Resumé

Personal Information

Name:	**Nikolaos Koutsouleris, MD**
Positions:	▪ Professor for Neurodiagnostic Applications in Psychiatry ▪ Managing consultant and Head of the outpatient service "Early Detection and Rehabilitation of Psychoses" ▪ Head of the Section for Neurodiagnostic Applications ▪ Coordinator EU-FP7 Project PRONIA (www.pronia.eu) ▪ Faculty member at the International Max-Planck Research School for Translational Psychiatry (https://www.imprs-tp.mpg.de/) and Fellow of the Max-Planck Society at the Max-Planck Institute of Psychiatry, Munich ▪ Research Professor at the Department of Psychiatry, Icahn School of Medicine Mount Sinai, New York (10% part-time appointment in process) ▪ Visiting Professor at the Institute of Psychiatry, Psychology and Neuroscience, King's College London
Main address:	Department of Psychiatry and Psychotherapy, Nussbaumstr. 7, 80336 Munich
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Date of birth:	24/07/1976
Place of birth:	Athens, Greece
Nationality:	German / Greek

Statement on Research Profile

My research aims at developing and validating prognostic, diagnostic, theranostic, normative modelling and subtyping tools for the personalized management of psychiatric disorders. Such computational tools have the great potential to enable the quantitative individualized ascertainment of risk for poor outcomes in vulnerable patient populations. At the same time, they allow us to conduct targeted mechanistic research, giving us profound insight into the neurobiological mechanisms of risk and resilience, and thus facilitating the development of novel modes of action, which counteract pathogenetic and enhance salutogenic processes in the given patient.

To identify disease patterns that constitute highly predictive tools for precision medicine in psychiatry, I have implemented and applied advanced machine learning methods (NeuroMiner) to databases comprising neuroimaging, neurocognitive, genetic, clinical, and environmental data. As clinician scientist, I have built up such databases by conducting cross-sectional and longitudinal deep-phenotyping studies of patients in all stages of affective and non-affective psychoses. To this end, I have implemented an Early Recognition Service at the Department of Psychiatry and Psychotherapy at LMU. Since its inception in 2013, the Service has collected high-quality multi-modal data of nearly 700 patients in at-risk and first-episode stages of psychosis and depression as part of the international PRONIA study and other parallel national projects. In collaboration with the Max-Planck Institute of Brain and Cognitive Sciences (Prof. M. Schroeter), I have recently extended my research profile toward the investigation of clinical and neurobiological overlaps between frontotemporal dementia, Alzheimer's disease, schizophrenia and major depression. This broader approach will allow me to study possible links between neurodevelopmental and neurodegenerative disease pathologies across the life span.

Equally important, I implemented two educational tracks in the Section for Neurodiagnostic Applications. In the first track, young investigators at the MSc, PhD and post-doctoral levels develop profound knowledge in multivariate analysis methods and their application to complex and high-dimensional representations of mental disorders; in the second track, clinician scientists are trained to ascertain the complex patterns of psychopathology typically present in adolescents and young adults who present at our specialized ward for adolescent/transitional age psychiatry.

