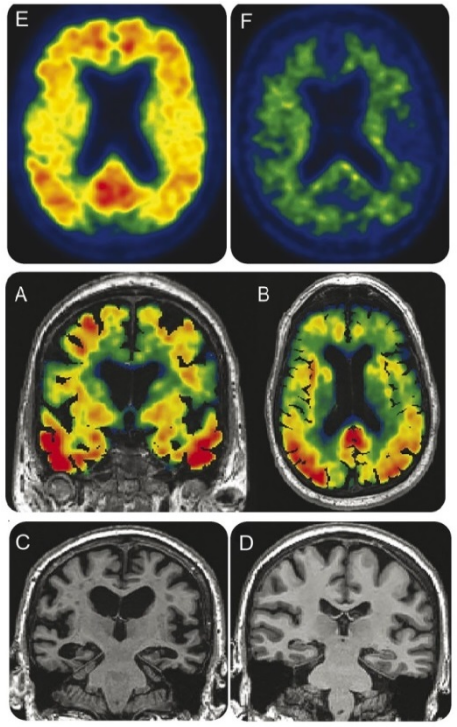
Brain atrophy

Cognitive impairment

Earlier detection [Diagnostic and Prognostic value]

Biomarker-based prevention

Clinical routine
diagnosing AD disease
to prevent AD dementia



Jack et al., Neurology 2016

Clinical trials
of biomarker-modifying
therapies

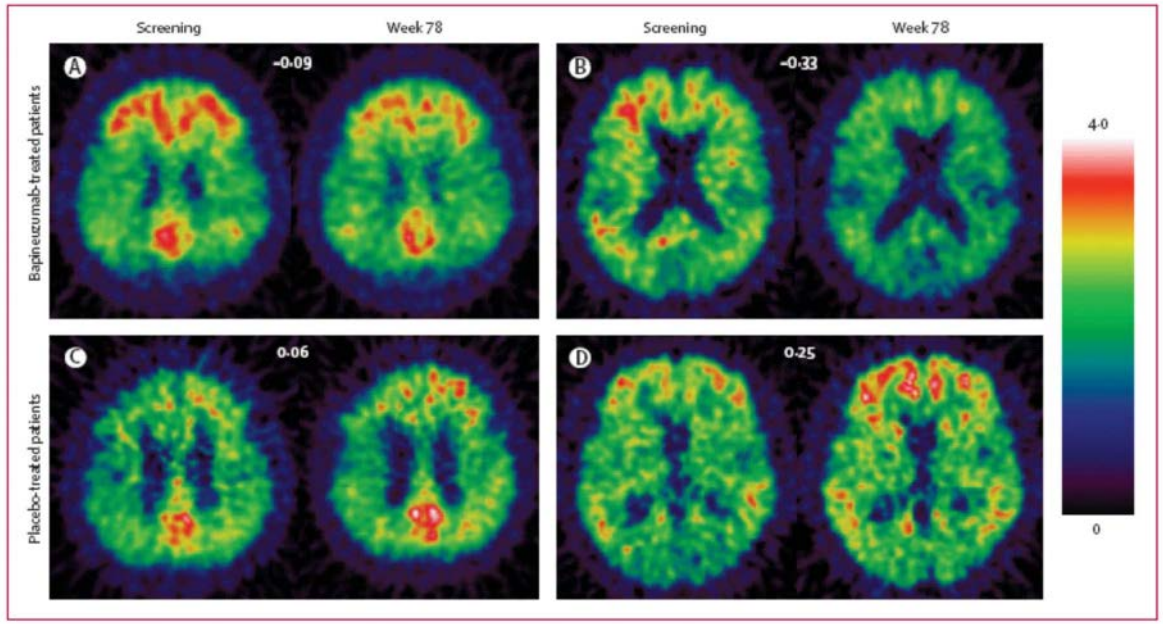


Figure 4: ^{11}C-PiB PET images from patients treated with bapineuzumab and those given placebo
Changes from screening to week 78 in patients treated with bapineuzumab (A,B) and in patients treated with placebo (C,D). Mean ^{11}C-PiB PET changes are shown at the top centre of each panel for each patient. The scale bar shows the PiB uptake ratios relative to cerebellum by colour. The scans before and after treatment are from MRI co-registered images in the same plane. PiB= Pittsburgh compound B.

