



Síndrome de Down y enfermedad de Alzheimer

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Declaración conflictos de interés

- **Proyectos sobre EA en SD:**
 - Ensayo clínico ACI-24-AD-DS-2102, financiado por AC Immune
 - Ensayo clínico independiente IIBSP-LEV-2024-86, financiado por ISCIII
- **Proyectos no relacionados con EA en SD:**
 - Ensayo clínico AEF0217-102, financiado por AELIS Farma y Comisión Europea (UE.ICOD.899986)

HEALTH

THE LAST CHILDREN OF DOWN SYNDROME

Prenatal testing is changing who gets born and who doesn't. This is just the beginning.

By Sarah Zhang

DECEMBER 2020 ISSUE



THE DAILY CITIZEN™

By JULIAN QUINONES, ARIJETA LAJKA / CBS NEWS / August 14, 2017, 4:00 PM

"What kind of society do you want to live in?": Inside the country where Down syndrome is disappearing

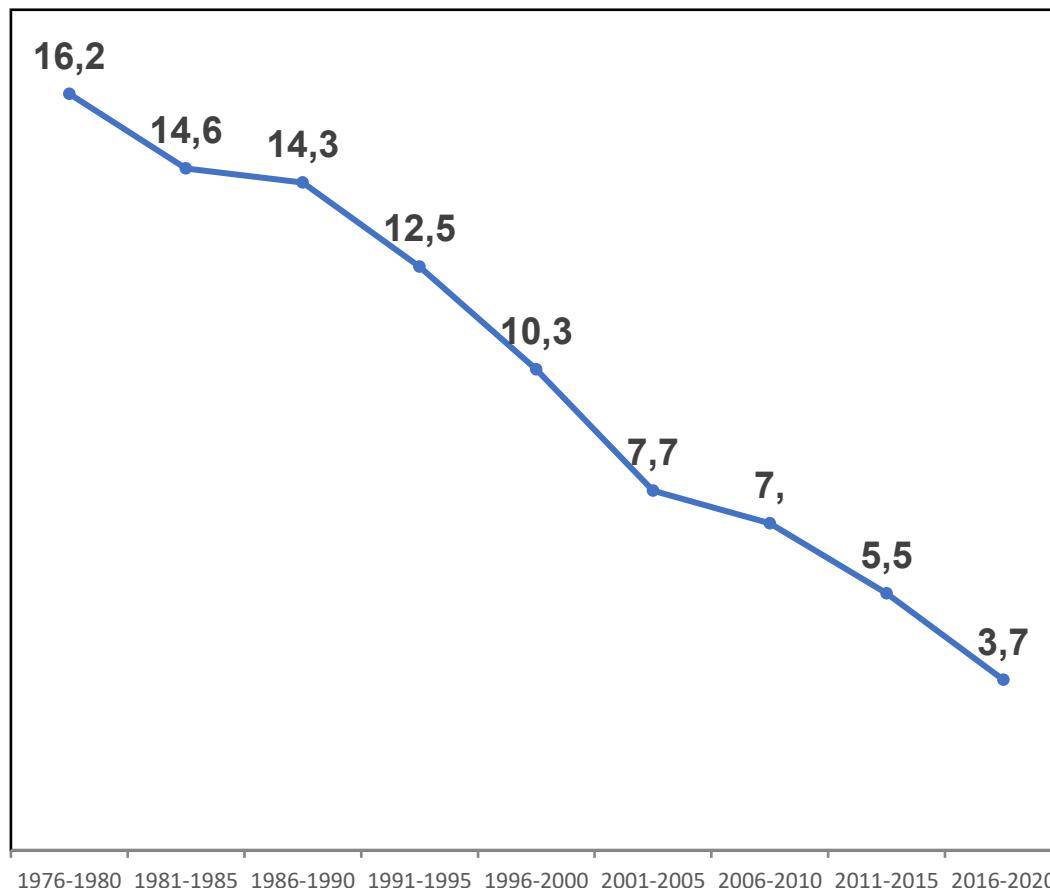
Why is Down Syndrome Disappearing?

Posted by Citizen Magazine Staff | Apr 16, 2018 | Classic Citizen



Incidencia poblacional SD

Estudio colaborativo español malformaciones congénitas (1967 - 2020)

