

Chi-Hua Chen

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Education

- 2003-2007 **Ph.D. in psychiatric and neuroimaging research**
Department of Psychiatry, University of Cambridge, UK
Title of thesis:
Neuroimaging studies of affective disorders and antidepressant drug effects
Supervisor: Ed Bullmore
Advisor: John Suckling
- 2001-2002 **MSc in neuroscience, Imperial College London**
Title of thesis:
Construction of a probabilistic anatomical atlas of the frontal, parietal and occipital lobes
Supervisor: Alexander Hammers
Thesis score: distinction
- 1996-2000 **BSc in pharmacy, Department of Pharmacy, National Taiwan University**
Top 5% of the nation-wide university exam

Licensure

Pharmacist - The National Union of Pharmacist Associations of Republic of China, Taiwan since 2000

Work experience

- 2017- present **Associate Professor**
Department of Radiology
University of California at San Diego
- 2014-2017 **Assistant Professor**
Department of Radiology
University of California at San Diego
- 2012-2014 **Assistant Project Scientist**
Department of Psychiatry
University of California at San Diego
Mentors: William Kremen and Anders Dale
- 2010-2012 **Postdoctoral Scholar**
Department of Psychiatry
University of California at San Diego
Mentors: William Kremen and Anders Dale

- 2008-2009 **Postdoctoral Research Fellow**
University College London, UK
Principal Investigator: Semir Zeki
- 2007 – 2008 **Postdoctoral Research Fellow**
Brain Mapping Unit, University of Cambridge, UK
Principal Investigator: John Suckling
- 2003 **Research Assistant, The Functional and Micro-Magnetic Resonance Imaging**
Centre, Academia Sinica, Taiwan
Principal Investigator: Chen Chang
- 2001 **Pharmacist, Taipei Medical University Hospital, Taiwan**

Peer-reviewed publications

First or senior author papers:

1. **Chen CH**, Lennox B, Jacob R, Calder A, Lupson V, Bisbrown-Chippendale R, Suckling J, Bullmore E. Explicit and implicit facial affect recognition in manic and depressed states of bipolar disorder: a functional magnetic resonance imaging study. *Biol Psychiatry*. 2006 Jan 1;59(1):31-9. Epub 2005 Aug 22. PubMed PMID: 16112653.
2. **Chen CH**, Ridler K, Suckling J, Williams S, Fu CH, Merlo-Pich E, Bullmore E. Brain imaging correlates of depressive symptom severity and predictors of symptom improvement after antidepressant treatment. *Biol Psychiatry*. 2007 Sep 1;62(5):407-14. Epub 2007 Jan 9. PubMed PMID: 17217921.
3. **Chen CH**, Suckling J, Ooi C, Fu CH, Williams SC, Walsh ND, Mitterschiffthaler MT, Pich EM, Bullmore E. Functional coupling of the amygdala in depressed patients treated with antidepressant medication. *Neuropsychopharmacology*. 2008 Jul;33(8):1909-18. Epub 2007 Nov 7. PubMed PMID: 17987064.
4. **Chen CH**, Suckling J, Ooi C, Jacob R, Lupson V, Bullmore ET, Lennox B. A longitudinal fMRI study of the manic and euthymic states of bipolar disorder. *Bipolar Disorders*. 2010 May;12(3):344-7. doi: 10.1111/j.1399-5618.2010.00801.x. PubMed PMID: 20565443.
5. **Chen CH** and Zeki S. Frontoparietal activation distinguishes face and space from artifact concepts. *Journal of Cognitive Neuroscience*. 2011 Sep; 23 (9): 2558-68. doi: 10.1162/jocn.2011.21617. Epub 2011 Jan 21. PubMed PMID: 21254806; PubMed Central PMCID: PMC3473322.
6. **Chen CH**, Panizzon M, Eyler L, Jernigan T, Thompson W, Fennema-Notestine C, Jak A, Neale M, Franz C, Hamza S, Lyons M, Grant M, Fischl B, Seidman L, Tsuang M, Kremen W and Dale AM. Genetic influences on cortical regionalization in the human brain. *Neuron*. 2011 Nov 17; 72 (4):537-44. doi: 10.1016/j.neuron.2011.08.021. PubMed PMID: 22099457; PubMed Central PMCID: PMC3222857.
7. **Chen CH**, Gutierrez E.D, Thompson W, Panizzon M, Jernigan T, Eyler L, Fennema-Notestine C, Jak A, Neale M, Franz C, Hamza S, Lyons M, Grant M, Fischl B, Seidman L, Tsuang M, Kremen WS, Dale AM. Hierarchical genetic organization of the cortical surface area patterning. *Science*. 2012 Mar 30;335(6076):1634-6. doi: 10.1126/science.1215330. PubMed PMID: 22461613; PubMed Central PMCID: PMC3690329.
8. **Chen CH**, Fiecas M, Gutierrez ED, Thompson W, Panizzon M, Jernigan T, Eyler L, Fennema-Notestine C, Jak A, Neale M, Franz C, Hamza S, Lyons M, Grant M, Fischl B, Seidman L, Tsuang M, Kremen WS, Dale A. Genetic topography of brain morphology – searching for principles of cortical patterning. *PNAS*. 2013 Oct 15;110(42):17089-94. doi: 10.1073/pnas.1308091110. Epub 2013 Sep 30. PubMed PMID: 24082094; PubMed Central

PMCID: PMC3801007.

