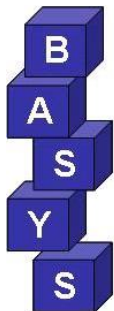


BIPOLAR AND SCHIZOPHRENIA YOUNG OFFSPRING STUDY



Bipolar And Schizophrenia
Young offspring Study





SaludMadrid

Hospital Universitario
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Clínic
Barcelona



Methods:

	Inclusion Criteria	Exclusion Criteria
High Risk (HR)	<ul style="list-style-type: none">• Aged between 6 and 17 years• Mother/father diagnosed with a bipolar disorder or schizophrenia• Informed consent signed by parents or adolescents > 12 years old	<ul style="list-style-type: none">• Intellectual disability• Severe neurological disorder• Drug-induced psychosis
Community Controls (CC)	<ul style="list-style-type: none">• Aged between 6 and 17 years.• No family history of psychotic disorder neither in the first nor in the second degree relatives• Informed consent signed by parents or adolescents >12 years old	



Methods:

Follow-up



Assessment



Methods:

Clinical assessment

Blind to parental diagnosis

Parents

- Structured Interview for DSM-IV Criteria (SCID-I)

Offspring

- Kiddie Schedule for Affective Disorders and Schizophrenia, Present and Lifetime version (K-SADS-PL)
- Semi-structured Interview for Prodromal Symptoms (SIPS) scored on the Scale of Prodromal Symptoms (SOPS)
- Hamilton Depression Rating Scale (HDRS)
- Young Mania Rating Scale (YMRS)
- Global Assessment of Functioning Scale (GAF)
- Premorbid Adjustment Scale (PAS)



Methods:

Blind
fashion

Offspring cognitive assessment

Domain	Test
Intelligence	<ul style="list-style-type: none">• WISC V/WAIS-IV
Executive Function	<ul style="list-style-type: none">• Wisconsin Card Sorting Test• Stroop Color and Word Test
Attention	<ul style="list-style-type: none">• Continuous Performance Test
Working Memory	<ul style="list-style-type: none">• WMI (WISC/WAIS)
Processing Speed	<ul style="list-style-type: none">• PSI (WISC/WAIS)
Verbal Memory	<ul style="list-style-type: none">• Word recall list – Test of Memory and Learning (TOMAL)• Story recall - TOMAL
Visual Memory	<ul style="list-style-type: none">• Wechsler Memory Scale



Methods:

Genetics

Polygenic Risk/Resilience Scores (GWAS)

- Schizophrenia
- Bipolar Disorder
- Major Depressive Disorder
- Intelligence
- Educational attainment
- Cognitive performance