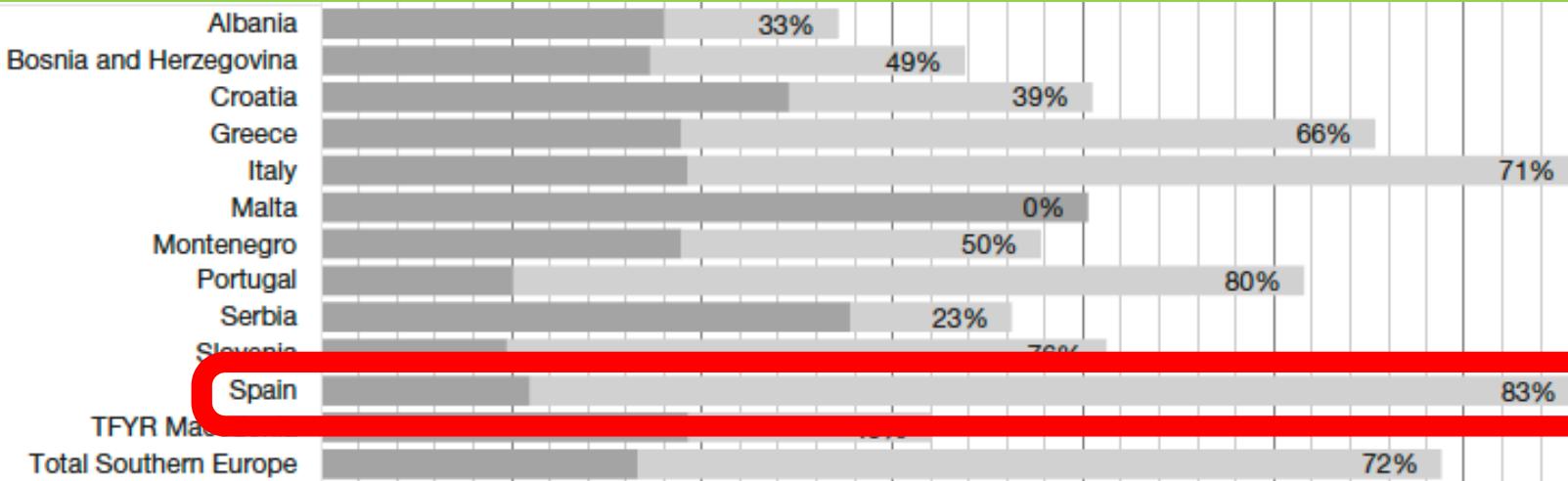


Estimation of the number of people with Down syndrome in Europe

Gert de Graaf  ¹ · Frank Buckley  ^{2,3} · Brian G. Skotko  ^{4,5}

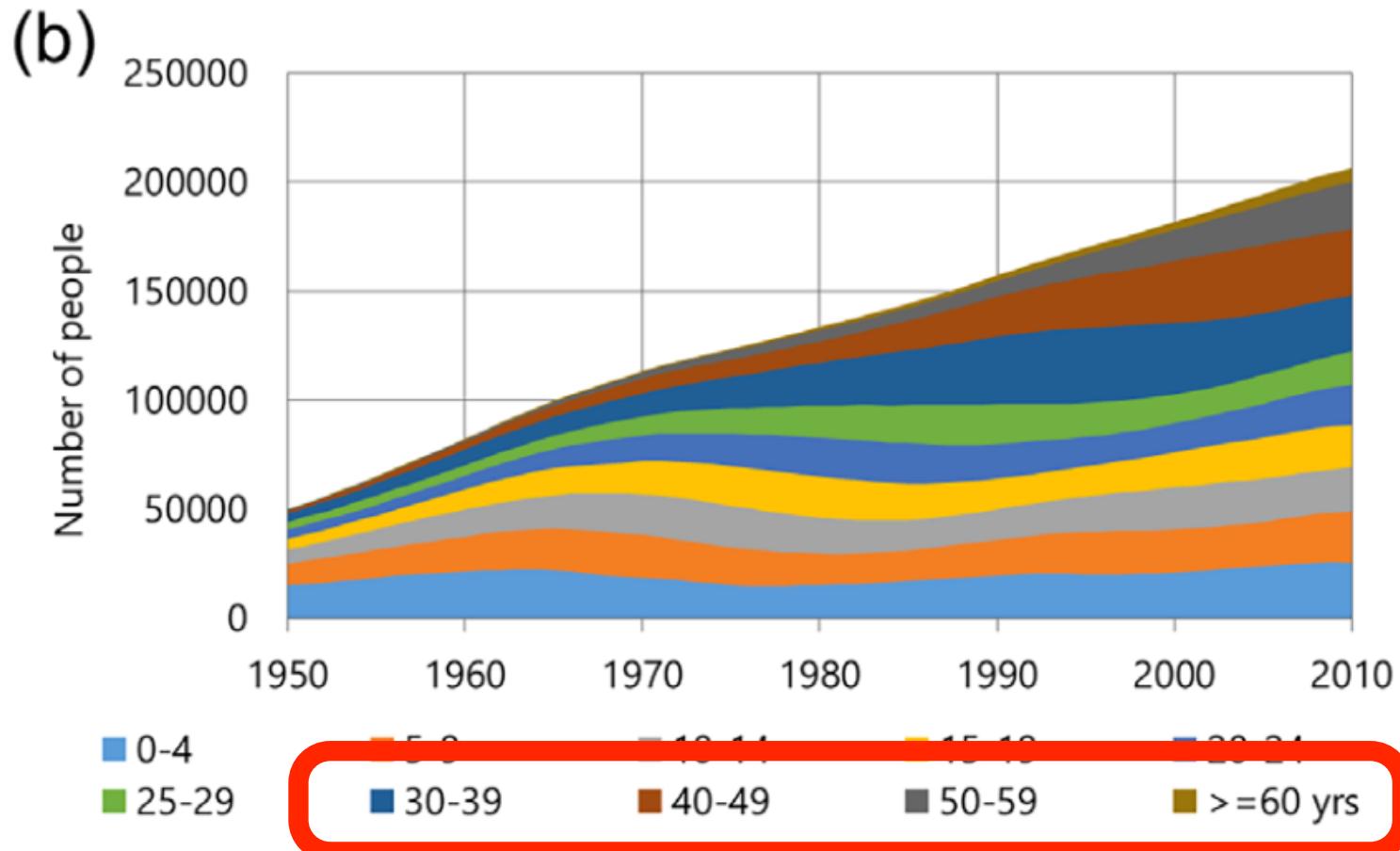
Eur J Hum Genetics. 2020

Southern Europe

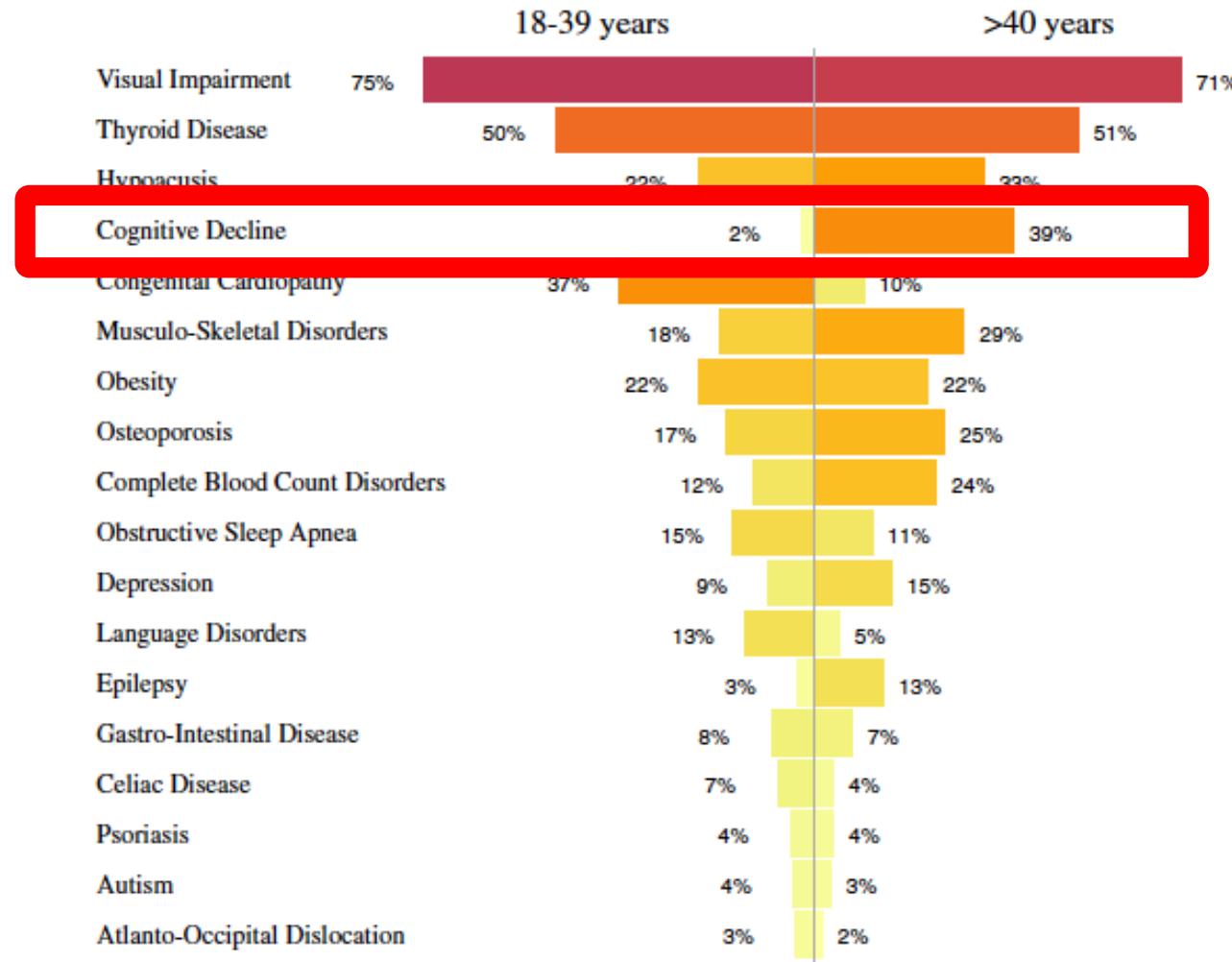


Independent variable	Regression coefficient	Robust standard error	p	OR ^a	OR, 95% CI
Only non-serum screening available and not reimbursed	0.15	0.37	0.6925	1.16	0.56–2.40
Only non-serum screening available and reimbursed	0.78	0.33	0.0186	2.18 ^b	1.14–4.19
Serum screening available and not reimbursed	0.83	0.34	0.0145	2.28 ^b	1.18–4.43
Serum screening available and reimbursed	1.17	0.31	0.0001	3.24 ^c	1.77–5.92
Maternal age	0.30	0.04	0.0000		
+1 year				1.36	1.25–1.47
+3 years				2.49 ^b	1.95–3.19
Ln(GNI per capita)	1.18	0.30	0.0001		
GNI per capita +10%				1.12	1.06–1.18
GNI per capita +50%				1.61	1.27–2.05
GNI per capita +100%				2.26 ^b	1.50–3.41
Standard country fixed effect ^d	0.76			2.15 ^b	

