

Stanford



Theo Palmer

Professor of Neurosurgery

CONTACT INFORMATION

- **Alternate Contact**

Suzette Rodriguez - Executive Assistant

Email suzetter@stanford.edu

Tel (650) 736-1482

Bio

ACADEMIC APPOINTMENTS

- Professor, Neurosurgery
- Member, Bio-X
- Member, Institute for Stem Cell Biology and Regenerative Medicine
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Scientific Advisor, Kinetics Foundation, (2001-2007)
- Scientific Advisory Board, Michael J. Fox Foundation, (2002-2010)
- Committee Chair, Stanford Stem Cell Research Oversight Committee, (2006-2009)
- Scientific Advisory Board, Founding Member, The Stem Cell Advisors, (2008-2015)
- Scientific Advisory Board, Children's Neurobiological Solutions, (2005- present)
- Adjunct Associate Research Scientist, The Parkinson's Institute, Sunnyvale, CA, (2005- present)
- Visiting Professor, Institute of Neuroscience, Chinese Academy of Sciences, Shanghai, (2005- present)
- Scientific Advisory Board, A-T Children's Project, (2015- present)

HONORS AND AWARDS

- Judith Graham Pool Award, National Hemophilia Foundation (1991)
- Michael J Fox Fellowship in Stem Cell Research at Stanford, Michael J. Fox Foundation (2002)
- Mitsubishi Pharma Stem Cell Research Award, Mitsubishi Pharma Inc. (2002)
- Margot Anderson Wings of Hope Award, Margot Anderson Foundation (2002)
- Grass Lectureship, The Grass Foundation (2003)

- Kinetics Foundation Award for Research in Stem Cell Biology, The Kinetics Foundation (2004)
- Hearst Faculty Scholar, Hearst Foundation (2007)
- Blume Award in Parkinson's Disease Research, Blume Foundation (2007-present)

PROFESSIONAL EDUCATION

- BS, Andrews University , Biology (1981)
- Ph.D., University of Washington , Experimental Pathology (1990)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Human brain development and maintenance is orchestrated by complex interactions between genetic and environmental factors. Our research examines how neural stem cells respond to these factors and how these responses influence the integration of newly generated neurons into functional neural circuits.

NEURAL STEM CELLS IN BRAIN DEVELOPMENT: Our studies of neurogenesis in the developing brain focus on the influence of maternal health or illness on fetal brain development. In humans, certain illnesses and infections during pregnancy are associated with increased risk of a neurodevelopmental disorder in the child. In mice, even mild maternal illness during early pregnancy can alter stem cell activity in the developing fetal brain. Offspring are born with subtle changes in brain function that affect social behavior and cognition. The effects are most reminiscent of features seen in children with autism or intellectual disability.

Diseases such as autism, intellectual disability, and schizophrenia are caused by complex and poorly understood combinations of genetic and environmental factors. Although many genetic risk factors for neurodevelopmental disorders have been identified, few single-gene mutations are alone sufficient to cause the disorder. For example, in autism, genetics alone may account for less than half of all diagnoses and it is thought that environmental factors must also act during gestation or in the infant to alter brain development. In mice, we have found that several weak genetic risk factors act on the same developmental processes that are affected by a maternal illness during pregnancy. Alone, the genetic and immune risks have only mild influences. When gene and immune risks are combined during pregnancy, social behavior and cognition are severely effected in the offspring.

Our ongoing research hopes to identify additional combinations of mild genetic and environmental risks that have synergistically negative effects on brain development. Ultimately, our hope is to develop diagnostic tools that identify genetic risks that are alone insignificant but place the developing child at very high risk from an environmental "second hit". Knowledge of these unanticipated synergies provides the first step in educating both physicians and mothers about risks and measures that may be taken to reduce risk and prevent neurodevelopmental disorders.

HUMAN PLURIPOTENT STEM CELLS TO STUDY AND TREAT NEUROLOGICAL DISEASE: Using information gained from studying neural stem cells in development, it has been possible to recreate the conditions of human fetal neurogenesis in the Petri dish. We are now able to use pluripotent stem cells to generate many types of human neurons, including those most affected in autism, schizophrenia, Alzheimer's disease and Parkinson's disease. With pluripotent stem cells derived from individuals with autism or schizophrenia, we are studying how genetic risk factors act to alter brain development. With stem cells derived from patients with Parkinson's disease, we are discovering how genetic risk factors cause neurons to die in later life. In addition to using pluripotent stem cells as a discovery platform for disease mechanisms, we ultimately hope to use stem cell therapies to augment or restore function in conditions where neurons are irreversibly lost due to stroke, injury or age-related degeneration.