Rinne et al., Lanc Neurology 2010

How AMYPAD?

Study 1: **Diagnostic and Patient Management Study**

- ❖ Usefulness of amyloid PET imaging in the clinic
- ❖ Impact of this technique in patient management
- ❖ Crucial information to payers

Study 2: **Prognostic and Natural History Study**

- ❖ Natural history Alzheimer's disease
- ❖ Enrich and empower secondary prevention trials
- ❖ Complement characterization of EPAD LCS

	Cohort	Baseline PET	Repeat PET (2 yr)	Total scans
Study 1: Diagnostic and Patient Management Study	Memory clinics	**900**	**300**	**1200**
Study 2: Longitudinal Cohort Study (EPAD) Supports PoC studies	Natural history cohorts	**2000**	**1000**	**3000**
	Total subjects	**2900**	**1300**	**4200**

Diagnostic and Patient Management Study (DPMS)

Current knowledge

IDEAS
Imaging Dementia—Evidence For Amyloid Scanning

- Medical Management Changes post-PET:
  - 67.8% of MCI patients (47.8% change in AD drugs, 36.0% change in other drugs, 23.9% changes in counseling)
  - 65.9% of dementia patients (47.7% change in AD drugs, 32.2% change in other drugs, 15.3% change in counseling);
- Need for additional testing post-PET:
  - Reduced need when amyloid PET scans were made from 26.3% to 11.0% in neuropsychological testing and from 10.5% to 1.0% in spinal fluid testing

Deltaplan Dementie
ABIDE
Alzheimer Biomarkers in Daily Practice

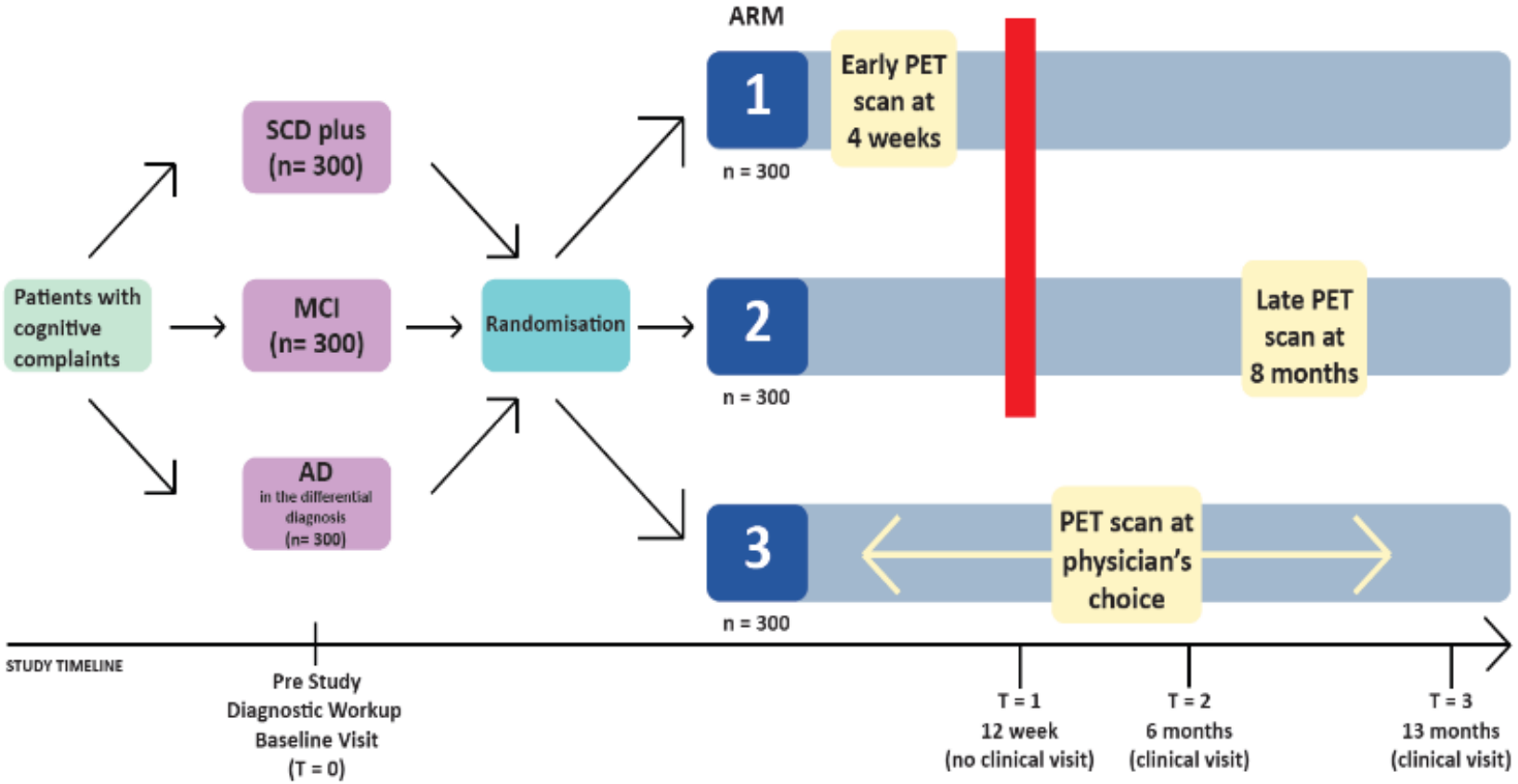
	Dementia		MCI		SCD	
	AD	non-AD	AD	non-AD	AD	non-AD
n	164	70	72	42	16	143
Amyloid PET, positive (%)	128 (78%)	23 (33%)	45 (63%)	10 (24%)	6 (38%)	30 (21%)
Change in syndrome	4 (2%)	0 (0%)	2 (3%)	6 (14%)	1 (6%)	4 (3%)
Change in etiology	36 (22%)	14 (20%)	27 (38%)	11 (26%)	10 (63%)	27 (19%)