9. **Chen CH**, Peng Q, Schork A, Lo MT, Fan CC, Wang Y, Desikan R, Bettella F, Hagler Jr. DJ, Pediatric Imaging Neurocognition and Genetics Study, Alzheimer's Disease Neuroimaging Initiative, Westlye LT, Kremen WS, Jernigan TL, Hellard S, Steen VM, Espeseth T, Huentelman M, Håberg AK, Agartz I, Djurovic S, Andreassen OA, Schork N, Dale AM. Large-scale genomics unveil polygenic architecture of human cortical surface area. *Nature Communications*. 2015 Jul 20;6:7549. doi: 10.1038/ncomms8549. PubMed PMID: 26189703; PubMed Central PMCID: PMC4518289.
10. **Chen CH**, Wang Y, Lo MT, Schork A, Fan CC, Holland D, Kauppi K, Smeland OB, Djurovic S, Sanyal N, Hibar DP, Thompson PM, Thompson WK, Andreassen OA, Dale AM. Leveraging genome characteristics to improve gene discovery for putamen subcortical brain structure. *Sci Rep*. 2017 Nov 16;7(1):15736. doi: 10.1038/s41598-017-15705-x. PubMed PMID: 29147026; PubMed Central PMCID: PMC5691156.
11. Peng Q, Schork A, Bartsch H, Lo MT, Panizzon MS, Pediatric Imaging, Neurocognition and Genetics Study, Alzheimer's Disease Neuroimaging Initiative, Westlye LT, Kremen WS, Jernigan TL, Hellard SL, Steen VM, Espeseth T, Huentelman M, Håberg AK, Agartz I, Djurovic S, Andreassen OA, Dale AM, Schork NJ, and **Chen CH**. Conservation of a Distinct Genetically-Mediated Human Cortical Pattern. *PLoS Genetics*. 2016 Jul 26;12(7):e1006143. doi: 10.1371/journal.pgen.1006143. eCollection 2016 Jul. PubMed PMID: 27459196; PubMed Central PMCID: PMC4961377.
12. Lo MT, Hinds DA, Tung JY, Franz C, Fan CC, Wang Y, Smeland OB, Schork A, Holland D, Kauppi K, Sanyal N, Escott-Price V, Smith DJ, O'Donovan M, Stefansson H, Bjornsdottir G, Thorgeirsson TE, Stefansson K, McEvoy LK, Dale AM, Andreassen OA, **Chen CH**. Genome-wide analyses for personality traits identify six genomic loci and show correlations with psychiatric disorders. *Nature Genetics*. 2017 Jan;49(1):152-156. doi: 10.1038/ng.3736. Epub 2016 Dec 5. PubMed PMID: 27918536; PubMed Central PMCID: PMC5278898.
13. Lo MT, Wang Y, Kauppi K, Sanyal N, Fan CC, Smeland OB, Schork A, Holland D, Hinds DA, Tung JY, Andreassen OA, Dale AM, **Chen CH**. Modeling prior information of common genetic variants improves gene discovery for neuroticism. *Hum Mol Genet*. 2017 Nov 15;26(22):4530-4539. doi: 10.1093/hmg/ddx340. PubMed PMID: 28973307; PubMed Central PMCID: PMC5886256.
14. Kauppi K, Rosenthal SB, Lo MT, Sanyal N, Jiang M, Abagyan R, McEvoy LK, Andreassen OA, **Chen CH**. Revisiting Antipsychotic Drug Actions Through Gene Networks Associated With Schizophrenia. *Am J Psychiatry*. 2018 Mar 2;appiajp201717040410. doi: 10.1176/appi.ajp.2017.17040410. [Epub ahead of print] PubMed PMID: 29495895.
15. Sanyal N, Lo MT, Kauppi K, Djurovic S, Andreassen OA, Johnson VE, **Chen CH**. GWASinlps: Nonlocal prior based iterative SNP selection tool for genome-wide association studies. *Bioinformatics*. 2018 Jun 19. PMID: 29931045.
16. Lo MT, Kauppi K, Fan CC, Sanyal N, Reas E, Lee WC, Desikan RS, McEvoy LK, **Chen CH**. Identification of genetic heterogeneity of Alzheimer's disease across age (under review, *Neurobiology of Aging*)

Co-author papers:

17. Hammers A, **Chen CH**, Lemieux L, Allom R, Vossos S, Free SL, Myers R, Brooks DJ, Duncan JS, Koepp MJ. Statistical neuroanatomy of the human inferior frontal gyrus and probabilistic atlas in a standard stereotaxic space. *Hum Brain Mapp*. 2007 Jan;28(1):34-48. PubMed PMID: 16671082.
18. Menzies L, Achard S, Chamberlain SR, Fineberg N, **Chen CH**, del Campo N, Sahakian BJ, Robbins TW, Bullmore E. Neurocognitive endophenotypes of obsessive-compulsive disorder. *Brain*. 2007 Dec; 130 (Pt 12):3223-36. Epub 2007 Sep 13. PubMed PMID: 17855376.
19. Suckling J, Ohlssen D, Andrew C, Johnson G, Williams SC, **Chen CH**, Spiegelhalter D,