Am J Med Genet (part A). 2025;0:e64228



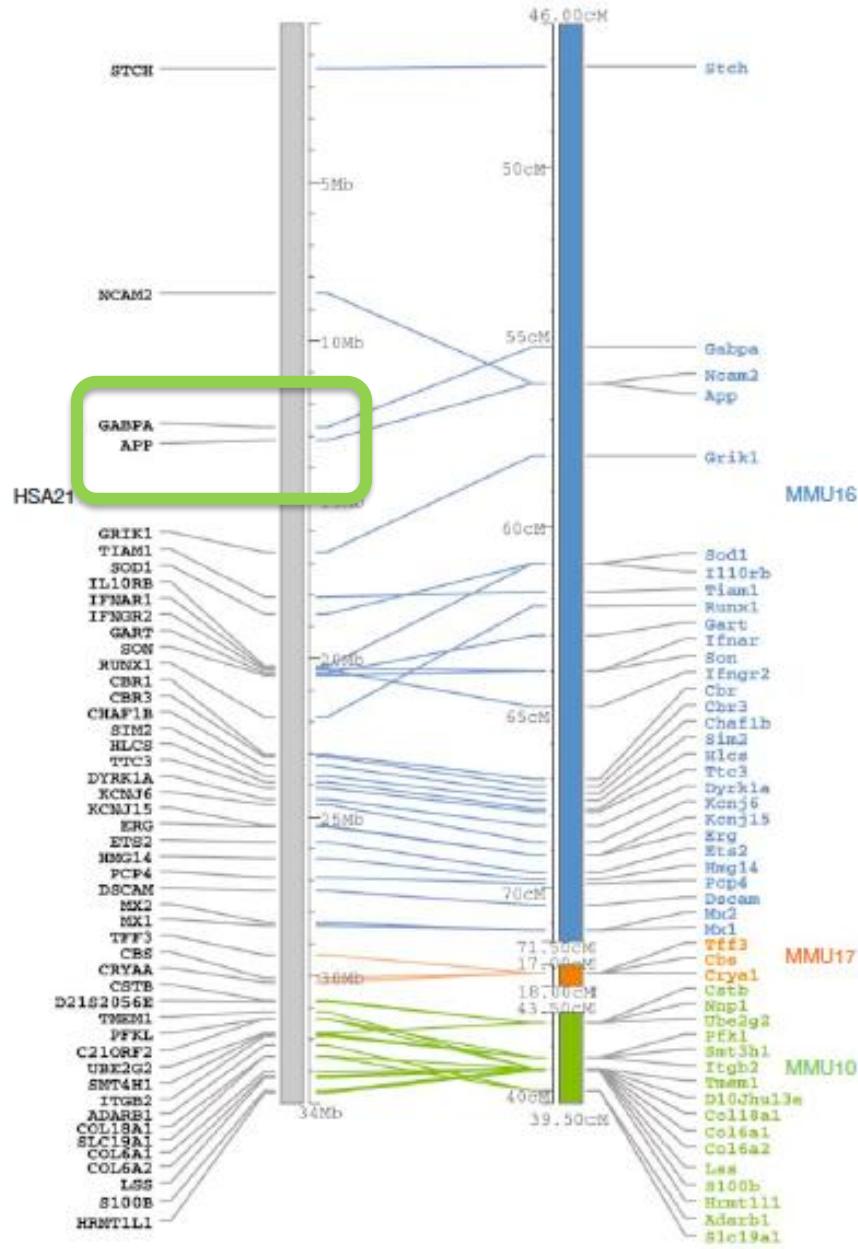
Am J Med Genet A. 2017;173A:2710

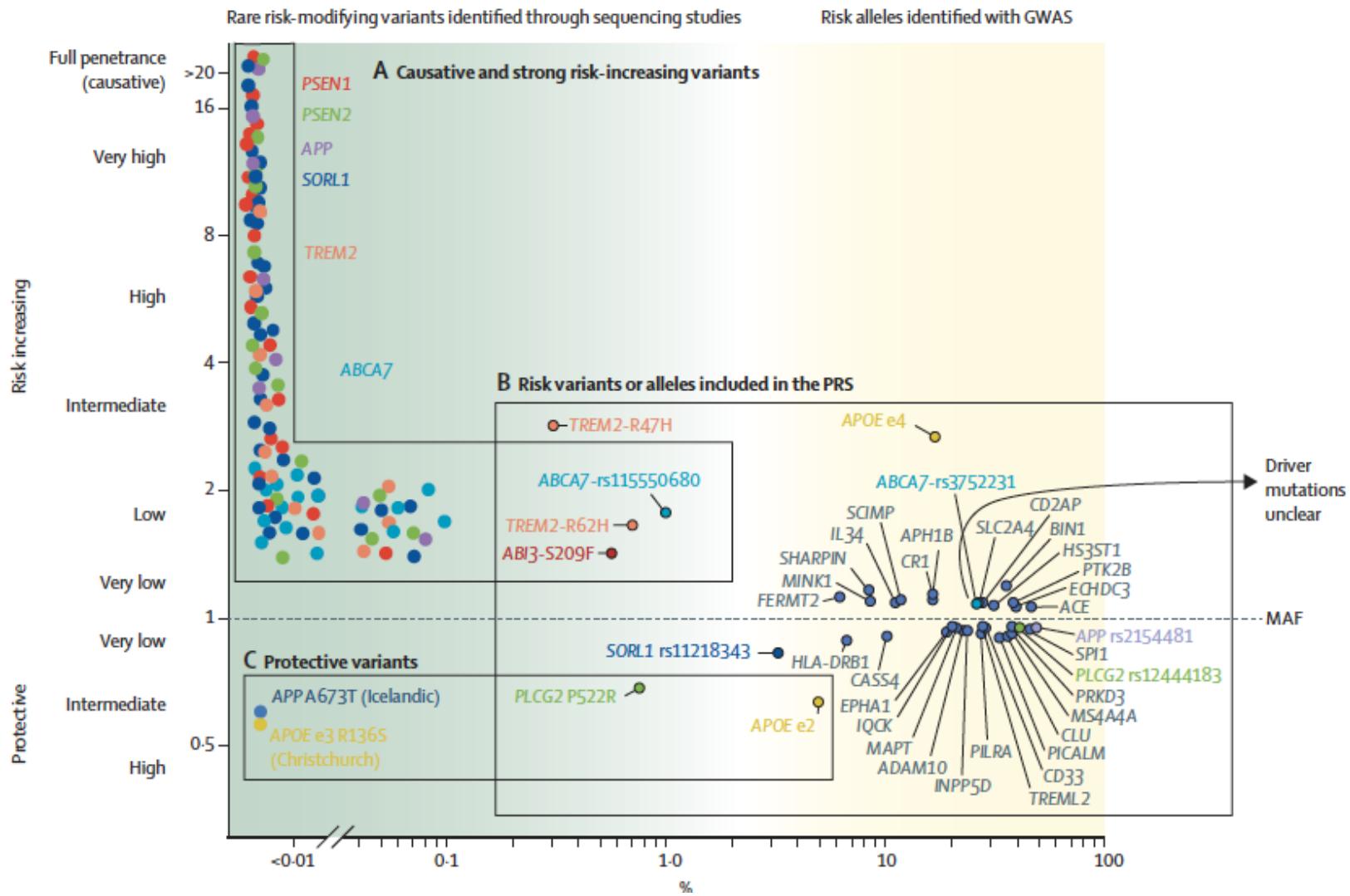


Am J Med Genet A. 2020;182:1735

The DNA sequence of human chromosome 21

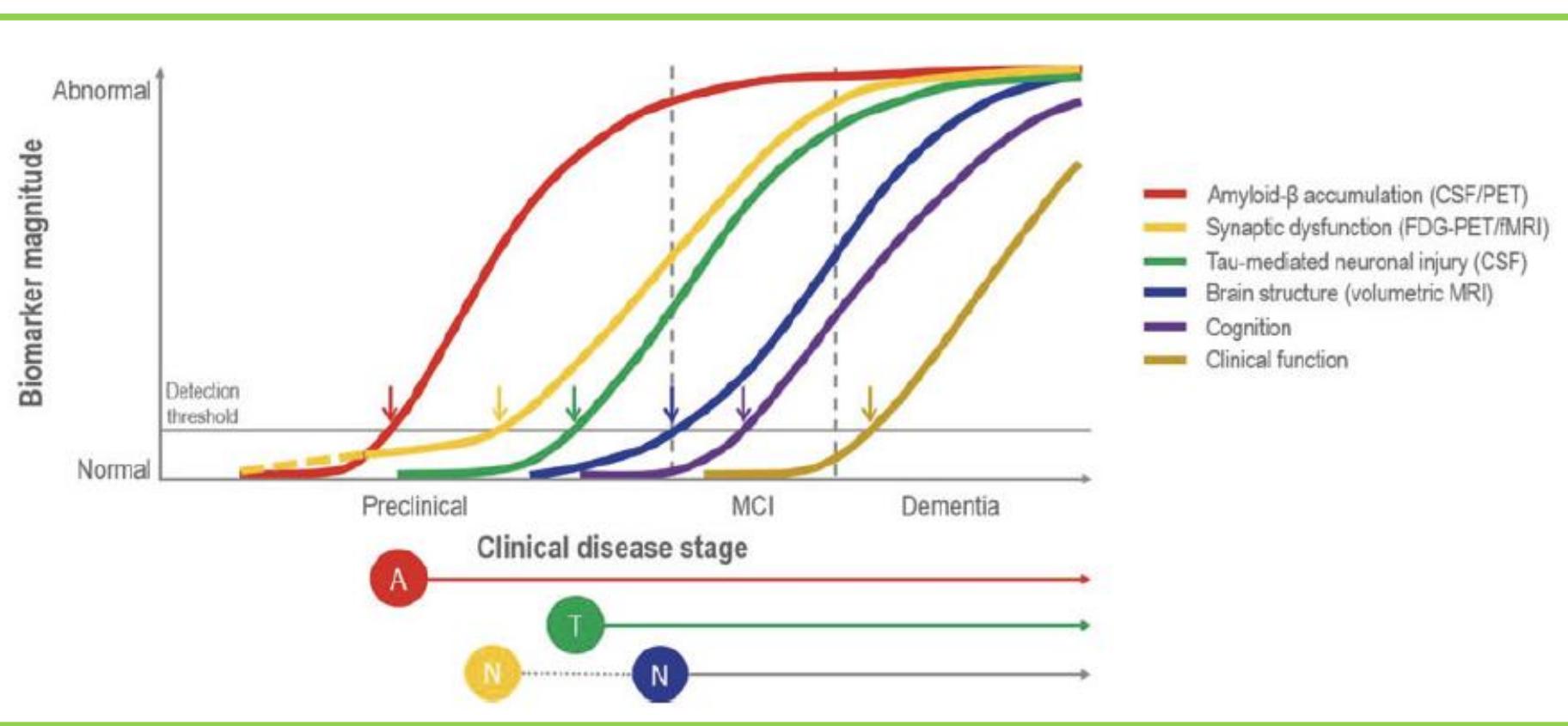
Nature. 2000;405:311





