



Lawrence Fung

Clinical Assistant Professor, Psychiatry and Behavioral Sciences - Child and Adolescent Psychiatry

 Curriculum Vitae available Online

CLINICAL OFFICES

- **Autism and Developmental Disabilities Clinic**

321 Middlefield Rd Ste 140

Menlo Park, CA 94025

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Bio

CLINICAL FOCUS

- Psychiatry
- Child, Adolescent and Adult Psychiatry
- Autism Spectrum Disorder
- Neurogenetic Disorders
- Psychiatric Disorders with co-morbid Neurologic Disorders
- Neuropsychopharmacology

ACADEMIC APPOINTMENTS

- Clinical Assistant Professor, Psychiatry and Behavioral Sciences - Child and Adolescent Psychiatry
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Director, Stanford Neurodiversity Project, (2018- present)
- Attending physician, Pediatric Neuropsychopharmacology Clinic, (2015-2018)
- Attending physician, Autism & Developmental Disabilities Clinic, (2015- present)

HONORS AND AWARDS

- SOBP Travel Fellowship Award, Society of Biological Psychiatry (2017)
- Clinical Investigator Award / Mentored Clinical Scientist Research Career Development Award (K08), National Institute of Mental Health (2016-2020)
- Young Investigator Award, International Symposium on Functional NeuroReceptor Mapping of the Living Brain (2016)
- ACNP Travel Award, American College of Neuropsychopharmacology (2015)
- AACAP Pilot Research Award, American Academy of Child & Adolescent Psychiatry (2013-2014)
- Ruth L. Kirschstein Individual Postdoctoral National Research Service Award, National Institute of Mental Health (2013-2014)
- Finalist, National Institutes of Health Director's Early Independence Award (DP5), National Institutes of Health (2013)

- Nominee, Career Awards for Medical Scientists (selected from Stanford Univ-wide search), Burroughs Wellcome Fund (2013)
- Runner-up in Resident Poster Competition, Session 2, APA Annual Meeting, American Psychiatric Association (2013)
- Scholar, Career Development Institute for Psychiatry (2013)
- Miller Award, Department of Psychiatry & Behavioral Sciences, Stanford University (2012)
- Nominee, NIH Director's Early Independence Award (DP5) (selected from Stanford Univ-wide search), National Institutes of Health (2012)
- Brain Camp III participant, National Institute of Mental Health (2011)
- NIMH Outstanding Resident Award, National Institute of Mental Health (2011)
- Trainee Travel Award, Academy of Psychosomatic Medicine (2011)
- Janssen Resident Psychiatric Research Scholar, American Psychiatric Institute on Research and Education (2010)
- Outstanding General Psychiatry Resident Award, American Academy of Child & Adolescent Psychiatry (2010)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Academy of Child & Adolescent Psychiatry (2008 - present)
- Member, American Psychiatric Association (2008 - present)
- Member, International Society for Autism Research (2009 - present)
- Member, Society of Biological Psychiatry (2012 - present)
- Associate Member, American College of Neuropsychopharmacology (2018 - present)

PROFESSIONAL EDUCATION

- Board Certification, American Board of Psychiatry and Neurology , Child and Adolescent Psychiatry (2015)
- Board Certification, American Board of Psychiatry and Neurology , Psychiatry (2013)
- Fellowship: Stanford University School of Medicine (2014) CA
- Residency: Stanford University School of Medicine (2012) CA
- Internship: Stanford University School of Medicine (2010) CA
- Medical Education: George Washington University (2009) DC
- PhD, Cornell University , NY (1998)
- MSE, Johns Hopkins University , MD (1996)
- B.S. (Honors), University of California at Berkeley , CA (1993)

LINKS

- Stanford Neurodiversity Project: <http://med.stanford.edu/neurodiversity.html>
- My Lab Site: <http://med.stanford.edu/funglab.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Fung is a child & adolescent psychiatrist with specialized clinical training in autism spectrum disorder (ASD) and advanced research training in chemical engineering, neuropsychopharmacology, and neuroimaging. He has extensive work experience in pharmaceutical research and development, including the discovery and development of a GABA(A) receptor agonist for the treatment of insomnia and anxiety.