- Bullmore E. Components of variance in a multi-centre functional MRI study and implications for calculation of statistical power. *Hum Brain Mapp*. 2008 Oct; 29(10):1111-22. PubMed PMID: 17680602.
20. Eyler LT, Prom-Wormley E, Panizzon MS, Kaup AR, Fennema-Notestine C, Neale MC, Jernigan TL, Fischl B, Franz CE, Lyons MJ, Grant M, Stevens A, Pacheco J, Perry ME, Schmitt JE, Seidman LJ, Thermenos HW, Tsuang MT, **Chen CH**, Thompson WK, Dale AM, Kremen WS. Genetic and environmental contributions to regional cortical surface area in humans: A magnetic resonance imaging twin study. *Cerebral cortex*. 2011 Oct;21(10):2313-21. doi: 10.1093/cercor/bhr013. Epub 2011 Mar 4. PubMed PMID: 21378112; PubMed Central PMCID: PMC3169660.
 21. Fennema-Notestine C, Panizzon MS, Thompson WR, **Chen CH**, Eyler LT, Fischl B, Franz CE, Grant MD, Jak AJ, Jernigan TL, Lyons M, Neale MJ, Seidman LJ, Tsuang MT, Xian H, Dale AM, Kremen WS. Presence of ApoE e4 allele associated with thinner frontal cortices in middle-age. *J Alzheimers Dis*. 2011; 26 Suppl 3:49-60. doi: 10.3233/JAD-2011-0002. PubMed PMID: 21971450; PubMed Central PMCID: PMC3302177.
 22. Panizzon MS, Hauger RL, Eaves LJ, **Chen CH**, Dale AM, Eyler LT, Fischl B, Fennema-Notestine C, Franz CE, Grant MD, Jacobson KC, Jak AJ, Lyons MJ, Mendoza SP, Neale MC, Prom-Wormley E, Seidman LJ, Tsuang MT, Xian H, Kremen WS. Genetic influences on hippocampal volume differ as a function of testosterone level in middle-aged men. *NeuroImage*. 2012 Jan 16;59(2):1123-31. doi: 10.1016/j.neuroimage.2011.09.044. Epub 2011 Oct 1. PubMed PMID: 21983185; PubMed Central PMCID: PMC3230702.
 23. Panizzon MS, Fennema-Notestine C, Kubarych T, **Chen CH**, Eyler L, Fischl B, Franz C, Grant MD, Hamza S, Jak A, Jernigan TL, Lyons MJ, Prom-Wormley EC, Neale MC, Seidman L, Tsuang MT, Xian H, Dale AM, Kremen WS. Genetic and environmental influences of white and gray matter signal contrast: a new phenotype for imaging genetics? *NeuroImage*. 2012 Apr 15;60(3):1686-95. doi: 10.1016/j.neuroimage.2012.01.122. Epub 2012 Feb 8. PubMed PMID: 22500923; PubMed Central PMCID: PMC3328105.
 24. Eyler LT, **Chen CH**, Panizzon MS, Fennema-Notestine C, Neale MC, Jak A, Jernigan TL, Fischl B, Franz CE, Lyons MJ, Grant M, Prom-Wormley E, Seidman LJ, Tsuang MT, Dale AM, Kremen WS. A comparison of heritability maps of cortical surface area and thickness and the influence of adjustment for whole brain measures: A magnetic resonance imaging twin study. *Twin Research and Human Genetics*. 2012 Jun;15(3):304-14. doi: 10.1017/thg.2012.3. PubMed PMID: 22856366; PubMed Central PMCID: PMC3549553.
 25. Andreassen OA, Thompson WK, Ripke S, Schork AJ, Mattingsdal M, Kelsoe J, Kendler K, O'Donovan MC, Rujesc, D, Werge T, Sklar P, The Psychiatric Genomics Consortium (PGC) Bipolar Disorder and Schizophrenia Working Groups, Roddey JC, **Chen CH**, Desikan RS, Djurovic S, Dale AM. Improved detection of common variants associated with schizophrenia and bipolar disorder using pleiotropy-informed conditional false discovery rate. *PLoS Genetics*. 2013 Apr;9(4):e1003455. doi: 10.1371/journal.pgen.1003455. Epub 2013 Apr 25. Erratum in: *PLoS Genet*. 2015 Nov;11(11):e1005544. PubMed PMID: 23637625; PubMed Central PMCID: PMC3636100.
 26. Vuoksima E, Panizzon MS, **Chen CH**, Eyler LT, Fennema-Notestine C, Fiecas MJ, Fischl B, Franz CE, Grant MD, Jak AJ, Lyons MJ, Neale MC, Thompson WK, Tsuang MT, Xian H, Dale AM, Kremen WS. Cognitive reserve moderates the association between hippocampal volume and episodic memory in middle age. *Neuropsychologia*. 2013 May;51(6):1124-31. doi: 10.1016/j.neuropsychologia.2013.02.022. Epub 2013 Mar 13. PubMed PMID: 23499725; PubMed Central PMCID: PMC3660613.
 27. Vuoksima E, Panizzon MS, **Chen CH**, Fiecas M, Eyler LT, Fennema-Notestine C, Hagler DJ, Fischl B, Franz CE, Jak A, Lyons MJ, Neale MC, Rinker DA, Thompson WK, Tsuang MT, Dale AM, Kremen WS. The Genetic Association Between Neocortical Volume and General Cognitive Ability Is Driven by Global Surface Area Rather Than Thickness. *Cereb Cortex*.