Overall, 25% change in diagnosis. Due to negative amyloid PET in 66%
Demented: 21% change. Non-demented: 27% change.

Study design and objectives

What is the effect of using amyloid PET imaging in the clinic for:

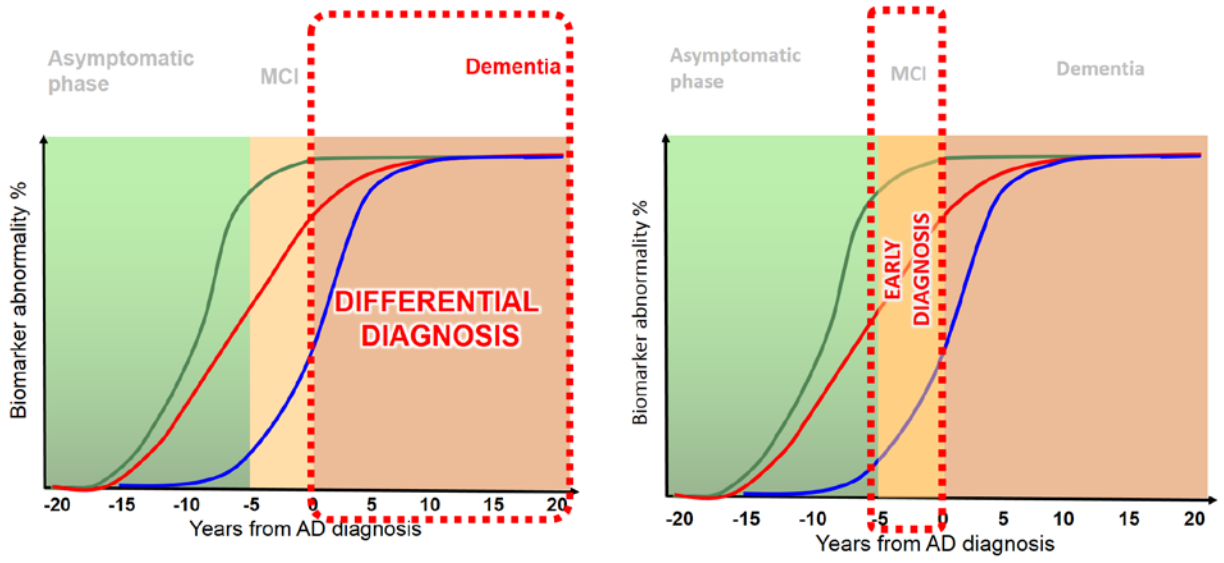
- Physicians confidence in etiological diagnosis
- Patient management
- Health-care resource utilization
- Patient-related outcomes