Career

1996	Finished university entrance diploma with "excellent" (1.2; range: 1.0 – 3.5)
1996 – 2003	Scholar of the German National Academic Foundation. Medical studies at the Ludwig-Maximilian-University (LMU) of Munich, Germany
2002	3–months internship at World-Health Organization, European Office, Department of Communicable Disease, Copenhagen. Focus: Building up an international antimicrobial resistance surveillance system for Eastern Europe and the States of the Former Soviet Union.
2004	Start working as registrar at the Clinic of Psychiatry and Psychotherapy of the LMU.
2005	Finished medical thesis (doctorate degree) in the field of Neurophysiology with "magna cum laude". The thesis investigated the neural processes involved in the adaptation and coordination of autonomous functions (breathing) to postural disturbances affecting stance and gait. For this purpose, patients with cerebellar ataxias were compared to matched control subjects using posturography, EMG and respiration recordings.
Since 2005	Post-doctoral research fellow at the Neuroimaging Lab (Head: Prof. Dr. Eva Meisenzahl) with main focus on studying the structural correlates of at-risk mental states of psychosis, schizophrenia and depression using structural MRI data. Extensive and in-depth experience with state-of-the-art neuroimaging techniques, including voxel-based, deformation-based and surface-based morphometry (SPM, FSL, Freesurfer).
Since 2007	Reviewer for general, neuropsychiatric and neuroimaging journals, including Nature Medicine, JAMA Psychiatry, Lancet Psychiatry, Molecular Psychiatry, Biological Psychiatry, Schizophrenia Bulletin, Neuropsychopharmacology, Neuroimage, Schizophrenia Research, Neurobiology of Ageing, BMC Psychiatry, European Archives of Psychiatry and Clinical Neurosciences, and others
Since 2008	Main focus on the development and use of multivariate analysis techniques and in particular advanced machine learning methods (SVM, RVM, Bayesian Networks, Ensemble Learning) for the purpose of identifying diagnostic biomarker signatures of the high-risk and the prodromal states of psychosis that operate on the single-subject level. Development & Implementation of the versatile and flexible machine learning platform NeuroMiner
2011	Completed all requirements for submitting the cumulative "Habilitation" thesis at the Medical School of the LMU. Visiting scholarship at the Section for Biomedical Image Analysis (Head Prof. Christos Davatzikos, PhD), University of Pennsylvania, funded by the DGPPN Neuroimaging Prize as well as by a DFG Research Fellowship.
2012	Head of the Workgroup for "Neurodiagnostic Applications" and Head of Early Psychosis Studies at the Department of Psychiatry and Psychotherapy.
2013	Successful defence of the Habilitation thesis. Successful EU-FP7 grant application PRONIA (see below).
2014	Official teaching licence for Psychiatry and Psychotherapy at the LMU (Status: Privatdozent)
2014	Vice chair of the new section 'Predictive Psychiatry' of the German Psychiatric Association (DGPPN)
2015	Board Certification for Psychiatry and Psychotherapy
Since 2016	Full Professorship (W2) for Neurodiagnostic Applications in Psychiatry at LMU Head of Outpatient Service "Early Recognition and Rehabilitation of Psychiatric Disorders", Consultant for Adolescence Psychiatry
Since 2016	Co-chair ECNP Neuroimaging Network (https://www.ecnp.eu/research-innovation/ECNP-networks/List-ECNP-Networks/Neuroimaging/Members)

Since 2018	Mentor for early career clinician scientists at the medical faculty of LMU (MOMENTE programme: https://www.med.uni-muenchen.de/forschung/foerderprogramme/momente/index.html)
Since 10/2019	Fellow of the Max Planck Society and Head of the Fellowship group "Deconvolution of the neurobiological and clinical heterogeneity of affective and non-affective psychoses" at the Max-Planck Institute of Psychiatry, Munich.

Prizes / Awards / Scholarships

2010	European Psychiatric Association: Research Prize (2,500€): http://www.europsy.net/awards/research-prizes/previous-winners/
2010	German Psychiatric Association: Neuroimaging Prize (12,500€): https://www.aerztezeitung.de/medizin/krankheiten/neuro-psychiatrische_krankheiten/article/632521/preis-bildgebung-psychiatrie-verliehen.html
2011	European Psychiatric Association: BMS Prevention Award (10,000€): http://www.europsy.net/awards/bms/
2011	German Science Foundation (DFG): Research Scholarship for 6 months at the Section for Biomedical Image Analysis, UPENN, USA (~15,000€)
2011	German Schizophrenia Network: Aretaeus-Award (2,500€)
2015	Hans-Jörg-Weitbrecht Prize for Clinical Neurosciences (3,300€): http://www.fair-news.de/pressemitteilung-1062472.html
2016	Max Hamilton Memorial Prize of the Collegium Internationale Neuropsychopharmacologicum (10,000$) http://cinp.org/2016-award-winners/
2017	German Psychiatric Association: Research Prize for Predictive, Preventive, and Personalized Medicine in Psychiatry and Neurology (10,000€) http://www.med.uni-muenchen.de/forschung/aktuell/dgppn/index.html