- 2014 Feb 18. PubMed PMID: 24554725.
28. Eyler LT, Vuoksima E, Panizzon MS, Fennema-Notestine C, Neale MC, **Chen CH**, Jak A, Franz CE, Lyons MJ, Thompson WK, Spoon KM, Fischl B, Dale AM, Kremen WS. Conceptual and data-based investigation of genetic influences and brain asymmetry: a twin study of multiple structural phenotypes. *J Cogn Neurosci*. 2014 May;26(5):1100-17. PubMed PMID: 24283492; PubMed Central PMCID: PMC3999438.
 29. Lewis GJ, Panizzon MS, Eyler L, Fennema-Notestine C, **Chen CH**, Neale MC, Jernigan TL, Lyons MJ, Dale AM, Kremen WS, Franz CE. Heritable influences on amygdala and orbitofrontal cortex contribute to genetic variation in core dimensions of personality. *Neuroimage*. 2014 Sep 28;103C:309-315. doi: 10.1016/j.neuroimage.2014.09.043. Epub 2014 Sep 28. PubMed PMID: 25263286; PubMed Central PMCID: PMC4745648.
 30. Desikan RS, Schork AJ, Wang Y, Thompson WK, Dehghan A, Ridker PM, Chasman DI, McEvoy LK, Holland D, **Chen CH**, Karow DS, Brewer JB, Hess CP, Williams J, Sims R, O'Donovan MC, Choi SH, Bis JC, Ikram MA, Gudnason V, DeStefano AL, van der Lee SJ, Psaty BM, van Duijn CM, Launer L, Seshadri S, Pericak-Vance MA, Mayeux R, Haines JL, Farrer LA, Hardy J, Ulstein ID, Aarsland D, Fladby T, White LR, Sando SB, Rongve A, Witoelar A, Djurovic S, Hyman BT, Snaedal J, Steinberg S, Stefansson H, Stefansson K, Schellenberg GD, Andreassen OA, Dale AM, Inflammation Working Group, IGAP and DemGene Investigators. Polygenic Overlap Between C-Reactive Protein, Plasma Lipids and Alzheimer's Disease. *Circulation*. 2015 Jun 9;131(23):2061-2069. doi: 10.1161/CIRCULATIONAHA.115.015489. Epub 2015 Apr 10. PubMed PMID: 25862742; PubMed Central PMCID: PMC4677995.
 31. Desikan RS, Schork AJ, Wang Y, Witoelar A, Sharma M, McEvoy LK, Holland D, Brewer JB, **Chen CH**, Thompson WK, Harold D, Williams J, Owen MJ, O'Donovan MC, Pericak-Vance MA, Mayeux R, Haines JL, Farrer LA, Schellenberg GD, Heutink P, Singleton AB, Brice A, Wood NW, Hardy J, Martinez M, Choi SH, DeStefano A, Ikram MA, Bis JC, Smith A, Fitzpatrick AL, Launer L, van Duijn C, Seshadri S, Ulstein ID, Aarsland D, Fladby T, Djurovic S, Hyman BT, Snaedal J, Stefansson H, Stefansson K, Gasser T, Andreassen OA, Dale AM, ADNI, ADGC, GERAD, CHARGE and IPDGC Investigators. Genetic overlap between Alzheimer's disease and Parkinson's disease at the MAPT locus. *Mol Psychiatry*. 2015 Dec;20(12):1588-95. doi: 10.1038/mp.2015.6. Epub 2015 Feb 17. PubMed PMID: 25687773; PubMed Central PMCID: PMC4539304.
 32. Fan CC, Bartsch H, Schork AJ, **Chen CH**, Wang Y, Lo MT, Brown TT, Kuperman JM, Hagler DJ Jr, Schork NJ, Jernigan TL, Dale AM; Pediatric Imaging, Neurocognition, and Genetics Study. Modeling the 3D geometry of the cortical surface with genetic ancestry. *Curr Biol*. 2015 Aug 3;25(15):1988-92. doi: 10.1016/j.cub.2015.06.006. Epub 2015 Jul 9. PubMed PMID: 26166778; PubMed Central PMCID: PMC4786069.
 33. Newman E, Thompson WK, Bartsch H, Hagler DJ Jr, **Chen CH**, Brown TT, Kuperman JM, McCabe C, Chung Y, Libiger O, Akshoomoff N, Bloss CS, Casey BJ, Chang L, Ernst TM, Frazier JA, Gruen JR, Kennedy DN, Murray SS, Sowell ER, Schork N, Kenet T, Kaufmann WE, Mostofsky S, Amaral DG, Dale AM, Jernigan TL. Anxiety is related to indices of cortical maturation in typically developing children and adolescents. *Brain Struct Funct*. 2016 Jul;221(6):3013-25. doi: 10.1007/s00429-015-1085-9. Epub 2015 Jul 17. PubMed PMID: 26183468; PubMed Central PMCID: PMC5064818.
 34. Loomba R, Schork N, **Chen CH**, Bettencourt R, Bhatt A, Ang B, Nguyen P, Hernandez C, Richards L, Salotti J, Lin S, Seki E, Nelson KE, Sirlin CB, Brenner D; Genetics of NAFLD in Twins Consortium. Heritability of Hepatic Fibrosis and Steatosis Based on a Prospective Twin Study. *Gastroenterology*. 2015 Dec;149(7):1784-93. doi: 10.1053/j.gastro.2015.08.011. Epub 2015 Aug 20. PubMed PMID: 26299412; PubMed Central PMCID: PMC4663110.
 35. Fjell AM, Grydeland H, Krogsrud SK, Amlien I, Rohani DA, Ferschmann L, Storsve AB, Tamnes CK, Sala-Llonch R, Due-Tønnessen P, Bjørnerud A, Sølvsnes AE, Håberg AK, Skranes