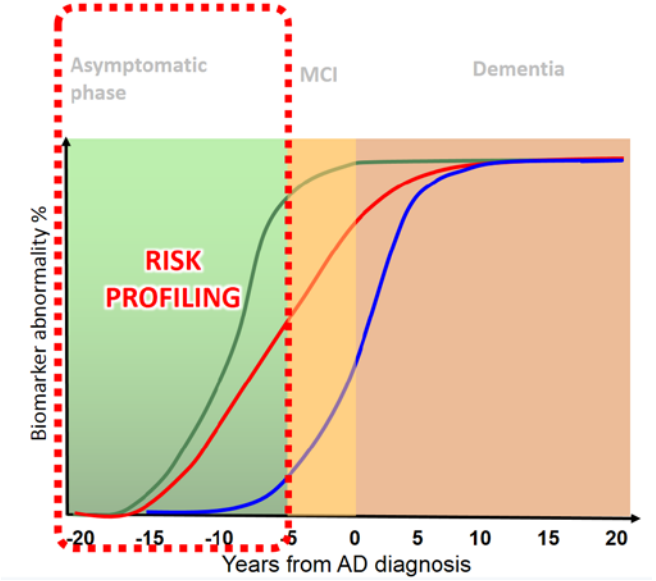
Prognostic and Natural History Study (PNHS)