Epigenetics

Clocks

- Horvath's 67¹
- Hannum's 68²
- PedBE 69³
- Wu's 70⁴



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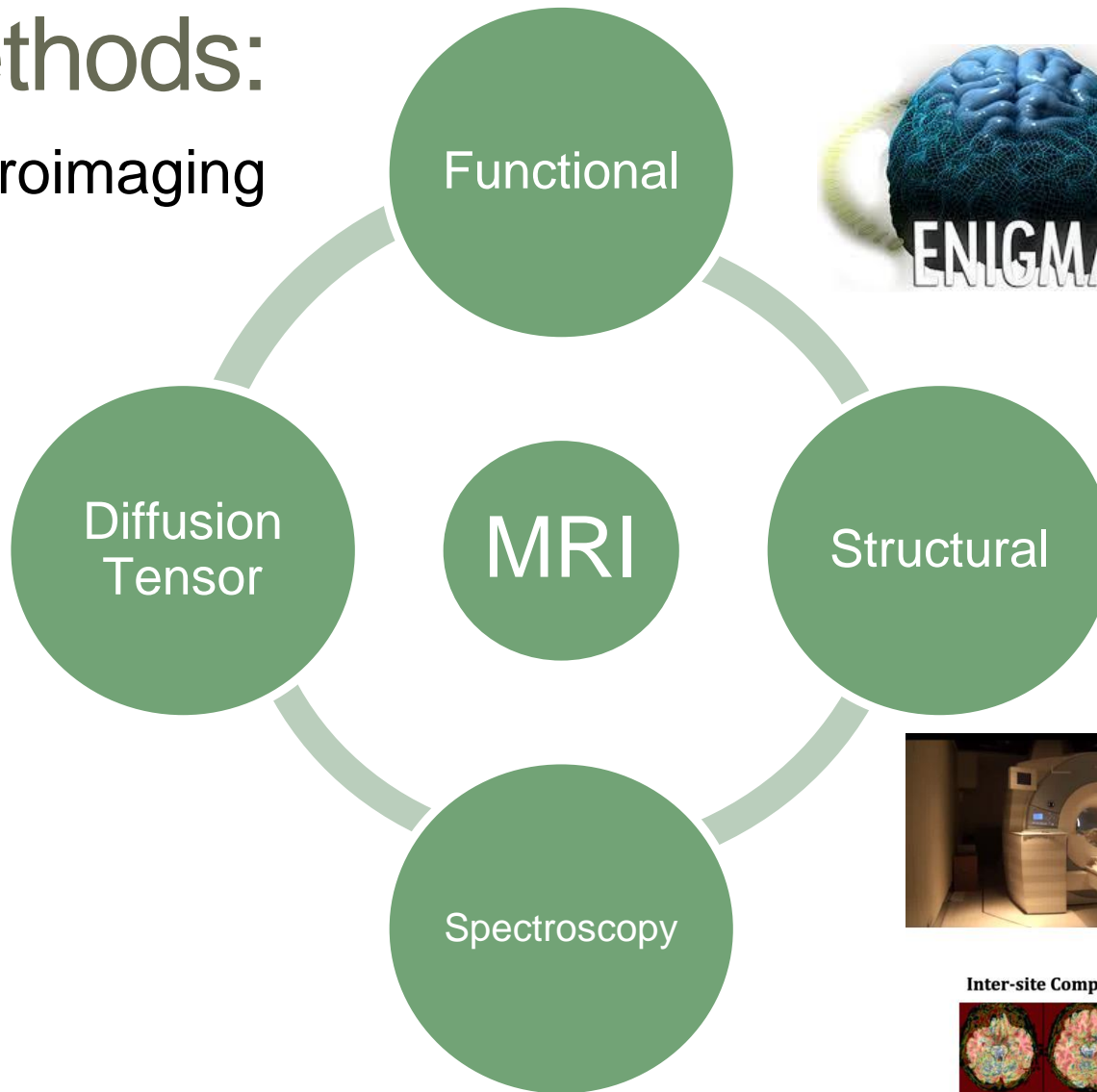
¹Horvath S. DNA methylation age of human tissues and cell types. *Genome Biol.* 2013;14(10).

²Hannum G, Guinney J, Zhao L, et al. Genome-wide Methylation Profiles Reveal Quantitative Views of Human Aging Rates. *Mol Cell.* 2013;49(2):359-367.

³McEwen LM, O'Donnell KJ, McGill MG, et al. The PedBE clock accurately estimates DNA methylation age in pediatric buccal cells. *Proc Natl Acad Sci U S A.* 2020;117(38):23329-23335.

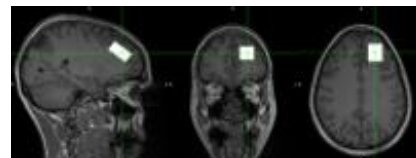
⁴Wu X, Chen W, Lin F, et al. DNA methylation profile is a quantitative measure of biological aging in children. *Aging.* 2019;11(22):10031-10051.