Lancet. 2021;397:1577

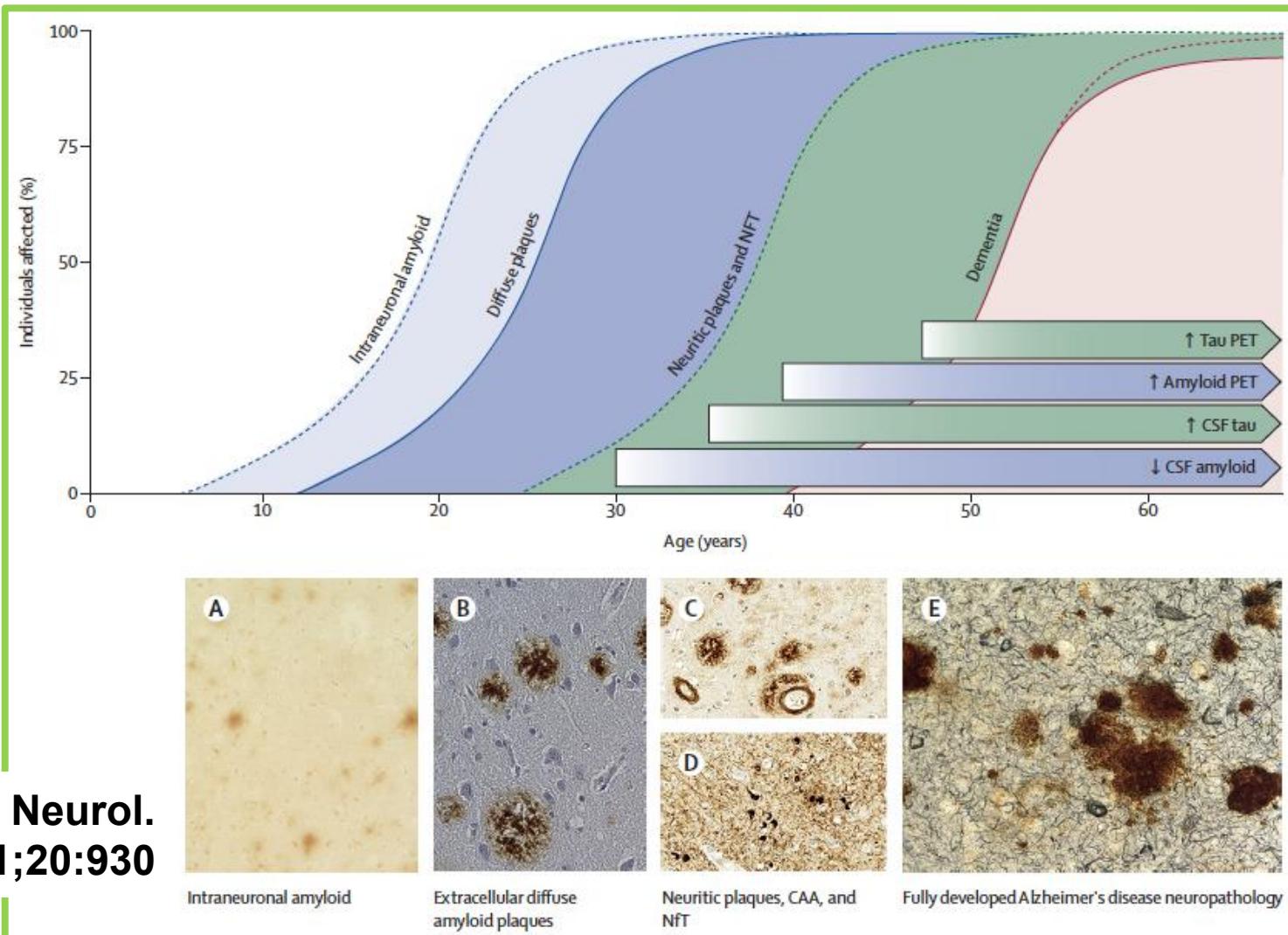
Harald Hampel¹, John Hardy², Kaj Blennow³, Christopher Chen⁴, George Perry⁵, Seung Hyun Kim⁷,
Victor L. Villemagne^{8,9}, Paul Aisen¹⁰, Michele Vendruscolo¹¹, Takeshi Iwatsubo¹², Colin L. Masters¹³, Min Cho³, Lars Lannfelt^{14,15},