Publication Overview (19/09/2019)

Authorships	**Count**
First	17
Last	15
Other co-authorships	50
Sum	**82**
Congress abstracts & Invited talks	76
Bibliographical performance measures (Source: Google Scholar, 19/09/2019):	
Refs	195
Cites	5068
h-Index	**39**

19/09/2019

Date & Signature

Grants (in chronological order)

2004	Successful LMU young investigator grant application: "Cross-sectional and longitudinal study of depressive patients and healthy control subjects using structural MRI, Diffusion-Tensor-Imaging and clinical evaluations"	**€28,000**
2005	Successful LMU young investigator grant application: "Four-years follow-up examination of individuals at-risk of developing psychosis using MRI and clinical evaluations"	**€30,000**
2007	Successful "Friedrich-Baur-Institut" grant application: „10-years follow-up examination of schizophrenic patients by means of structural MRI and psychometric evaluations".	**€10,000**
2013	Coordinator of successful EU-FP7 grant application "PRONIA: Personalised Prognostic Tools for Early Psychosis Management". Project involves academic partners (Universities of Munich, Basel, Cologne, Birmingham, Turku and Udine), industrial partners (GE Global Research and GE Healthcare) and SME partners (Imaging Services and ARTTIC). Homepage: www.pronia.eu	**€6,000,000**
2014	Successful DFG (German Science Foundation)-PsyCourse grant proposal: WP1 "Complex clinical, neurobiological, and molecular signatures of the longitudinal course of psychosis: leveraging comprehensive phenotyping, novel machine learning, and (epi)genomic approaches" (machine learning subproject in WP1). Homepage: www.psycourse.de	**€239,200**
2015	Successful NIH grant proposal HARMONY as Co-PI for establishing an international collaboration between NAPLS 3, PRONIA, PsyScan and the Philadelphia Neurodevelopmental Cohort: http://grantome.com/grant/NIH/U01-MH081928-07S1	**€304,696**
2015	Successful DFG grant application with Prof. U. Ettinger (University of Bonn) for evaluating the risk and resilience factors in schizotypy compared to schizophrenia using structural and functional MRI: https://gepris.dfg.de/gepris/projekt/278205181	**€367,282**
2016	Co-Applicant in the successful Else-Kröner-Fresenius-Foundation application for a Research College "Translational Psychiatry" implementing a structured residency/PhD programme for clinician scientists at the Department of Psychiatry and Psychotherapy and the Max-Planck-Institute of Psychiatry (**€1,000,000**). As part of the programme, two clinician scientist positions were funded by the EKF Foundation for 4 person years in the Section for Neurodiagnostic Applications: https://www.psych.mpg.de/2181025/pm1601-ekfs	**€230,000**
2017	Successful NIH grant proposal PHENOM as Co-PI for conducting an international analysis of neuroanatomical and clinical heterogeneity of first-episode psychosis and chronic schizophrenia: http://grantome.com/grant/NIH/R01-MH112070-01A1	**€200,000**
2018	Successful ERA-PerMed grant proposal (IMPLEMENT) as Co-PI for developing and validating heterogeneity-analytic tools aiming at better predicting response to repetitive transcranial magnetic stimulation in patients with schizophrenia.	**€200,000**
2019	Successful BMBF Systems Medicine proposal (COMMITMENT) as PI of SP5 "Multi-scale, multimodal stratification and comorbidity analysis".	**€660,000**
2019	Successful application for a Max-Planck Fellowship Group in the Max-Planck Society with a five-years funding of …	**€500,000**
2019	Successful Welcome Trust Application (STEP) as Co-PI together with Prof Philip McGuire (King's College London) for an RCT of Cannabidiol Add-on Therapy in Patients with clinical high-risk states of psychosis and first-episode psychosis.	**~£600,000**