Methods: Neuroimaging

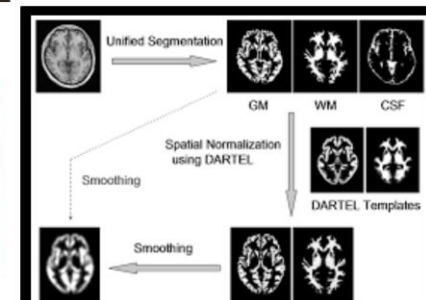
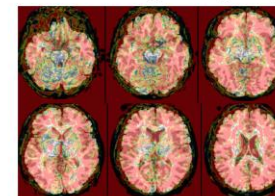


3 Tesla Siemens / 1.5 Tesla
Centre Diagnòstic per la Imatge (CDI)
Hospital Clínic. Barcelona / HGUGM

T1
Diffusion Tensor Imaging
Resting State fMRI



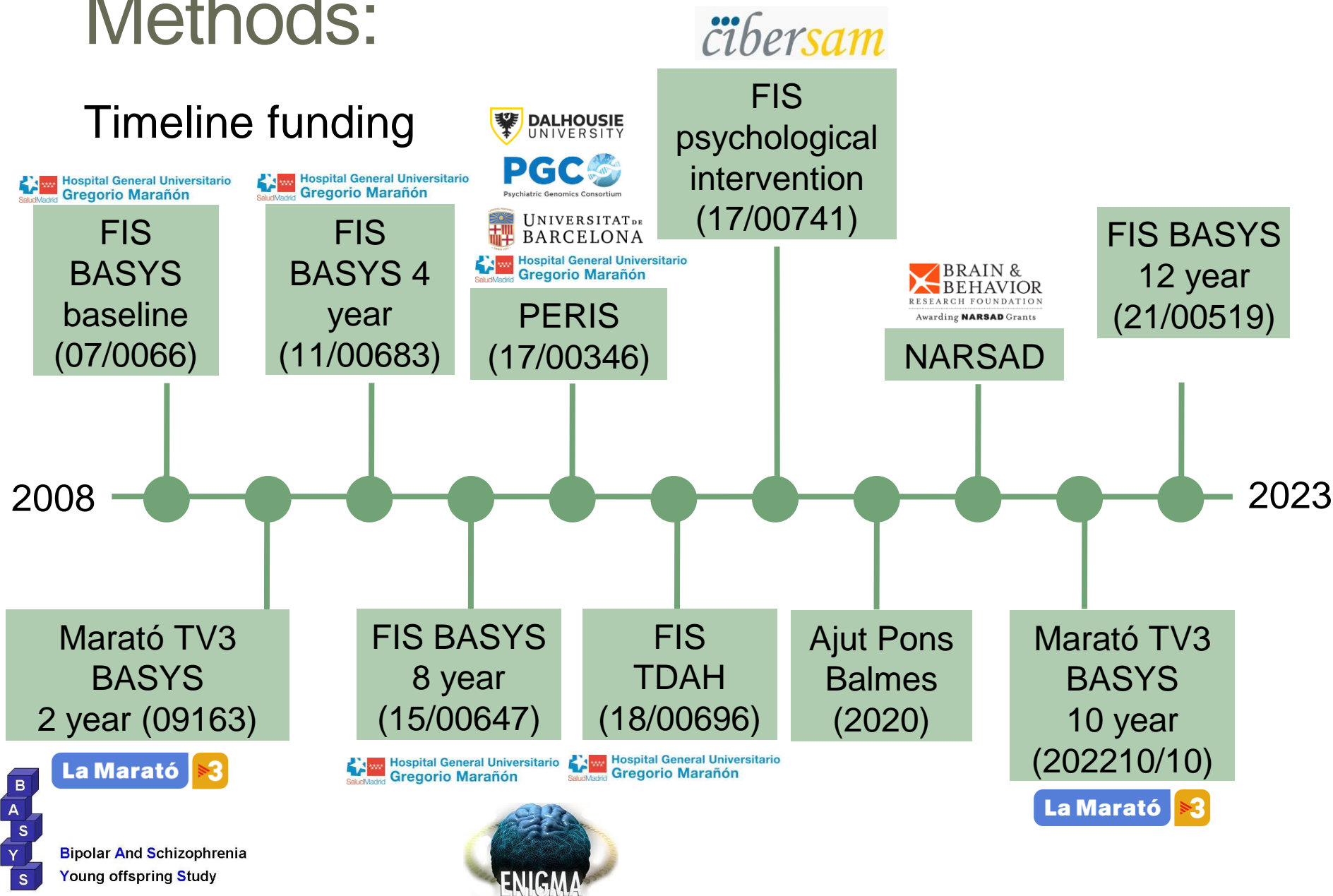
Inter-site Compatibility Study



Bipolar And Schizophrenia
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Methods:

Timeline funding



Methods:

Sample



- Schizophrenia offspring (SZ-off)
- Bipolar Disorder offspring (BD-off)
- Community Control offspring (CC-off)

	Schizophrenia families	Bipolar Disorder families	Community control families
Offspring	46	105	102
Affected parent	34	59	-
Non-affected parent	31	47	114



Psychiatric disorders in child and adolescent offspring of patients with schizophrenia and bipolar disorder: A controlled study



Vanessa Sanchez-Gistau^{a,b,*}, Soledad Romero^{a,b}, Dolores Moreno^{b,d}, Elena de la Serna^b, Inmaculada Baeza^{a,b,c}, Gisela Sugranyes^{a,c}, Carmen Moreno^{b,d}, Teresa Sanchez-Gutierrez^{b,d}, Elisa Rodriguez-Toscano^{b,d}, Josefina Castro-Fornieles^{a,b,c}

Attenuated psychotic symptoms in children and adolescent offspring of patients with schizophrenia

Ana Noguera^{a,*}, Josefina Castro-Fornieles^a, Soledad Romero^a, Elena de la Serna^a, Gisela Sugranyes^a, Vanessa Sánchez-Gistau^b, Dolores Moreno^c, Covadonga M. Díaz-Caneja^c, Jessica Merchán-Naranjo^c, Cloe Llorente^c, Inmaculada Baeza^a

Neuropsychological characteristics of child and adolescent offspring of patients with schizophrenia or bipolar disorder

Elena de la Serna, PhD^{a,b,*}, Gisela Sugranyes, MD, PhD^{b,c}, Vanessa Sanchez-Gistau, MD, PhD^{a,d}, Elisa Rodriguez-Toscano, MSc^{a,e}, Inmaculada Baeza, MD, PhD^{a,b}, Montserrat Vila^b, Soledad Romero, MD, PhD^{a,b}, Teresa Sanchez-Gutierrez, PhD^{a,e}, M^a José Penzol, MD, MSc^{a,e}, Dolores Moreno, MD, PhD^{a,e}, Josefina Castro-Fornieles, MD, PhD^{a,b,c,f}

Neuropsychological characteristics of child and adolescent offspring of patients with bipolar disorder

Elena de la Serna^{a,b,*1,2}, Monserrat Vila^{b,2}, Vanessa Sanchez-Gistau^{a,b,1,2}, Dolores Moreno^{a,c,1,3}, Soledad Romero^{a,b,1,2}, Gisela Sugranyes^{b,d,2,4}, Inmaculada Baeza^{a,b,1,2}, Cloe Llorente^{a,c,1,3}, Elisa Rodriguez-Toscano^{a,c,1,3}, Teresa Sánchez-Gutierrez^{a,c,1,3}, Josefina Castro-Fornieles^{a,b,d,e,1,2,4,5}

Altered Cortico-Striatal Connectivity in Offspring of Schizophrenia Patients Relative to Offspring of Bipolar Patients and Controls

Cristina Solé-Padullés¹, Josefina Castro-Fornieles^{1,2,3,4}, Elena de la Serna⁴, Soledad Romero^{1,2,4}, Anna Calvo^{1,5,6}, Vanessa Sánchez-Gistau^{1,2,4}, Marta Padrós-Fornieles², Inmaculada Baeza^{1,2,4}, Núria Bargallo^{4,5,7}, Sophia Frangou⁸, Gisela Sugranyes^{1,2*}

Gray Matter Volume Decrease Distinguishes Schizophrenia From Bipolar Offspring During Childhood and Adolescence

Gisela Sugranyes, MD, PhD, Elena de la Serna, PhD, Soledad Romero, MD, PhD, Vanessa Sanchez-Gistau, MD, PhD, Anna Calvo, MSc, Dolores Moreno, MD, PhD, Inmaculada Baeza, MD, PhD, Covadonga M. Diaz-Caneja, MD, Teresa Sanchez-Gutierrez, PhD, Joost Janssen, PhD, Nuria Bargallo, MD, PhD, Josefina Castro-Fornieles, MD, PhD