Dr. Fung serves as a co-investigator and co-protocol director of a current randomized controlled trial of pregnenolone in children and adolescents with ASD. Dr. Fung is interested in elucidating the mechanisms of action of pregnenolone and its related neurosteroids in the treatment of individuals with ASD.

In addition to pharmacologic treatment studies in ASD and other developmental disorders, he is also performing multimodal neuroimaging studies in these disorders. Dr. Fung employs state-of-the-art multimodal neuroimaging tools to study GABA neurophysiology in individuals with ASD, fragile X syndrome (FXS) and intellectual disability. He is the Principal Investigator of NIH-funded "GABAergic Neurophysiology in Autism Spectrum Disorder". He serves as a Co-investigator of "Cross-Species Multi-Modal Neuroimaging to Investigate GABA Physiology in Fragile X Syndrome".

His overarching goal is to dissect the neurobiology of ASD using a combination of bioanalytical, immunochemical, and multimodal imaging techniques to identify biomarkers based on specific molecular mechanisms that will inform targeted treatments for ASD.

CLINICAL TRIALS

- Pilot Trial of Pregnenolone in Autism, Recruiting

PROJECTS

- GABAergic Neurophysiology in Autism Spectrum Disorder - Stanford University (September 8, 2016 - May 31, 2020)

Teaching

COURSES

2018-19

- Topics in Neurodiversity: Design Thinking Approaches: PSYC 223B (Spr)
- Topics in Neurodiversity: Introduction and Advocacy: PSYC 223 (Win)

Publications

PUBLICATIONS

- **A randomized placebo-controlled pilot trial shows that intranasal vasopressin improves social deficits in children with autism** *SCIENCE TRANSLATIONAL MEDICINE*
Parker, K. J., Oztan, O., Libove, R. A., Mohsin, N., Karhson, D. S., Sumiyoshi, R. D., Summers, J. E., Hinman, K. E., Motonaga, K. S., Phillips, J. M., Carson, D. S., Fung, L. K., Garner, et al
2019; 11 (491)
- **Brief Report: Sex/Gender Differences in Symptomology and Camouflaging in Adults with Autism Spectrum Disorder.** *Journal of autism and developmental disorders*
Schuck, R. K., Flores, R. E., Fung, L. K.
2019
- **Moving Toward Integrative, Multidimensional Research in Modern Psychiatry: Lessons Learned From Fragile X Syndrome** *BIOLOGICAL PSYCHIATRY*
Fung, L. K., Reiss, A. L.
2016; 80 (2): 100-111
- **A proton spectroscopy study of white matter in children with autism.** *Progress in neuro-psychopharmacology & biological psychiatry*
Hardan, A. Y., Fung, L. K., Frazier, T., Berquist, S. W., Minshew, N. J., Keshavan, M. S., Stanley, J. A.
2016; 66: 48-53
- **Pharmacologic Treatment of Severe Irritability and Problem Behaviors in Autism: A Systematic Review and Meta-analysis.** *Pediatrics*
Fung, L. K., Mahajan, R., Nozzolillo, A., Bernal, P., Krasner, A., Jo, B., Coury, D., Whitaker, A., Veenstra-VanderWeele, J., Hardan, A. Y.
2016; 137: S124-35
- **Developing Medications Targeting Glutamatergic Dysfunction in Autism: Progress to Date** *CNS DRUGS*
Fung, L. K., Hardan, A. Y.
2015; 29 (6): 453-463