Teaching

COURSES

2020-21

- Stem Cells Immersion: Applications in Medicine, Business and Law: STEMREM 203 (Aut, Win, Spr, Sum)

2019-20

- Regenerative Medicine Seminar Series: STEMREM 250 (Aut)
- Stem Cell Biology and Regenerative Medicine Journal Club: STEMREM 280 (Aut)
- Stem Cells Immersion: Applications in Medicine, Business and Law: STEMREM 203 (Aut, Win, Spr, Sum)

2018-19

- Regenerative Medicine Seminar Series: STEMREM 250 (Aut, Win, Spr)
- Stem Cell Biology and Regenerative Medicine Journal Club: STEMREM 280 (Aut, Win, Spr)
- Stem Cells Immersion: Applications in Medicine, Business and Law: STEMREM 203 (Aut, Win, Spr, Sum)
- Stem Cells and Human Development Laboratory: STEMREM 201B (Aut)
- Stem Cells and Translational Medicine: STEMREM 202 (Win)

2017-18

- Regenerative Medicine Seminar Series: STEMREM 250 (Aut, Win, Spr)
- Stem Cell Biology and Regenerative Medicine Journal Club: STEMREM 280 (Aut, Win, Spr)
- Stem Cells Immersion: Applications in Medicine, Business and Law: STEMREM 203 (Aut, Win, Spr, Sum)
- Stem Cells and Human Development Laboratory: STEMREM 201B (Aut)
- Stem Cells and Human Development: From Embryo to Cell Lineage Determination: STEMREM 201A (Aut)
- Stem Cells and Translational Medicine: STEMREM 202 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Pieter Both, Bahareh Haddad Derafshi

Doctoral Dissertation Advisor (AC)

Jessica Diaz, Amber Moore, Jennifer Su

Doctoral Dissertation Co-Advisor (AC)

Nora Vivanco Gonzalez

Doctoral (Program)

Amira Barkal, Chris Still, Ericka von Kaeppler

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (Phd Program)
- Developmental Biology (Phd Program)
- Immunology (Phd Program)
- Neurosciences (Phd Program)
- Stem Cell Biology and Regenerative Medicine (Phd Program)