Cortical Morphology Characteristics of Young Offspring of Patients With Schizophrenia or Bipolar Disorder

Gisela Sugranyes, MD, PhD, Cristina Solé-Padullés, PhD, Elena de la Serna, PhD, Roger Borrás, MSc, Soledad Romero, MD, PhD, Vanessa Sanchez-Gistau, MD, PhD, Clemente Garcia-Rizo, MD, PhD, Jose Manuel Goikolea, MD, PhD, Nuria Bargallo, MD, PhD, Dolores Moreno, MD, PhD, Inmaculada Baeza, MD, PhD, Josefina Castro-Fornieles, MD, PhD

Clinical, Cognitive, and Neuroimaging Evidence of a Neurodevelopmental Continuum in Offspring of Probands With Schizophrenia and Bipolar Disorder

Gisela Sugranyes¹⁻³, Elena de la Serna³, Roger Borrás², Vanessa Sanchez-Gistau^{3,4}, Jose C. Pariente², Soledad Romero^{2,3}, Inmaculada Baeza¹⁻³, Covadonga M. Díaz-Caneja^{3,5}, Elisa Rodriguez-Toscano^{3,5}, Carmen Moreno^{3,5}, Miguel Bernardo^{1,3,6,7}, Dolores Moreno^{3,5}, Eduard Vieta^{1,3,6,7}, and Josefina Castro-Fornieles^{1-3,6}

Brain structural trajectories in youth at familial risk for schizophrenia or bipolar disorder according to development of psychosis spectrum symptoms

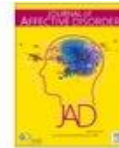
Gisela Sugranyes,^{1,2,3} Elena de la Serna,³ Daniel Ilzarbe,^{2,4} Jose Carlos Pariente,¹
Roger Borrás,¹ Soledad Romero,^{1,2,3} Mireia Rosa,¹ Inmaculada Baeza,^{1,2,3,4}
Maria Dolores Moreno,^{3,5} Miguel Bernardo,^{1,3,4,6} Eduard Vieta,^{1,3,4,6} and
Josefina Castro-Fornieles^{1,2,3,4}



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Research paper

Cognitive heterogeneity in the offspring of patients with schizophrenia or bipolar disorder: a cluster analysis across family risk



Isabel Valli^{a,b,*}, Elena De La Serna^{a,c,d}, Roger Borrás^a, Daniel Ilzarbe¹,
Inmaculada Baeza^{a,c,d,e}, Maria Dolores Picouto^f, Itziar Baltasar^f, Dolores Moreno^{c,f},
Miguel Bernardo^{a,c,d}, Allan H Young^{g,h}, Eduard Vieta^{a,c,d,e}, Gisela Sugranyes^{a,d,*},
Josefina Castro-Fornieles^{a,d,e,#}

NEW RESEARCH

Genetic and Structural Brain Correlates of Cognitive Subtypes Across Youth at Family Risk for Schizophrenia and Bipolar Disorder

Isabel Valli, MD, PhD¹, Elena De la Serna, PhD², Alex G. Segura, MSc³, Jose C. Pariente, MSc⁴,
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Dolores Moreno, MD, PhD, Nuria Martín-Martínez, MSc⁷, Inmaculada Baeza, MD, PhD⁸,
Mireia Rosa-Justicia, PhD⁹, Clemente García-Rizo, MD, PhD¹⁰,
Covadonga M. Díaz-Caneja, MD, PhD¹¹, Nicolas A. Crossley, MD, PhD,
Allan H. Young, MD, PhD¹², Eduard Vieta, MD, PhD¹³, Sergi Mas, PhD,
Josefina Castro-Fornieles, MD, PhD¹⁴, Gisela Sugranyes, MD, PhD¹⁵



Methods:

Sample

New recruitment (FAMILY Project)

	Schizophrenia families	Bipolar Disorder families	Community control families
Diads	3	5	-
Triads	3	9	2



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