Jeffrey L. Cummings¹⁶ and Andrea Vergallo⁶



Molecular Psychiatry. 2021;26:5481

Alzheimer's disease associated with Down syndrome: a genetic form of dementia

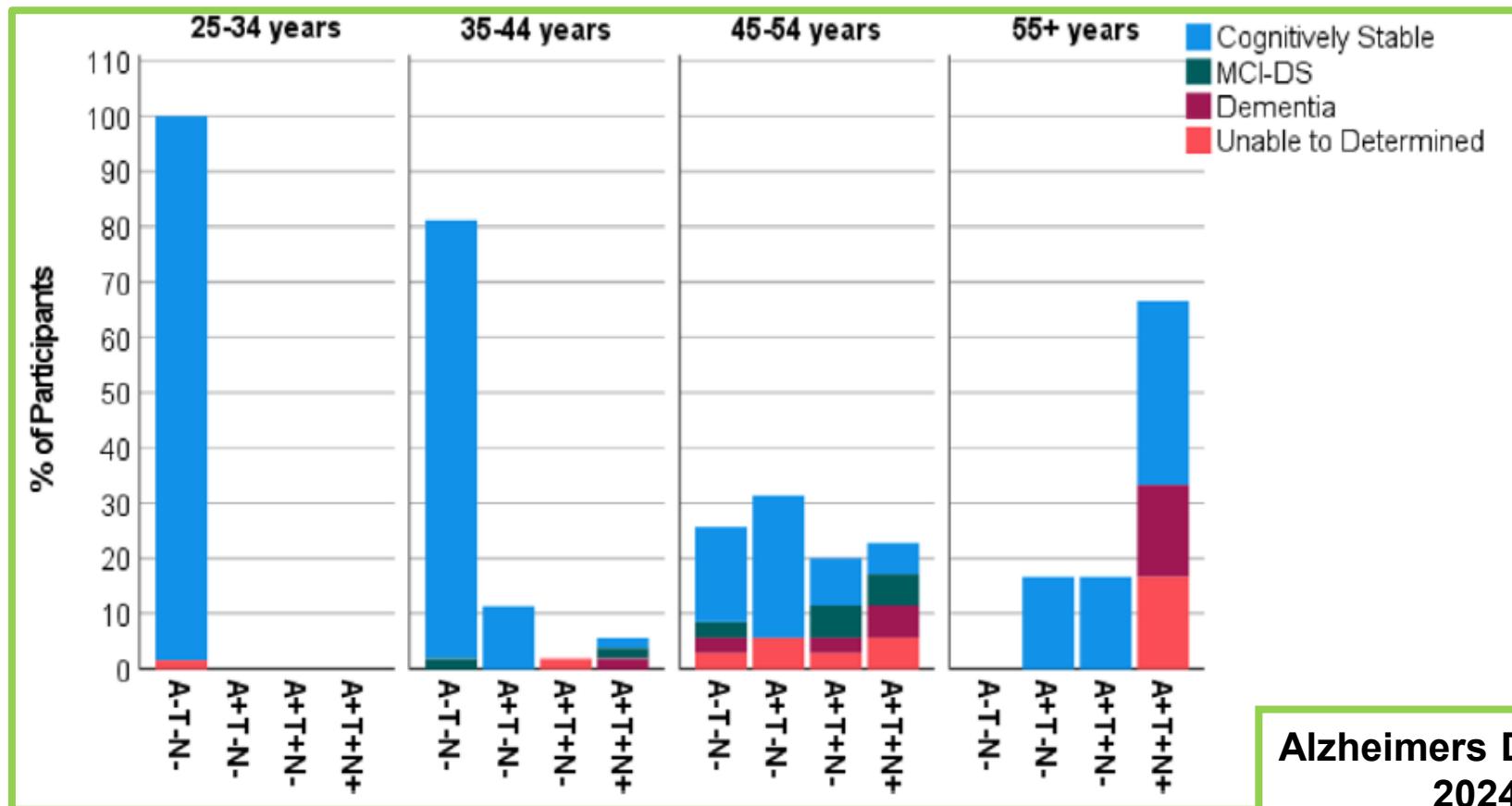
Juan Fortea, Shahid H Zaman, Sigan Hartley, Michael S Rafi, Elizabeth Head, María Carmona-Iragui