Publications

PUBLICATIONS

- **Aberrant calcium channel splicing drives defects in cortical differentiation in Timothy Syndrome.** *eLife*
Panagiotakos, G., Haveles, C., Arjun, A., Petrova, R., Rana, A., Portmann, T., Pasca, S. P., Palmer, T. D., Dolmetsch, R. E.
2019; 8
- **"Females are not just 'protected' males:" Sex-specific vulnerabilities in placenta and brain after prenatal immune disruption.** *eNeuro*
Braun, A. E., Carpentier, P. A., Babineau, B. A., Narayan, A. R., Kielhold, M. L., Moon, H. M., Shankar, A., Su, J., Saravanapandian, V., Haditsch, U., Palmer, T. D.
2019
- **COMPARATIVE FUNCTIONAL GENOMICS ANALYSES OF THE 16P11.2 DELETION AND DUPLICATION CNVS IN A HUMAN IPSC-TO-INDUCED NEURON MODEL**
Zhang, X., Thomas, W., Leung, L., Zhou, B., Muench, K., Plastini, M., Pattni, R., Ho, S., Ho, M., Huang, Y., Hallmayer, J., Mourrain, P., Palmer, et al
ELSEVIER.2019: S66
- **Adult-generated neurons born during chronic social stress are uniquely adapted to respond to subsequent chronic social stress** *MOLECULAR PSYCHIATRY*
De Miguel, Z., Haditsch, U., Palmer, T. D., Azpiroz, A., Sapolsky, R. M.
2019; 24 (8): 1178–88
- **IN-DEPTH CHARACTERIZATION OF GESTATIONAL IMMUNE DYNAMICS USING MASS CYTOMETRY**
Moore, A., Vivanco-Gonzalez, N., Plummer, K., Mitchel, O., Kaur, H., Rivera, M., Bendall, S., Palmer, T.
W B SAUNDERS CO LTD.2019: E87–E88
- **Human 3D cellular model of hypoxic brain injury of prematurity** *NATURE MEDICINE*
Pasca, A. M., Park, J., Shin, H., Qi, Q., Revah, O., Krasnoff, R., O'Hara, R., Willsey, A., Palmer, T. D., Pascz, S. P.
2019; 25 (5): 784–+
- **An Immune Atlas of Mid to Late Mouse Gestation.**
Moore, A. R., Vivanco-Gonzalez, N., Plummer, K., Kaur, H., Mitchel, O., Rivera, M., Bendall, S. C., Palmer, T. D.
SAGE PUBLICATIONS INC.2019: 345A–346A
- **Human 3D cellular model of hypoxic brain injury of prematurity.** *Nature medicine*
Pa#ca, A. M., Park, J. Y., Shin, H. W., Qi, Q., Revah, O., Krasnoff, R., O'Hara, R., Willsey, A. J., Palmer, T. D., Pa#ca, S. P.
2019
- **Characterization of Brain Dysfunction Induced by Bacterial Lipopeptides That Alter Neuronal Activity and Network in Rodent Brains** *JOURNAL OF NEUROSCIENCE*
Kim, K., Zamaleeva, A. I., Lee, Y., Ahmed, M., Kim, E., Lee, H., Pothineni, V., Tao, J., Rhee, S., Jayakumar, M., Inayathullah, M., Sivanesan, S., Red-Horse, et al
2018; 38 (50): 10672–91
- **Characterization of brain dysfunction induced by bacterial lipopeptides that alter neuronal activity and network in rodent brains.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
Kim, K., Zamaleeva, A. I., Woo Lee, Y., Ahmed, M. R., Kim, E., Lee, H., Raveendra Pothineni, V., Tao, J., Rhee, S., Jayakumar, M., Inayathullah, M., Sivanesan, S., Red-Horse, et al
2018
- **microRNAs Refine Cortical Projection Neuron Subtype during Mammalian Development**
Siththanandan, V., Diaz, J., Lu, V., Gonzalez-Nava, N., Pasquina, L., MacDonald, J., Woodworth, M., Sahni, V., Sarnow, P., Palmer, T., Macklis, J., Tharin, S.
WILEY.2018: S276–S277
- **Adult-generated neurons born during chronic social stress are uniquely adapted to respond to subsequent chronic social stress.** *Molecular psychiatry*
De Miguel, Z., Haditsch, U., Palmer, T. D., Azpiroz, A., Sapolsky, R. M.
2018
- **RNA-protein interaction detection in living cells.** *Nature methods*