- J, Bartsch H, **Chen CH**, Thompson WK, Panizzon MS, Kremen WS, Dale AM, Walhovd KB. Development and aging of cortical thickness correspond to genetic organization patterns. *Proc Natl Acad Sci U S A*. 2015 Dec 15;112(50):15462-7. doi: 10.1073/pnas.1508831112. Epub 2015 Nov 2. PubMed PMID: 26575625; PubMed Central PMCID: PMC4687601.
36. Newman E, Jernigan TL, Lisdahl KM, Tamm L, Tapert SF, Potkin SG, Mathalon D, Molina B, Bjork J, Castellanos FX, Swanson J, Kuperman JM, Bartsch H, **Chen CH**, Dale AM, Epstein JN, Group MN. Go/No Go task performance predicts cortical thickness in the caudal inferior frontal gyrus in young adults with and without ADHD. *Brain Imaging Behav*. 2016 Sep;10(3):880-92. doi: 10.1007/s11682-015-9453-x. PubMed PMID: 26404018; PubMed Central PMCID: PMC4808505.
37. Docherty AR, Sawyers CK, Panizzon MS, Neale MC, Eyler LT, Fennema-Notestine C, Franz CE, **Chen CH**, McEvoy LK, Verhulst B, Tsuang MT, Kremen WS. Genetic network properties of the human cortex based on regional thickness and surface area measures. *Front Hum Neurosci*. 2015 Aug 20;9:440. doi: 10.3389/fnhum.2015.00440. eCollection 2015. PubMed PMID: 26347632; PubMed Central PMCID: PMC4542323.
38. Román FJ, Lewis LB, **Chen CH**, Karama S, Burgaleta M, Martínez K, Lepage C, Jaeggi SM, Evans AC, Kremen WS, Colom R. Gray matter responsiveness to adaptive working memory training: a surface-based morphometry study. *Brain Struct Funct*. 2016 Dec;221(9):4369-4382. Epub 2015 Dec 23. PubMed PMID: 26701168; PubMed Central PMCID: PMC4919225.
39. Holland D, Wang Y, Thompson WK, Schork A, **Chen CH**, Lo MT, Witoelar A; Schizophrenia Working Group of the Psychiatric Genomics Consortium; Enhancing Neuro Imaging Genetics through Meta Analysis Consortium, Werge T, O'Donovan M, Andreassen OA, Dale AM. Estimating Effect Sizes and Expected Replication Probabilities from GWAS Summary Statistics. *Front Genet*. 2016 Feb 16;7:15. doi: 10.3389/fgene.2016.00015. eCollection 2016. PubMed PMID: 26909100; PubMed Central PMCID: PMC4754432.
40. Wang Y, Thompson WK, Schork AJ, Holland D, **Chen CH**, Bettella F, Desikan RS, Li W, Witoelar A, Zuber V, Devor A; Bipolar Disorder and Schizophrenia Working Group of the Psychiatric Genomics Consortium; Enhancing Neuro Imaging Genetics through Meta Analysis Consortium, Nöthen MM, Rietschel M, Chen Q, Werge T, Cichon S, Weinberger DR, Djurovic S, O'Donovan M, Visscher PM, Andreassen OA, Dale AM. Leveraging Genomic Annotations and Pleiotropic Enrichment for Improved Replication Rates in Schizophrenia GWAS. *PLoS Genet*. 2016 Jan 25;12(1):e1005803. doi: 10.1371/journal.pgen.1005803. eCollection 2016 Jan. PubMed PMID: 26808560; PubMed Central PMCID: PMC4726519.
41. Vuoksima E, Panizzon MS, **Chen CH**, Fiecas M, Eyler LT, Fennema-Notestine C, Hagler DJ Jr, Franz CE, Jak AJ, Lyons MJ, Neale MC, Rinker DA, Thompson WK, Tsuang MT, Dale AM, Kremen WS. Is bigger always better? The importance of cortical configuration with respect to cognitive ability. *Neuroimage*. 2016 Apr 1;129:356-366. doi: 10.1016/j.neuroimage.2016.01.049. Epub 2016 Jan 29. PubMed PMID: 26827810; PubMed Central PMCID: PMC4838639.
42. Yokoyama JS, Wang Y, Schork AJ, Thompson WK, Karch CM, Cruchaga C, McEvoy LK, Witoelar A, **Chen CH**, Holland D, Brewer JB, Franke A, Dillon WP, Wilson DM, Mukherjee P, Hess CP, Miller Z, Bonham LW, Shen J, Rabinovici GD, Rosen HJ, Miller BL, Hyman BT, Schellenberg GD, Karlsten TH, Andreassen OA, Dale AM, Desikan RS; Alzheimer's Disease Neuroimaging Initiative. Association Between Genetic Traits for Immune-Mediated Diseases and Alzheimer Disease. *JAMA Neurol*. 2016 Jun 1;73(6):691-7. doi: 10.1001/jamaneurol.2016.0150. PubMed PMID: 27088644; PubMed Central PMCID: PMC4905783.
43. Cui J, **Chen CH**, Lo MT, Schork N, Bettencourt R, Gonzalez MP, Bhatt A, Hooker J, Shaffer K, Nelson KE, Long MT, Brenner DA, Sirlin CB, Loomba R. Shared genetic effects between hepatic steatosis and fibrosis: A prospective twin study. *Hepatology*. 2016 Nov;64(5):1547-1558. doi: 10.1002/hep.28674. Epub 2016 Jul 25. PubMed PMID: 27315352; PubMed Central

PMCID: PMC5090982.