Total third-party funding gained so far: **€9,445,846 (~£8,365,099.53)**

List of publications

First & Last Authorships:

a) IF > 15:

1. ***Koutsouleris N*** *and Palaniyappan L. Invited review "Machine learning applications for quantitative prognostication in psychiatric disorders", World Psychiatry, to be published in spring 2020.*
2. **Koutsouleris N**, Kambeitz-Ilankovic L, Ruhrmann S, …, Borgwardt S, and the PRONIA Consortium Individualized Prediction of Functional Outcomes in the Clinical High-Risk State for Psychosis and in Recent-Onset Depression: A Multi-modal, Multi-Site Machine Learning Analysis. *JAMA Psychiatry*. 2018. 75(11):1156-1172. doi: 10.1001/jamapsychiatry.2018.2165.
3. **Koutsouleris N**, Upthegrove R, Wood S. Importance of Variable Selection in Multimodal Prediction Models in Patients at Clinical High Risk for Psychosis and Recent Onset Depression—Reply. JAMA Psychiatry. 76(3):339-340. doi: 10.1001/jamapsychiatry.2018.4237.
4. **Koutsouleris N**, Meisenzahl EM, Davatzikos C, …, Gaser C. Use of neuroanatomical pattern classification to identify subjects in at-risk mental states of psychosis and predict disease transition. *Archives of General Psychiatry*. 2009; 66(7):700-12. doi: 10.1001/archgenpsychiatry.2009.62.

b) IF > 10:

5. *Sanfelici R, Dwyer D, Antonucci L,* ***Koutsouleris N****. Invited review "Biomarkers based on machine-learning", Special Issue "Psychosis Risk Syndrome" in Biological Psychiatry (Editor: T. Cannon, Yale), to be submitted until 23/09/2019.*
6. **Koutsouleris N,** Meisenzahl EM, Borgwardt S, …, Davatzikos C. Individualized differential diagnosis of schizophrenia and mood disorders using neuroanatomical biomarkers. *Brain*. 2015; 138(Pt 7):2059-73. doi: 10.1093/brain/awv111
7. Hasan A, Wobrock T, Guse B, …, **Koutsouleris N**. Structural brain changes are associated with response of negative symptoms to prefrontal repetitive transcranial magnetic stimulation in patients with schizophrenia. *Molecular Psychiatry*. 2016; 22(6):857-864. doi: 10.1038/mp.2016.161
8. **Koutsouleris N**, Kahn RS, Chekroud AM, …, Hasan A. Multisite prediction of 4-week and 52-week treatment outcomes in patients with first-episode psychosis: a machine learning approach. *Lancet Psychiatry*. 2016; 3(10):935-946. doi: 10.1016/S2215-0366(16)30171-7.
9. Kambeitz J, Cabral C, Sacchet MD, …, **Koutsouleris N**. Detecting Neuroimaging Biomarkers for Depression: A Meta-analysis of Multivariate Pattern Recognition Studies. *Biological Psychiatry*. 2017;82(5):330-338. doi: 10.1016/j.biopsych.2016.10.028
10. Chekroud A and **Koutsouleris N**. The perilous path from publication to practice. *Molecular Psychiatry,* 2018; 23(1):24-25. doi: 10.1038/mp.2017.227
11. Dwyer D, Falkai P, **Koutsouleris N**. Machine Learning Approaches for Clinical Psychology and Psychiatry. *Annual Reviews of Clinical Psychology,* 2018; doi: 10.1146/annurev-clinpsy-032816-045037.
12. Kambeitz J, Cabral C, Sacchet MD…, **Koutsouleris N**. Reply to: Sample Size, Model Robustness, and Classification Accuracy in Diagnostic Multivariate Neuroimaging Analyses. *Biological Psychiatry*. 2018; 84(11):e83-e84; doi: 10.1016/j.biopsych.2018.01.023

c) IF > 5:

13. Antonucci L, Penzel N, Pergola G, Kambeitz-Ilankovic L, Dwyer D, Kambeitz J, Haas S, Passiatore R, Fazio L, Caforio G, Falkai P, Blasi G, Bertolino A, **Koutsouleris N**. Multivariate classification of schizophrenia and its familial risk based on load-dependent attentional control brain functional connectivity. Neuropsychopharmacology, 2019, accepted.
14. Dwyer D, Cabral C, Sanfelici R, …, **Koutsouleris N**. Brain subtyping enhances the Neuroanatomical Discrimination of Schizophrenia. *Schizophrenia Bulletin*, 2018. 44(5):1060-1069. doi: 10.1093/schbul/sby008. .

15. **Koutsouleris N**, Wobrock T, Guse B, …, Hasan A. Predicting Response to Repetitive Transcranial Magnetic Stimulation in Patients With Schizophrenia Using Structural Magnetic Resonance Imaging: A Multisite Machine Learning Analysis, Schizophrenia Bulletin 2017, article in press, https://doi.org/10.1093/schbul/sbx114.
16. Cabral C, Kambeitz-Ilankovic L, Kambeitz J, …, **Koutsouleris N**. Classifying Schizophrenia Using Multimodal Multivariate Pattern Recognition Analysis: Evaluating the Impact of Individual Clinical Profiles on the Neurodiagnostic Performance. *Schizophrenia Bulletin*. 2016 Jul;42 Suppl 1:S110-7. doi: 10.1093/schbul/sbw053.
17. **Koutsouleris N**, Borgwardt S, Meisenzahl EM, …, Riecher-Rössler A. Disease prediction in the at-risk mental state for psychosis using neuroanatomical biomarkers: results from the *FePsy*-study. *Schizophrenia Bulletin*. 2012; 38(6):1234-46
18. **Koutsouleris N**, Davatzikos C, Bottlender R, …, Meisenzahl E. Early recognition and disease prediction in the at-risk mental states for psychosis using neurocognitive pattern classification. *Schizophrenia Bulletin*. 2012; 38(6):1200-15
19. Zhang T, **Koutsouleris N (eq. contr.)**, Meisenzahl E, Davatzikos C. Heterogeneity of Structural Brain Changes in Subtypes of Schizophrenia revealed using MRI Pattern Analysis. *Schizophrenia Bulletin*. 2014, doi: 10.1093/schbul/sbu136
20. **Koutsouleris N**, Riecher-Rössler A, Meisenzahl E, …, Borgwardt S. Detecting the psychosis prodrome across high-risk populations using neuroanatomical biomarkers. *Schizophrenia Bulletin*. 2014, 41(2):471-82.
21. **Koutsouleris N**, Davatzikos C, Borgwardt S, …, Meisenzahl E. Accelerated Brain Aging in Schizophrenia and Beyond: A Neuroanatomical Marker of Psychiatric Disorders. *Schizophrenia Bulletin*. 2014 Sep;40(5):1140-53
22. Kambeitz J, Kambeitz-Ilankovic L, Leucht S, …, **Koutsouleris N**. Detecting neuroimaging biomarkers for schizophrenia: a meta-analysis of multivariate pattern recognition studies. *Neuropsychopharmacology*, 2015; 40(7):1742-51
23. **Koutsouleris N**, Gaser C, Jäger M, …, Meisenzahl EM. Structural correlates of psychopathological symptom dimensions in schizophrenia: a voxel-based morphometric study. *Neuroimage*. 2008;39(4):1600-1612
24. **Koutsouleris N**, Gaser C, Patschurek-Kliche K, …, Meisenzahl EM. Multivariate patterns of brain–cognition associations relating to vulnerability and clinical outcome in the at-risk mental states for psychosis. *Human Brain Mapping*. 2012; 33(9):2104-2124
25. Ettinger U, Meyhöfer I, Steffens M, …, **Koutsouleris N**. Genetics, Cognition, and Neurobiology of Schizotypal Personality: A Review of the Overlap with Schizophrenia. *Frontiers in Psychiatry* 2014; 5:18. DOI:10.3389/fpsyt.2014.00018
26. **Koutsouleris N**, Schmitt GJ, Gaser C, …, Meisenzahl EM. Neuroanatomical correlates of different vulnerability states for psychosis and their clinical outcomes. *British Journal of Psychiatry*. 2009; 195(3):218-26