- **Brief Report: An Open-Label Study of the Neurosteroid Pregnenolone in Adults with Autism Spectrum Disorder** *JOURNAL OF AUTISM AND DEVELOPMENTAL DISORDERS*
Fung, L. K., Libove, R. A., Phillips, J., Haddad, F., Hardan, A. Y.
2014; 44 (11): 2971-2977
- **A Randomized Controlled Pilot Trial of Oral N-Acetylcysteine in Children with Autism** *BIOLOGICAL PSYCHIATRY*
Hardan, A. Y., Fung, L. K., Libove, R. A., Obukhanych, T. V., Nair, S., Herzenberg, L. A., Frazier, T. W., Tirouvanziam, R.
2012; 71 (11): 956-961
- **THE FRAGILE X BRAIN: A PET/MR CASE STUDY**
Gade, S., Gade, S., Shen, B., Jung, J., Lee, B., Kim, S., Fung, L., Chin, F.
OXFORD UNIV PRESS INC.2018: S713
- **Comprehensive Examination of the GABAergic System in Adults With Autism by Simultaneous [18F] Flumazenil-Positron Emission Tomography and Magnetic Resonance Spectroscopy**
Fung, L., Flores, R., Liu, K., Gu, M., Spielman, D., Chin, F., Hardan, A.
NATURE PUBLISHING GROUP.2017: S206–S207
- **A sterile animal model for neuroinflammation?** *Science translational medicine*
Fung, L. K.
2017; 9 (373)
- **Imaging serotonin reuptake in the living brain.** *Science translational medicine*
Fung, L. K.
2016; 8 (367): 367ec191-?
- **Effects of common anesthetic agents on [F-18] flumazenil binding to the GABA(A) receptor** *EJNMMI RESEARCH*
Palner, M., Beinat, C., Banister, S., Zanderigo, F., Park, J. H., Shen, B., Hjoernevik, T., Jung, J. H., Lee, B. C., Kim, S. E., Fung, L., Chin, F. T.
2016; 6
- **Irritability and Problem Behavior in Autism Spectrum Disorder: A Practice Pathway for Pediatric Primary Care** *PEDIATRICS*
McGuire, K., Fung, L. K., Hagopian, L., Vasa, R. A., Mahajan, R., Bernal, P., Silberman, A. E., Wolfe, A., Coury, D. L., Hardan, A. Y., Veenstra-VanderWeele, J., Whitaker, A. H.
2016; 137: S136-S148
- **Attitudes Toward Neuroscience Education in Psychiatry: a National Multi-stakeholder Survey** *ACADEMIC PSYCHIATRY*
Fung, L. K., Akil, M., Widge, A., Roberts, L. W., Etkin, A.
2015; 39 (2): 139-146
- **Developing Medications Targeting Glutamatergic Dysfunction in Autism: Progress to Date.** *CNS drugs*
Fung, L. K., Hardan, A. Y.
2015
- **Autism in DSM-5 under the microscope: Implications to patients, families, clinicians, and researchers.** *Asian journal of psychiatry*
Fung, L. K., Hardan, A. Y.
2014; 11: 93-97
- **Attitudes toward neuroscience education among psychiatry residents and fellows.** *Academic psychiatry*
Fung, L. K., Akil, M., Widge, A., Roberts, L. W., Etkin, A.
2014; 38 (2): 127-134
- **A Retrospective Review of the Effectiveness of Aripiprazole in the Treatment of Sensory Abnormalities in Autism** *JOURNAL OF CHILD AND ADOLESCENT PSYCHOPHARMACOLOGY*
Fung, L. K., Chahal, L., Libove, R. A., Bivas, R., Hardan, A. Y.
2012; 22 (3): 245-248
- **Conceptualizing neurodevelopmental disorders through a mechanistic understanding of fragile X syndrome and Williams syndrome** *CURRENT OPINION IN NEUROLOGY*
Fung, L. K., Quintin, E., Haas, B. W., Reiss, A. L.
2012; 25 (2): 112-124