44. Braddick O, Atkinson J, Newman E, Akshoomoff N, Kuperman JM, Bartsch H, **Chen CH**, Dale AM, Jernigan TL. Global Visual Motion Sensitivity: Associations with Parietal Area and Children's Mathematical Cognition. *J Cogn Neurosci*. 2016 Dec;28(12):1897-1908. Epub 2016 Jul 26. PubMed PMID: 27458748; PubMed Central PMCID: PMC5419429.
45. Desikan RS, Fan CC, Wang Y, Schork AJ, Cabral HJ, Cupples LA, Thompson WK, Besser L, Kukull WA, Holland D, **Chen CH**, Brewer JB, Karow DS, Kauppi K, Witoelar A, Karch CM, Bonham LW, Yokoyama JS, Rosen HJ, Miller BL, Dillon WP, Wilson DM, Hess CP, Pericak-Vance M, Haines JL, Farrer LA, Mayeux R, Hardy J, Goate AM, Hyman BT, Schellenberg GD, McEvoy LK, Andreassen OA, Dale AM. Genetic assessment of age-associated Alzheimer disease risk: Development and validation of a polygenic hazard score. *PLoS Med*. 2017 Mar 21;14(3):e1002258. doi: 10.1371/journal.pmed.1002258. eCollection 2017 Mar. Erratum in: *PLoS Med*. 2017 Mar 28;14(3):e1002289. PubMed PMID: 28323831; PubMed Central PMCID: PMC5360219.
46. Loomba R, Seguritan V, Li W, Long T, Klitgord N, Bhatt A, Dulai PS, Caussy C, Bettencourt R, Highlander SK, Jones MB, Sirlin CB, Schnabl B, Brinkac L, Schork N, **Chen CH**, Brenner DA, Biggs W, Yooseph S, Venter JC, Nelson KE. Gut Microbiome-Based Metagenomic Signature for Non-invasive Detection of Advanced Fibrosis in Human Nonalcoholic Fatty Liver Disease. *Cell Metab*. 2017 May 2;25(5):1054-1062.e5. doi: 10.1016/j.cmet.2017.04.001. PubMed PMID: 28467925; PubMed Central PMCID: PMC5502730.
47. Smeland OB, Wang Y, Lo MT, Li W, Frei O, Witoelar A, Tesli M, Hinds DA, Tung JY, Djurovic S, **Chen CH**, Dale AM, Andreassen OA. Identification of genetic loci shared between schizophrenia and the Big Five personality traits. *Sci Rep*. 2017 May 22;7(1):2222. doi: 10.1038/s41598-017-02346-3. PubMed PMID: 28533504; PubMed Central PMCID: PMC5440373.
48. Caussy C, Soni M, Cui J, Bettencourt R, Schork N, **Chen CH**, Ikhwan MA, Bassirian S, Cepin S, Gonzalez MP, Mendler M, Kono Y, Vodkin I, Mekeel K, Haldorson J, Hemming A, Andrews B, Salotti J, Richards L, Brenner DA, Sirlin CB, Loomba R; Familial NAFLD Cirrhosis Research Consortium. Nonalcoholic fatty liver disease with cirrhosis increases familial risk for advanced fibrosis. *J Clin Invest*. 2017 Jun 30;127(7):2697-2704. doi: 10.1172/JCI93465. Epub 2017 Jun 19. PubMed PMID: 28628033; PubMed Central PMCID: PMC5490764.
49. Smeland OB, Frei O, Kauppi K, Hill WD, Li W, Wang Y, Krull F, Bettella F, Eriksen JA, Witoelar A, Davies G, Fan CC, Thompson WK, Lam M, Lencz T, **Chen CH**, Ueland T, Jönsson EG, Djurovic S, Deary IJ, Dale AM, Andreassen OA; NeuroCHARGE (Cohorts for Heart and Aging Research in Genomic Epidemiology) Cognitive Working Group. Identification of Genetic Loci Jointly Influencing Schizophrenia Risk and the Cognitive Traits of Verbal-Numerical Reasoning, Reaction Time, and General Cognitive Function. *JAMA Psychiatry*. 2017 Oct 1;74(10):1065-1075. doi: 10.1001/jamapsychiatry.2017.1986. PubMed PMID: 28746715; PubMed Central PMCID: PMC5710474.
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51. Caussy C, Hsu C, Lo MT, Liu A, Bettencourt R, Ajmera VH, Bassirian S, Hooker J, Sy E, Richards L, Schork N, Schnabl B, Brenner DA, Sirlin CB, **Chen CH**, Loomba R; Genetics of NAFLD in Twins Consortium. Novel link between gut-microbiome derived metabolite and shared gene-effects with hepatic steatosis and fibrosis in NAFLD. *Hepatology*. 2018 Mar 23. doi: 10.1002/hep.29892. [Epub ahead of print] PubMed PMID: 29572891.
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53. Fan CC, Schork AJ, Brown TT, Spencer BE, Akshoomoff N, **Chen CH**, Kuperman JM, Hagler DJ, Steen VM, Le Hellard S, HÅÿberg AK, Espeseth T, Andreassen OA, Dale AM, Jernigan TL, Halgren E. Williams Syndrome neuroanatomical score associates with GTF2IRD1 in large-scale magnetic resonance imaging cohorts: a proof of concept for multivariate endophenotypes. *Transl Psychiatry.* 2018 Jun 08; 8(1):114. PMID: 29884845.
54. Kauppi K, Fan CC, McEvoy LK, Holland D, Tan CH, **Chen CH**, Andreassen OA, Desikan RS, Dale AM. Combining Polygenic Hazard Score With Volumetric MRI and Cognitive Measures Improves Prediction of Progression From Mild Cognitive Impairment to Alzheimer's Disease. *Front Neurosci.* 2018; 12:260. PMID: 29760643.
55. Sønderby IE, Gústafsson Ó, Doan NT, Hibar DP, Martin-Brevet S, Westlye LT, Jacquemont S, Djurovic S, Stefánsson H, Stefánsson K, Thompson PM, Andreassen OA. Dose response of the 16p11.2 distal copy number variant on intracranial volume and basal ganglia. *Mol Psychiatry.* 2018 Oct 03. PMID: 30283035.