Risk profiling for secondary prevention

AMYPAD Diagnostic Study



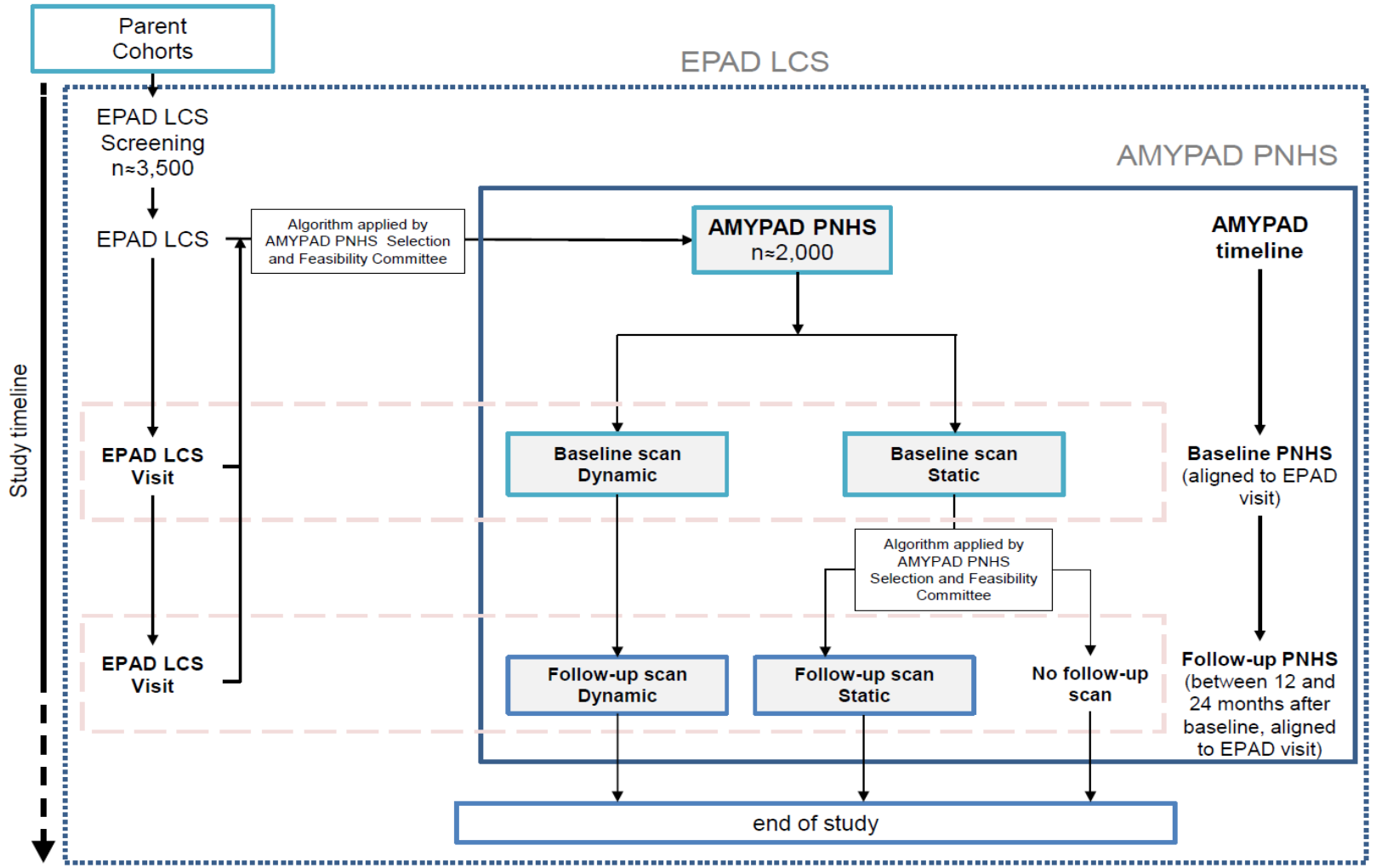
AMYPAD Prognostic Study



Study design and objectives

What is the value of amyloid PET imaging to:

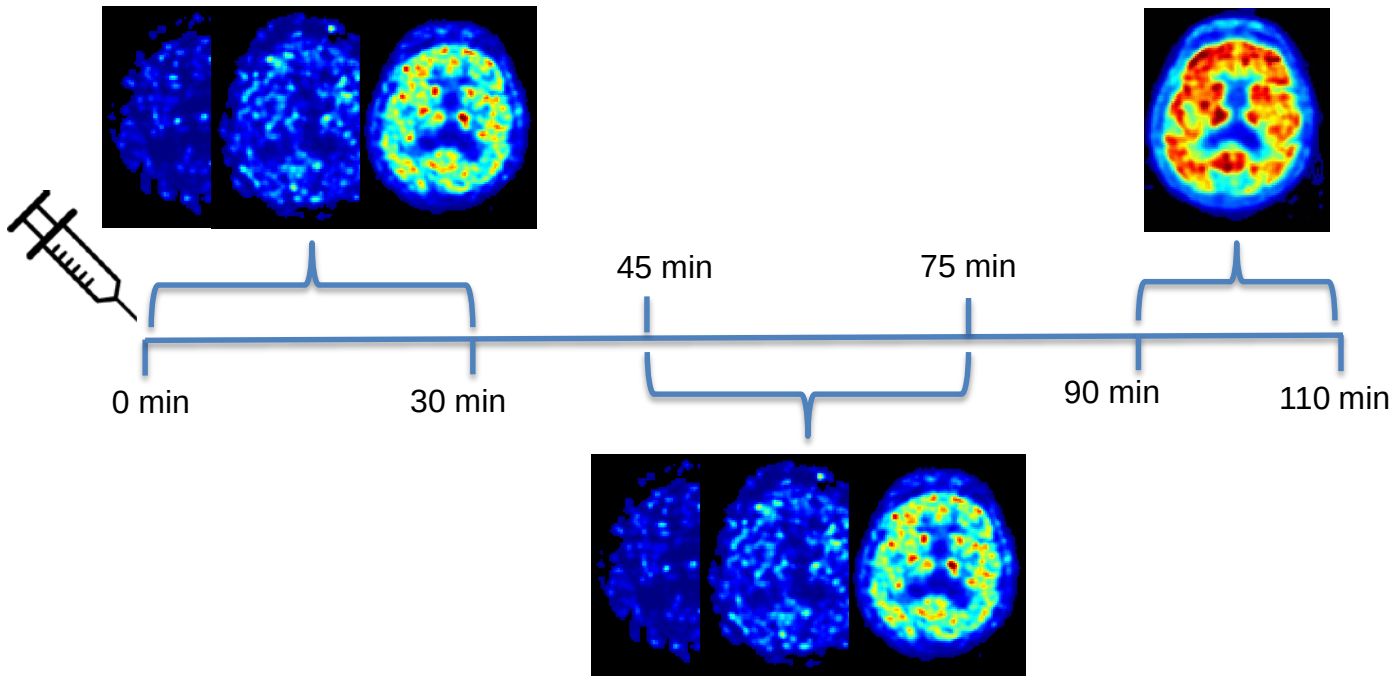
- Determine a risk of progression to AD dementia
- Individualize that risk
- Understand the natural history of the disease
- Support preventive trials in accurate participant selection and measurement of treatment effects