Lancet Neurol.
 2021;20:930

AT(N) biomarker profiles and Alzheimer's disease symptomology in Down syndrome

Sigan L. Hartley^{1,2} | Benjamin Handen³ | Dana Tudorascu³ | Laisze Lee³ |
 Annie Cohen³ | Emily K. Schworer¹ | Jamie C. Peven³ | Matthew Zammit^{1,4} |
 William Klunk³ | Charles Laymon^{5,6} | Davneet Minhas⁵ | Weiquan Luo⁵ |
 Shahid Zaman⁷ | Beau Ances⁸ | Gregory Preboske⁹ | Bradley T. Christian^{1,4} |
 the Alzheimer Biomarker Consortium – Down Syndrome

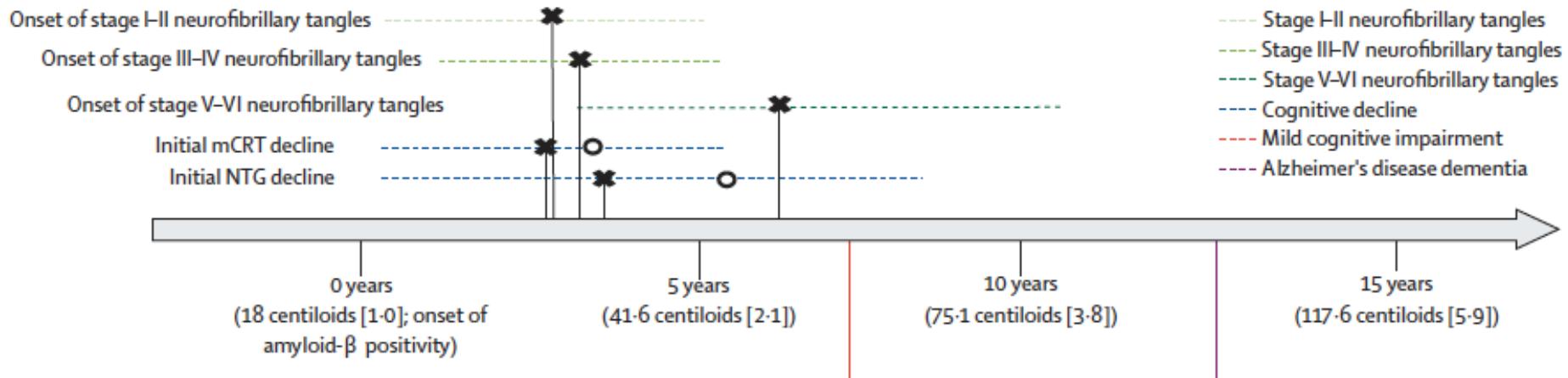


Alzheimers Dement.
2024;20:366

Timeline to symptomatic Alzheimer's disease in people with Down syndrome as assessed by amyloid-PET and tau-PET: a longitudinal cohort study

Emily K Schworer*†, Matthew D Zammit*†, Jiebiao Wang, Benjamin L Handen, Tobey Betthauser, Charles M Laymon, Dana L Tudorascu, Annie D Cohen, Shahid H Zaman, Beau M Ances, Mark Mapstone, Elizabeth Head, Bradley T Christian, Sigan L Hartley, for the Alzheimer's Biomarker Consortium-Down Syndrome (ABC-DS)

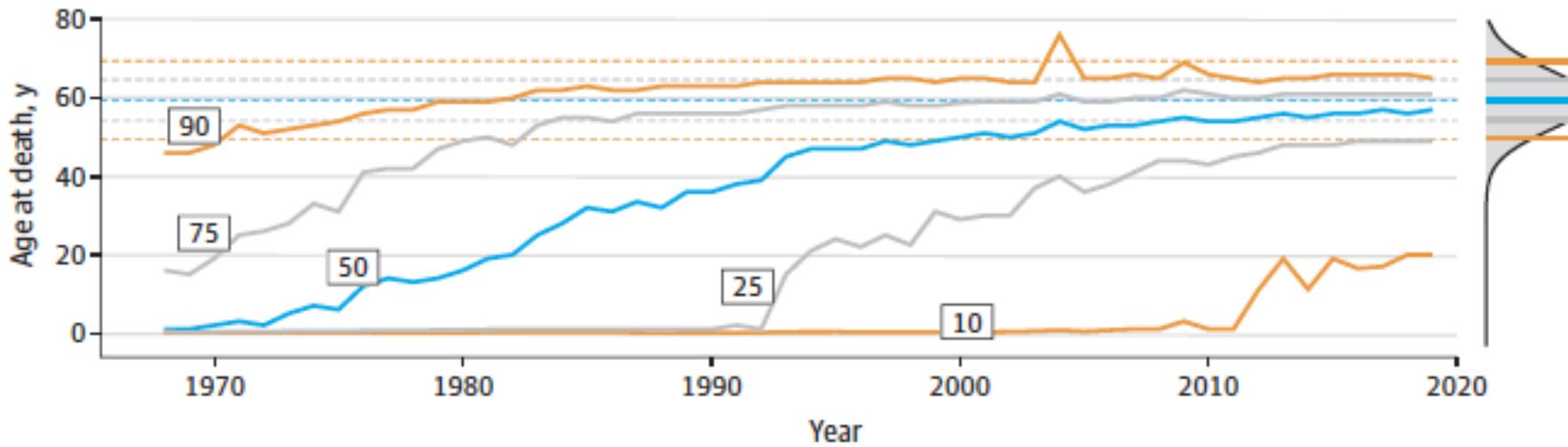
Lancet Neurol 2024; 23:1214



Association of Alzheimer Disease With Life Expectancy in People With Down Syndrome