Reviews and Invited Articles

1. **Chen CH**, Suckling J, Lennox BR, Ooi C, Bullmore, ET. A quantitative meta-analysis of functional MRI studies in bipolar disorder. *Bipolar Disorders* 2011 Feb; 13(1):1-15. doi: 10.1111/j.1399-5618.2011.00893.x. Review. PubMed PMID: 21320248.
2. Kremen WS, Fennema-Notestine C, Eyler LT, Panizzon MS, **Chen CH**, Franz CE, Lyons MJ, Thompson WK, Dale AM. Genetics of Brain Structure: Contributions from the Vietnam Era Twin Study of Aging. *Am J Med Genet B Neuropsychiatr Genet.* 2013 Oct;162(7):751-61. doi: 10.1002/ajmg.b.32162. PubMed PMID: 24132907; PubMed Central PMCID: PMC4754776
3. Devor A, Andreassen OA, Wang Y, Mäki-Marttunen T, Smeland OB, Fan CC, Schork AJ, Holland D, Thompson WK, Witoelar A, **Chen CH**, Desikan RS, McEvoy LK, Djurovic S, Greengard P, Svenningsson P, Einevoll GT, Dale AM. Genetic evidence for role of integration of fast and slow neurotransmission in schizophrenia. *Mol Psychiatry.* 2017 Jun;22(6):792-801. doi: 10.1038/mp.2017.33. Epub 2017 Mar 28. Review. PubMed PMID: 28348379; PubMed Central PMCID: PMC5495879.
4. Sanchez-Roige S, Gray JC, MacKillop J, **Chen CH**, Palmer AA. The genetics of human personality. *Genes Brain Behav.* 2018 Mar;17(3):e12439. doi: 10.1111/gbb.12439. Epub 2017 Dec 29. Review. PubMed PMID: 29152902.
5. Fan CC, Smeland OB, Schork AJ, **Chen CH**, Holland D, Lo MT, Velkur S, Frei O, Jernigan TL, Andreassen OA, Dale AM. Beyond heritability: Improving discoverability in imaging genetics. *Hum Mol Genet.* 2018 Mar 1; 27(R1):R22-R28. doi: 10.1093/hmg/ddy082. [Epub ahead of print] PubMed PMID: 29522091 PubMed Central PMCID: PMC5946904.

Research Support

R01 MH100351 (Chen)
NIMH

07/01/2013-03/31/2019

Identifying the Polygenic Basis of the Human Brain and Psychiatric Disorders

This project will generate genetic atlases of the human cortex based on MRI and SNP data, discover SNPs associated with individual genetic divisions of the cortical cluster maps and individual subcortical structures, and identify genetic basis of psychiatric and substance use disorders with a focus on SNPs associated with neural systems implicated in the disorders.

Role: Principal Investigator

R56AG061163 (Chen)

09/30/2018-08/31/2019

NIH/NIA

Omic analyses for stratifying Alzheimer's subtypes and identifying novel drug targets

Progress in developing therapeutics for Alzheimer's disease has been slow. We propose to use network medicine approaches and the latest knowledge of disease and drug target genetics to increase understanding of the genetic bases of the disease and drug-disease associations, thereby shedding light on the actions of current drugs and revealing novel drug targets for unmet therapeutic needs. As a proof of concept, we will develop protocols to facilitate the translation of genomics knowledge gained from our network analyses into clinical practice and will test the power of patient genotype data for predicting clinical outcomes including cognitive decline using data gathered from large clinical studies.

Role: Principal Investigator

R01 MH118281-01 (Chen)

01/03/2019 – 01/02/2024

NIH/NIMH

Genetic architecture of the human brain and neuropsychiatric disorders

Many devastating human illnesses, such as neuropsychiatric disorders are heritable, but the connection between genes, the brain and brain disorders is not well understood. Through an application of genetically-based cortical atlases and state-of-the-art statistical approaches in a large sample with brain imaging and genotyping data, we will increase understanding of the genetic basis of the human brain and neuropsychiatric disorders, which could lead to new insight into disease mechanisms. Understanding genetic and environmental influences on neurodevelopmental and aging trajectories could provide early detection.

Role: Principal Investigator

Umea University subcontract (Kauppi)

09/01/2018 - 08/31/2019

Swedish Research Council

Integrating network medicine with neuropsychiatric genetics to inform drug development and personalized medicine

We will investigate neuropsychiatric genetics from a network medicine approach and translate knowledge of disease genetics into an effective treatment strategy.

Role: Co-Investigator

37454 (Loomba, R)

12/01/2016-11/30/2018

Eli Lilly Research Laboratories

Novel non-invasive biomarkers of NASH

The project performs translational research and innovative clinical trial design in nonalcoholic fatty liver disease (NAFLD) and steatohepatitis (NASH) to identify genomic and imaging biomarkers of

NASH.

Role: Co-Investigator

Completed

5R01 AG022381-10 (Kremen)

09/01/2009 - 08/31/2014

NIH/NIA

The VETSA Longitudinal MRI Twin Study of Aging

The goal of this study is to determine genetic and environmental influences on brain structure and brain aging via 3D structural MRI and diffusion tensor imaging. This grant is the first of multiple planned 5-year follow-ups.