AMYPAD today

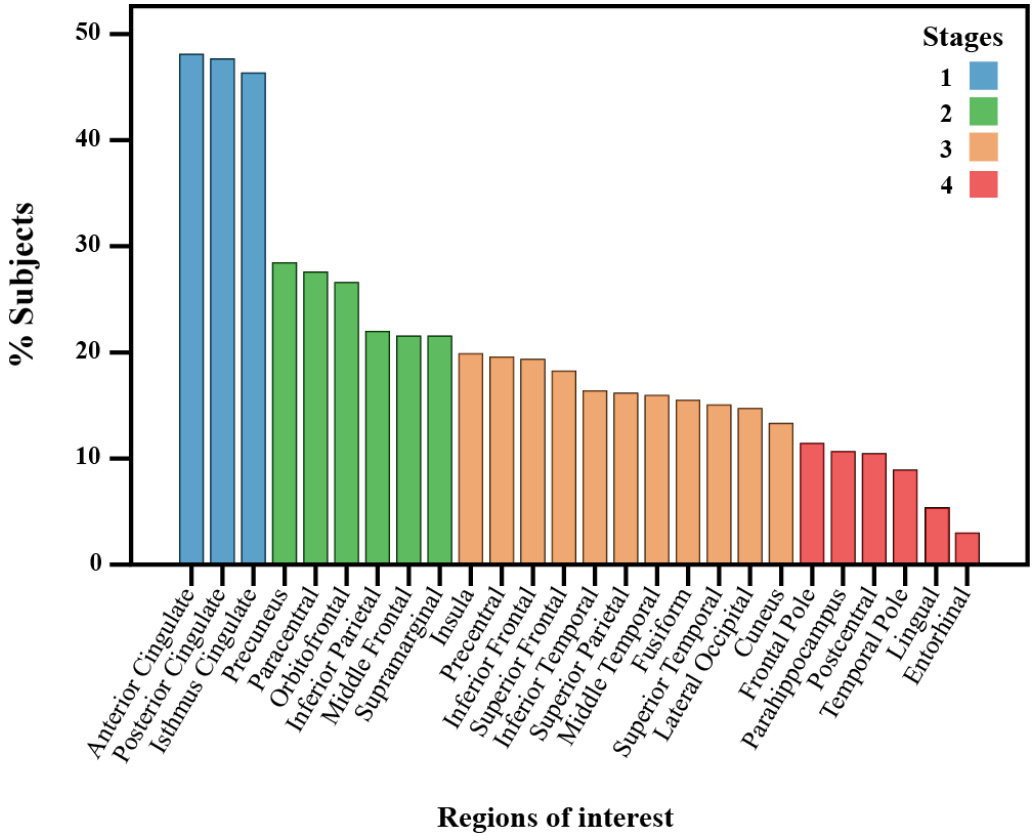
Delivering from the get-go!

An imaging protocol to deliver **high-quality**
efficiently and with comfort to the patient/participant



Delivering from the get-go!

Collection of external data sets (RE-USE) to understand earliest stages of AD



ADNI

aibl

The A4 Study
NOW IS THE TIME

BLSA BALTIMORE LONGITUDINAL STUDY OF AGING

Berkeley
UNIVERSITY OF CALIFORNIA

MAYO CLINIC

Delivering from the get-go!

Collection of external data sets (RE-USE) to understand earliest stages of AD

Delivering from the get-go!

…both studies ongoing to deliver much more

Diagnostic and Patient Management Study (DPMS)

58 patients randomized, 19 scanned

3 sites recruiting, 5 more on board before spring

Prognostic and Natural History Study (PNHS)

6 participants included, 1 scanned

1 site recruiting, 4 more on board before spring and 6 more on board by summer

The addition of TWO sub-studies to understand the biomarker disclosure process and its impact on patients

VUmc VU University Medical Center Amsterdam

UNIVERSITÉ DE GENÈVE

University of Cologne

Radboudumc

GE Healthcare

Janssen PHARMACEUTICAL COMPANIES OF Johnson & Johnson

SYNAPSE

barcelonaβeta BRAIN RESEARCH CENTER

THE UNIVERSITY of EDINBURGH

UCL

Hôpitaux de Toulouse

Karolinska Institutet

Piramal knowledge action care

IXICO

Alzheimer Europe

Thank you!