Maria Florencia Iulita, PhD; Diana Garzón Chavez, RN; Maria Klitgaard Christensen, PhD; Natalia Valle Tamayo, MSc; Oleguer Plana-Ripoll, PhD; Sonja A. Rasmussen, MD; Marta Roqué Figuls, PhD; Daniel Alcolea, MD; Laura Videla, MSc; Isabel Barroeta, MD; Bessy Benejam, MSc; Miren Altuna, MD; Concepción Padilla, PhD; Jordi Pegueroles, MSc; Susana Fernandez, MD; Olivia Belbin, PhD; María Carmona-Iragui, MD; Rafael Blesa, MD; Alberto Lleó, MD; Alexandre Bejanin, PhD; Juan Fortea, MD

B CDC mortality data



JAMA Network Open 2022;5(5):e2212910

TABLE 4 Multivariate analysis of predictors of mortality in adults with Down syndrome.

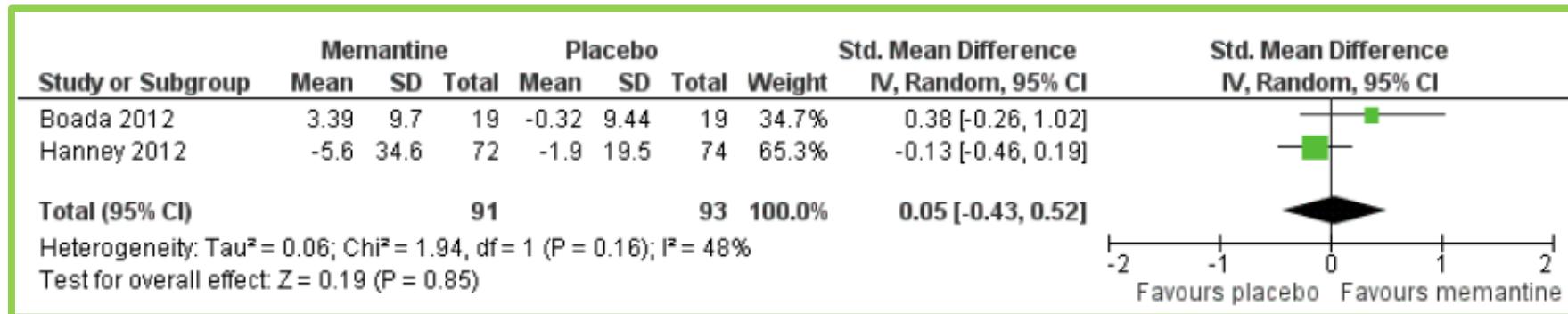
Variable	OR	CI	p
Age	1.03	1.02-1.03	<.001
Charlson comorbidity index	1.20	1.13-1.27	<.001
Dementia	0.91	0.72-1.13	.40
Epilepsy	1.52	1.32-1.74	<.001
Congenital heart disease	2.01	1.68-2.39	<.001
Bed-confined	2.31	1.46-3.62	<.001
Gross aspiration	2.59	2.20-3.04	<.001
Dysphagia	0.71	0.48-1.04	.09
Gastrostomy	2.26	1.39-3.64	<.001
Cancer	2.79	2.07-3.75	<.001
Heart failure	1.95	1.53-2.46	<.001
Acute myocardial infarction	2.04	1.27-3.22	.01
Cerebrovascular disease	2.95	2.30-3.77	<.001
Anaemia	1.30	1.08-1.57	.001
Readmission <30 days	2.43	2.06-2.86	<.001
Readmission in 30-60 days	1.66	1.27-2.16	<.001
Readmission in 60-90 days	1.37	0.96-1.91	.07
Readmission in 90-180 days	1.78	1.38-2.27	<.001
Readmission in 180-365 days	1.20	0.94-1.53	.12
Readmission >1 year	1.19	1.01-1.41	.04

Analysis of the circumstances associated with death and predictors of mortality in Spanish adults with Down syndrome, 1997-2014

Paloma Aparicio¹ | Alberto Alonso-Babarro² | Raquel Barba³ |
Fernando Moldenhauer⁴ | Carmen Suárez⁴ | Diego Real de Asúa^{4,5} 

J Appl Res Intellect Disabil.
2024;37:e13187

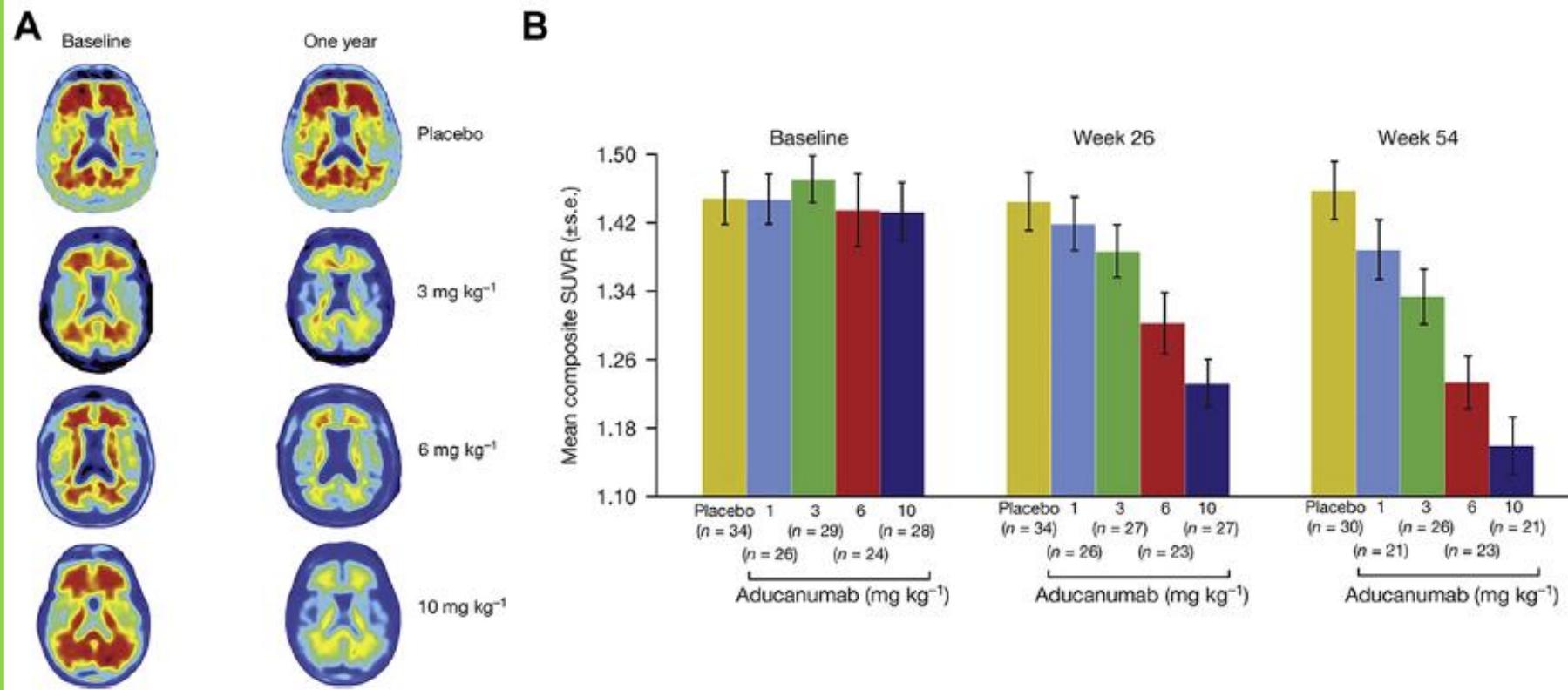
¿Sirven los tratamientos habituales?