d) IF < 5:

27. Falkai P, Schmitt A, **Koutsouleris N**. Impaired recovery in affective disorders and schizophrenia: sharing a common pathophysiology? *Eur Arch Psychiatry Clin Neurosci*. 2018 Dec;268(8):739-740. doi: 10.1007/s00406-018-0951-
28. Kambeitz-Ilankovic L, Haas SS, Meisenzahl E…, **Koutsouleris N**. Neurocognitive and neuroanatomical maturation in the clinical high-risk states for psychosis: A pattern recognition study. *Neuroimage Clin*. 2018 Dec 3. pii: S2213-1582(18)30372-3. doi: 10.1016/j.nicl.2018.101624.
29. **Koutsouleris N**, Gaser C, Bottlender R, …, Meisenzahl EM. Use of Neuroanatomical Pattern Regression to Predict the Structural Brain Dynamics of Vulnerability and Transition to Psychosis. *Schizophrenia Research.* 2010;123(2-3):175-187

30. **Koutsouleris N**, Patschurek-Kliche K, Scheuerecker J, …, Meisenzahl EM. Neuroanatomical correlates of executive dysfunction in the at-risk mental state for psychosis. *Schizophrenia Research* 2010; 123(2-3):160-174
31. Kambeitz-Ilankovic L, Meisenzahl EM, Cabral C, …, **Koutsouleris N**. Prediction of outcome in the psychosis prodrome using neuroanatomical pattern classification. *Schizophrenia Research*. 2015;173(3):159-65.
32. Ettinger U, Williams S, Meisenzahl EM, …, **Koutsouleris N**. Association between brain structure and psychometric schizotypy in healthy individuals. *The World Journal of Biological Psychiatry.* 2012; 13(7):544-549
33. **Koutsouleris N**, Ruhrmann S, Falkai P, Maier W. [Personalised medicine in psychiatry and psychotherapy. A review of the current state-of-the-art in the biomarker-based early recognition of psychoses]. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*. 2013; 56(11):1522-30
34. Kambeitz J, **Koutsouleris N**. [Neuroimaging in der Psychiatrie]. *Der Nervenarzt*; Jun;85(6):714-719

Second authorships (data analysis)