Role: Postdoctoral fellow

NARSAD Young Investigator Grant (Chen) 01/15/2014 - 01/14/2017
Common Polygenic Basis of Brain morphology and Neuropsychiatric Disorders
Role: Principal Investigator

Norway-NIH collaboration grant (Chen - Djurovic) 07/01/2013-12/31/2017
Identifying the Polygenic Basis of the Human Brain and Psychiatric Disorders
Role: Co- Principal Investigator

5 U24 DA041123-04 (Dale) 09/30/2015-05/31/2020
NIH/NIDA

ABCD-USA Consortium: Data Analysis Center

To use multimodal brain imaging, cognitive and clinical assessments, bioassays, mobile monitoring, and careful assessment of substance use, environment, psychopathological symptoms, and social functioning in 11,111 adolescents followed over ten years to determine the effects of substance use on the adolescent brain and cognitive development.

Role: Co-Investigator

Reviewing

I serve on the Frontier Editorial Board as Reviewer Editor for *Frontier in Computational Neuroscience*

I refereed articles for the following journals:

Nature Genetics, Nature Communications, Brain, Frontier in Computational Neuroscience, Frontier in Aging Neuroscience, Biological Psychiatry, Journal of Child Psychology and Psychiatry, Psychiatry Research, Neuropsychopharmacology, Int J Neuropsychopharmacology, Bipolar Disorders, Human Brain Mapping, NeuroImage, Psychological Medicine, Schizophrenia Bulletin, Psychopharmacology, Am J Psychiatry, Cerebral Cortex, Brain Imaging and Behavior, and Psychiatry Research Neuroimaging.

Honor and Award

- The Burgen Scholarship Award, Academia Europaea, 2008
- The article, *Chen et al., 2011 Neuron*, has been selected by the Faculty of 1000 as the top 2% of published articles in biology and medicine. Rank: Must read
- The article, *Chen et al., 2012 Science*, has been selected by the Faculty of 1000 as the top 2% of published articles in biology and medicine. Rank: Exceptional
- NARSAD Young Investigator Award 2013
- National Centers of Leadership in Academic Medicine (NCLAM) 2016
- The article, *Lo et al., 2017 Nature Genetics*. Rank: Special significance
- Gershon Paper of the Year Award from the International Society of Psychiatric Genetics for *Lo, et al., 2017 Nature Genetics*. <https://ispg.net/membership/awards/>

Invited Lectures and Oral Presentations

- Genes, the brain, and psychiatric disorders. Department Research Symposium, Department of Radiology, UC San Diego, USA, July 2017
- Interactome overlap of schizophrenia disease module and antipsychotic drug targets. Statistical Genetics Symposium, Oslo University Hospital, Norway, June 2017
- Genes, the brain and psychiatric disorders. Centre for Lifespan Changes in Brain and Cognition, University of Oslo, Norway, June 2017
- Genes, the brain, and psychiatric disorders. Department of Psychology, University of Oslo,

Norway, June 2017

- Genes, the brain, and psychiatric disorders. Markou Research Seminars, Department of Psychiatry, UC San Diego, USA, April 2017
- Genes, the brain, and psychiatric disorders. Collab@Altman Monthly Mixer, Department of Radiology, UC San Diego, USA, April 2017
- Genes, the brain, and psychiatric disorders. Lecture at NIH T32 Biological Psychiatry Program, UC San Diego, USA, March 2017
- Identifying genetic basis of the human brain and neuropsychiatric disorders. Department Research Symposium, Department of Radiology, UC San Diego, USA, July 2016
- Large-scale genomics unveil polygenic architecture of the human cortical surface area. Behavioural Genetics Association Annual Meeting, San Diego, USA, June 2015
- Genome-wide scan of brain phenotypes discovers common genetic variants influencing cortical surface area. Seminar Series at Department of Statistics, UC Irvine, Irvine, USA, May 2014
- Genome-wide scan of brain phenotypes discovers common genetic variants influencing cortical surface area. ENAR Annual Meeting, International Biometric Society, Baltimore, USA, March 2014
- Twin studies of brain morphology. Lectures at Department of Cognitive Science (course title: Genes, Brains and Behavior), UC San Diego, USA, January 2013
- Genetic topography of the human cortex. Seminar Series, Multimodal Imaging Laboratory, UC San Diego, USA, October 2012
- Hierarchical genetic organization of the human cortex. Neuroimaging Seminar Series, National Taiwan University, Taiwan, June 2012
- Hierarchical genetic organization of the human cortex. Chang Gung University, Taiwan, June 2012
- Hierarchical genetic organization of the human cortex. Department of Psychiatry Annual Symposium, UC San Diego, USA, June 2012
- Genetic topography of the human cortex. Wa Talk Seminar Series, Department of Cognitive Science, UC San Diego, USA, April 2011

Selected Poster Presentations

- Human Brain Mapping annual meeting, Beijing, 2012, poster presentation
- UC Irvine International Imaging Genetics Conference, Irvine, 2012, poster presentation
- UCSD Department of Psychiatry annual symposium, San Diego, 2012, oral presentation
- Human Brain Mapping annual meeting, Quebec, 2011, poster presentation
- UCSD Department of Cognitive Science Wa Talk, San Diego, 2011, oral presentation
- UCSD Department of Psychiatry annual symposium, San Diego, 2011, poster presentation
- The Society for Neuroscience annual meeting, San Diego, 2010
- Academia Europaea Annual Meeting, Liverpool, 2008, poster presentation
- The Society for Neuroscience annual meeting, San Diego, 2007
- Cambridge Neuroscience Launch Symposium, Cambridge, 2007
- Human Brain Mapping annual meeting, Florence, 2006, poster presentation