Cochrane Database Syst Rev. 2015;2015(10):CD011546

The antibody aducanumab reduces A β plaques in Alzheimer's disease

Jeff Sevigny^{1*}, Ping Chiao^{1*}, Thierry Bussière^{1*}, Paul H. Weinreb^{1*}, Leslie Williams¹, Marcel Maier², Robert Dunstan¹, Stephen Salloway³, Tianle Chen¹, Yan Ling¹, John O'Gorman¹, Fang Qian¹, Mahin Arastu¹, Mingwei Li¹, Sowmya Chollate¹, Melanie S. Brennan¹, Omar Quintero-Monzon¹, Robert H. Scannevin¹, H. Moore Arnold¹, Thomas Engber¹, Kenneth Rhodes¹, James Ferrero¹, Yamine Hang¹, Alvydas Mikulskis¹, Jan Grimm², Christoph Hock^{2,4}, Roger M. Nitsch^{2,4,8} & Alfred Sandrock^{1,8}

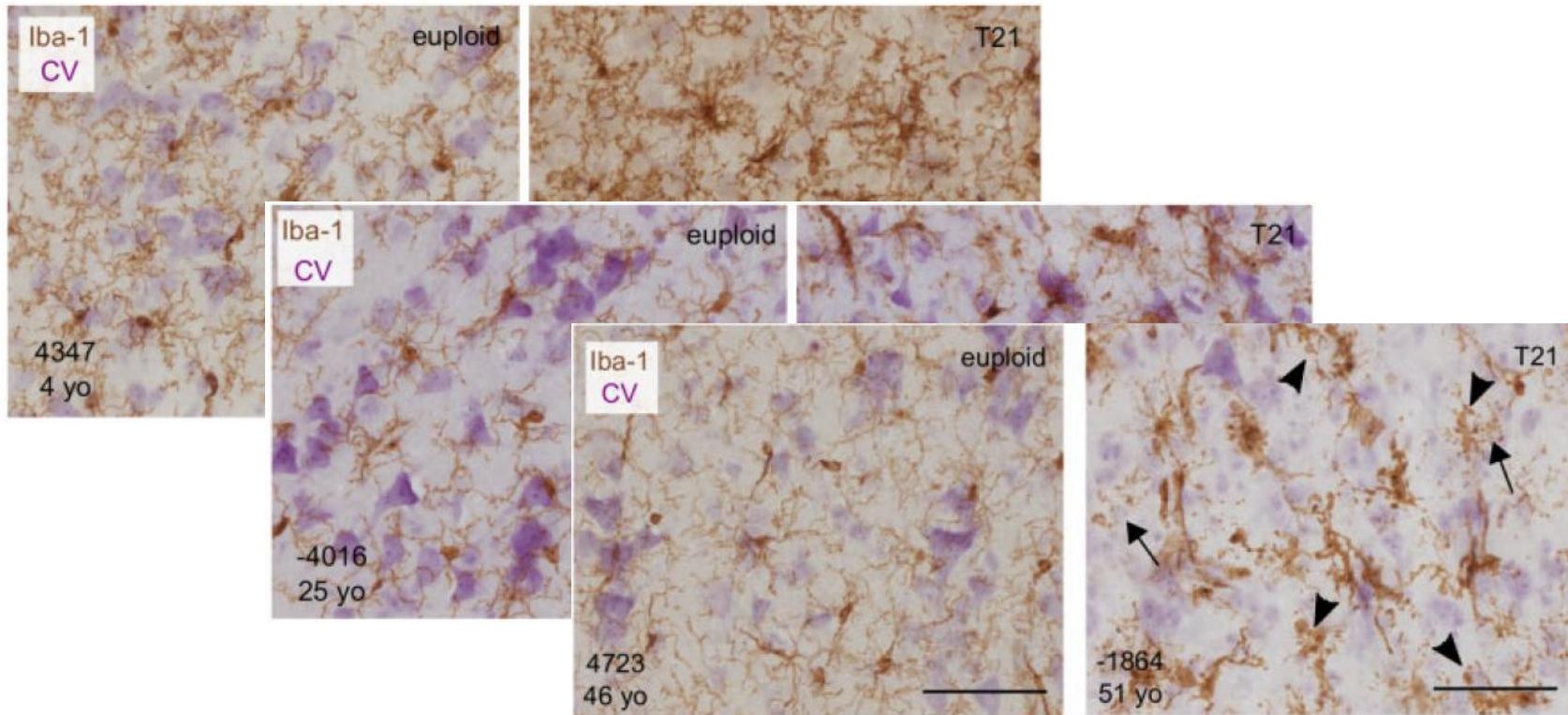


Nature. 2016;537:50

Evolution of neuroinflammation across the lifespan of individuals with Down syndrome

 Lisi Flores-Aguilar,¹  M. Florencia Iulita,^{2,3,4}  Olivia Kovecses,²  María D. Torres,⁵
 Sarah M. Levi,²   Yian Zhang,⁶  Manor Askenazi,⁷  Thomas Wisniewski,⁸
 Jorge Busciglio⁵ and   A. Claudio Cuello^{1,2,9,10}

¿Todo es culpa del amiloide?



Brain. 2020;143:3653

Desafíos en investigación con personas con SD



Lancet. 2024;403:1830

Conclusiones

- Los adultos con SD son una población creciente con necesidades específicas de salud
- La EA es uno de los grandes retos de esta población (frecuencia, precocidad, dificultad diagnóstico y consecuencias)
- Actualmente no disponemos de tratamientos efectivos, pero intenso trabajo en este campo
- La participación de pacientes, familiares y asociaciones en investigación será crucial para superar barreras



¡Muchas gracias!
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