- **Autism spectrum and neurodevelopmental disorders: clinical update for psychiatrists** *PSYCHIATRIC TIMES*
Froehlich, W., Fung, L. K.
2012; 29 (11)
- **Discovery of N-(1-Ethylpropyl)-(3-methoxy-5-(2-methoxy-4-trifluoromethoxyphenyl)-6-methyl-pyrazin-2-yl)amine 59 (NGD 98-2): An Orally Active Corticotropin Releasing Factor-1 (CRF-1) Receptor Antagonist** *JOURNAL OF MEDICINAL CHEMISTRY*
Hodgetts, K. J., Ge, P., Yoon, T., De Lombaert, S., Brodbeck, R., Gulianello, M., Kieltyka, A., Horvath, R. F., Kehne, J. H., Krause, J. E., Maynard, G. D., Hoffman, D., Lee, et al
2011; 54 (12): 4187-4206
- **Risperidone: Switching from Brand Name to Generic** *JOURNAL OF CHILD AND ADOLESCENT PSYCHOPHARMACOLOGY*
Hardan, A. Y., Fung, L. K., Amin, H.
2010; 20 (5): 457-458
- **Adjunctive use of lithium carbonate for the management of neutropenia in clozapine-treated children** *HUMAN PSYCHOPHARMACOLOGY-CLINICAL AND EXPERIMENTAL*
Mattai, A., Fung, L., Bakalar, J., Overman, G., Tossell, J., Miller, R., Rapoport, J., Gogtay, N.
2009; 24 (7): 584-589
- **Aminoquinazolines as TRPV1 antagonists: Modulation of drug-like properties through the exploration of 2-position substitution** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Blum, C. A., Zheng, X., Brielmann, H., Hodgetts, K. J., Bakthavatchalam, R., Chandrasekhar, J., Krause, J. E., Cortright, D., Matson, D., Crandall, M., Ngo, C. K., Fung, L., Day, et al
2008; 18 (16): 4573-4577
- **Synthesis and structure-activity relationship of imidazo[1,2-a]benzimidazoles as corticotropin-releasing factor 1 receptor antagonists** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Han, X. J., Pin, S. S., Burris, K., Fung, L. K., Huang, S., Taber, M. T., Zhang, J., Dubowchik, G. M.
2005; 15 (18): 4029-4032
- **Synthesis, structure-activity relationships, and anxiolytic activity of 7-aryl-6,7-dihydroimidazoimidazole corticotropin-releasing factor 1 receptor antagonists** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Han, X. J., Michne, J. A., Pin, S. S., Burris, K. D., Balanda, L. A., Fung, L. K., Fiedler, T., Browman, K. E., Taber, M. T., Zhang, J., Dubowchik, G. M.
2005; 15 (17): 3870-3873
- **2-arylaminothiazoles as high-affinity corticotropin-releasing factor 1 receptor (CRF1R) antagonists: Synthesis, binding studies and behavioral efficacy** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Dubowchik, G. M., Michne, J. A., Zuev, D., Schwartz, W., Scola, P. M., James, C. A., Ruediger, E. H., Pin, S. S., Burris, K. D., Balanda, L. A., Gao, Q., Wu, D. D., Fung, et al
2003; 13 (22): 3997-4000
- **Shift in pH of biological fluids during storage and processing: effect on bioanalysis** *JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS*
Fura, A., Harper, T. W., Zhang, H. J., Fung, L., Shyu, W. C.
2003; 32 (3): 513-522
- **Pharmacokinetics of interstitial delivery of carmustine, 4-hydroperoxycyclophosphamide, and paclitaxel from a biodegradable polymer implant in the monkey brain** *CANCER RESEARCH*
Fung, L. K., Ewend, M. G., Sills, A., Sipos, E. P., Thompson, R., Watts, M., Colvin, O. M., Brem, H., Saltzman, W. M.
1998; 58 (4): 672-684
- **Polymeric implants for cancer chemotherapy.** *Advanced drug delivery reviews*
Saltzman, W. M., Fung, L. K.
1997; 26 (2-3): 209-30
- **Chemotherapeutic drugs released from polymers: Distribution of 1,3-bis(2-chloroethyl)-1-nitrosourea in the rat brain** *PHARMACEUTICAL RESEARCH*
Fung, L. K., Shin, M., Tyler, B., Brem, H., Saltzman, W. M.
1996; 13 (5): 671-682
- **Distribution of 1,3-bis(2-chloroethyl)-1-nitrosourea and tracers in the rabbit brain after interstitial delivery by biodegradable polymer implants** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
Strasser, J. F., Fung, L. K., Eller, S., Grossman, S. A., Saltzman, W. M.

1995; 275 (3): 1647-1655

- **Distribution of drugs following controlled delivery to the brain interstitium** *JOURNAL OF NEURO-ONCOLOGY*

Mak, M., Fung, L., Strasser, J. F., Saltzman, W. M.

1995; 26 (2): 91-102