35. Borgwardt SJ, **Koutsouleris N**, Aston J, Studerus E, Smieskova R, Riecher-Rössler A, Meisenzahl EM. Distinguishing prodromal from first-episode psychosis using neuroanatomical pattern recognition: Evidence from single-subject structural MRI. *Schizophrenia Bulletin*. 2013; 39(5):1105-14. doi: 10.1093/schbul/sbs095
36. Frodl T, **Koutsouleris N**, Bottlender R, Born C, Jäger M, Mörgenthaler M, Scheuerecker J, Zill P, Baghai T, Schüle C, Rupprecht R, Bondy B, Reiser M, Möller HJ, Meisenzahl EM. Reduced gray matter brain volumes are associated with variants of the serotonin transporter gene in major depression. *Molecular Psychiatry*. 2008; 13(12):1093-101
37. Frodl TS, **Koutsouleris N**, Bottlender R, Born C, Jäger M, Scupin I, Reiser M, Möller HJ, Meisenzahl EM. Depression-related variation in brain morphology over 3 years: effects of stress? *Archives of General Psychiatry*. 2008; 65(10):1156-1165
38. Meisenzahl EM, **Koutsouleris N**, Bottlender R, Scheuerecker J, Jäger M, Teipel SJ, Holzinger S, Frodl T, Preuss U, Schmitt G, Burgermeister B, Reiser M, Born C, Möller HJ. Structural brain alterations at different stages of schizophrenia: a voxel-based morphometric study. *Schizophrenia Research*. 2008; 104(1-3):44-60
39. Meisenzahl EM, **Koutsouleris N**, Gaser C, Bottlender R, Schmitt GJ, McGuire P, Decker P, Burgermeister B, Born C, Reiser M, Möller HJ. Structural brain alterations in subjects at high-risk of psychosis: a voxel-based morphometric study. *Schizophrenia Research*. 2008; 102(1-3):150-162
40. Tordesillas-Gutierrez D, **Koutsouleris N**, Roiz-Santiañez R, Meisenzahl E, Ayesa-Arriola R, Marco de Lucas E, Soriano-Mas C, Suarez-Pinilla P, Crespo-Facorro B. Grey matter volume differences in non-affective psychosis and the effects of age of onset on grey matter volumes: A voxelwise study. Schizophrenia Resarch. 2015; in press: doi: 10.1016/j.schres.2015.01.032

Further co-authorships

41. Shang J, Fisher P, Bäuml JG, Daamen M, Baumann N, Zimmer C, Bartmann P, Boecker H, Wolke D, Sorg C, **Koutsouleris N**, Dwyer DB. A machine learning investigation of volumetric and functional MRI abnormalities in adults born preterm. Hum Brain Mapp. 2019 Jun 22. doi: 10.1002/hbm.24698.
42. Popovic D, Schmitt A, Kaurani L, Senner F, Papiol S, Malchow B, Fischer A, Schulze TG, **Koutsouleris N**, Falkai P. Childhood Trauma in Schizophrenia: Current Findings and Research Perspectives. Front Neurosci. 2019 Mar 21;13:274. doi: 10.3389/fnins.2019.00274.
43. Brandl F, Avram M, Weise B, Shang J, Simões B, Bertram T, Hoffmann Ayala D, Penzel N, Gürsel DA, Bäuml J, Wohlschläger AM, Vukadinovic Z, **Koutsouleris N**, Leucht S, Sorg C. Specific Substantial Dysconnectivity in Schizophrenia: A Transdiagnostic Multimodal Meta-analysis of Resting-State

Functional and Structural Magnetic Resonance Imaging Studies. Biol Psychiatry. 2019 Apr 1;85(7):573-583. doi: 10.1016/j.biopsych.2018.12.003.

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46. Shang J, Bäuml JG, **Koutsouleris N**, Daamen M, Baumann N, Zimmer C, Bartmann P, Boecker H, Wolke D, Sorg C. Decreased BOLD fluctuations in lateral temporal cortices of premature born adults. Hum Brain Mapp. 2018 Dec;39(12):4903-4912. doi: 10.1002/hbm.24332.

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49. Rozycki M, Satterthwaite TD, **Koutsouleris N**, Erus G, Doshi J, Wolf DH, Fan Y, Gur RE, Gur RC, Meisenzahl EM, Zhuo C, Yin H, Yan H, Yue W, Zhang D, Davatzikos C. Multisite Machine Learning Analysis Provides a Robust Structural Imaging Signature of Schizophrenia Detectable Across Diverse Patient Populations and Within Individuals. Schizophr Bull. 2018 Aug 20;44(5):1035-1044. doi: 10.1093/schbul/sbx137

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51. Kambeitz J, Kambeitz-Ilankovic L, Cabral C, Dwyer DB, Calhoun VD, van den Heuvel MP, Falkai P, **Koutsouleris N**, Malchow B. Aberrant Functional Whole-Brain Network Architecture in Patients With Schizophrenia: A Meta-analysis. Schizophr Bull. 2016 Jul;42 Suppl 1:S13-21. doi: 10.1093/schbul/sbv174

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