- Ramanathan, M., Majzoub, K., Rao, D. S., Neela, P. H., Zarnegar, B. J., Mondal, S., Roth, J. G., Gai, H., Kovalski, J. R., Siplashvili, Z., Palmer, T. D., Carette, J. E., Khavari, et al
2018
- **A Knockin Reporter Allows Purification and Characterization of mDA Neurons from Heterogeneous Populations** *CELL REPORTS*
Xia, N., Fang, F., Zhang, P., Cui, J., Tep-Cullison, C., Hamerley, T., Lee, H. J., Palmer, T., Bothner, B., Lee, J. H., Pera, R. R.
2017; 18 (10): 2533-2546
 - **Phosphorylation of α B-crystallin supports reactive astrogliosis in demyelination.** *Proceedings of the National Academy of Sciences of the United States of America*
Kuipers, H. F., Yoon, J., van Horssen, J., Han, M. H., Bollyky, P. L., Palmer, T. D., Steinman, L.
2017; 114 (9): E1745-E1754
 - **Functional Impairment in Miro Degradation and Mitophagy Is a Shared Feature in Familial and Sporadic Parkinson's Disease** *CELL STEM CELL*
Hsieh, C., Shaltouki, A., Gonzalez, A. E., Da Cruz, A. B., Burbulla, L. F., St Lawrence, E., Schule, B., Krainc, D., Palmer, T. D., Wang, X.
2016; 19 (6): 709-724
 - **Functional Impairment in Miro Degradation and Mitophagy Is a Shared Feature in Familial and Sporadic Parkinson's Disease.** *Cell stem cell*
Hsieh, C., Shaltouki, A., Gonzalez, A. E., Bettencourt Da Cruz, A., Burbulla, L. F., St Lawrence, E., Schüle, B., Krainc, D., Palmer, T. D., Wang, X.
2016
 - **The Role of the Microenvironmental Niche in Declining Stem-Cell Functions Associated with Biological Aging** *COLD SPRING HARBOR PERSPECTIVES IN MEDICINE*
DeCarolis, N. A., Kirby, E. D., Wyss-Coray, T., Palmer, T. D.
2015; 5 (12)
 - **Aging-Like Changes in the Transcriptome of Irradiated Microglia** *GLIA*
Li, M. D., Burns, T. C., Kumar, S., Morgan, A. A., Sloan, S. A., Palmer, T. D.
2015; 63 (5): 754-767
 - **The Role of the Microenvironmental Niche in Declining Stem-Cell Functions Associated with Biological Aging.** *Cold Spring Harbor perspectives in medicine*
DeCarolis, N. A., Kirby, E. D., Wyss-Coray, T., Palmer, T. D.
2015; 5 (12)
 - **The Relationship Between Serial [(18)F]PBR06 PET Imaging of Microglial Activation and Motor Function Following Stroke in Mice** *MOLECULAR IMAGING AND BIOLOGY*
Lartey, F. M., Ahn, G., Ali, R., Rosenblum, S., Miao, Z., Arksey, N., Shen, B., Colomer, M. V., Rafat, M., Liu, H., Alejandre-Alcazar, M. A., Chen, J. W., Palmer, et al
2014; 16 (6): 821-829
 - **The relationship between serial [(18)F]PBR06 PET imaging of microglial activation and motor function following stroke in mice.** *Molecular imaging and biology*
Lartey, F. M., Ahn, G., Ali, R., Rosenblum, S., Miao, Z., Arksey, N., Shen, B., Colomer, M. V., Rafat, M., Liu, H., Alejandre-Alcazar, M. A., Chen, J. W., Palmer, et al
2014; 16 (6): 821-829
 - **Stress and glucocorticoids promote oligodendrogenesis in the adult hippocampus** *MOLECULAR PSYCHIATRY*
Chetty, S., Friedman, A. R., Taravosh-Lahn, K., Kirby, E. D., Mirescu, C., Guo, F., Krupik, D., Nicholas, A., Geraghty, C., Krishnamurthy, A., Tsai, M., Covarrubias, D., Wong, et al
2014; 19 (12): 1275-1283
 - **PET Imaging of Stroke-Induced Neuroinflammation in Mice Using [F-18]PBR06** *MOLECULAR IMAGING AND BIOLOGY*
Lartey, F. M., Ahn, G., Shen, B., Cord, K., Smith, T., Chua, J. Y., Rosenblum, S., Liu, H., James, M. L., Chernikova, S., Lee, S. W., Pisani, L. J., Tirouvanziam, et al
2014; 16 (1): 109-117
 - **Stereotypical alterations in cortical patterning are associated with maternal illness-induced placental dysfunction.** *journal of neuroscience*
Carpentier, P. A., Haditsch, U., Braun, A. E., Cantu, A. V., Moon, H. M., Price, R. O., Anderson, M. P., Saravanapandian, V., Ismail, K., Rivera, M., Weimann, J. M., Palmer, T. D.
2013; 33 (43): 16874-16888

- **Natural Killer Cell-Activating Receptor NKG2D Mediates Innate Immune Targeting of Allogeneic Neural Progenitor Cell Grafts** *STEM CELLS*
Phillips, L. K., Gould, E. A., Babu, H., Krams, S. M., Palmer, T. D., Martinez, O. M.
2013; 31 (9): 1829-1839
- **Neuronal Rac1 is required for learning-evoked neurogenesis.** *journal of neuroscience*
Haditsch, U., Anderson, M. P., Freewoman, J., Cord, B., Babu, H., Brakebusch, C., Palmer, T. D.
2013; 33 (30): 12229-12241
- **Neuronal Rac1 Is Required for Learning-Evoked Neurogenesis** *JOURNAL OF NEUROSCIENCE*
Haditsch, U., Anderson, M. P., Freewoman, J., Cord, B., Babu, H., Brakebusch, C., Palmer, T. D.
2013; 33 (30): 12229-12241
- **DIFFERENTIAL ROLES FOR THE SMALL HEAT SHOCK PROTEIN ALPHA B-CRYSTALLIN IN DE- & REMYELINATION** *11th European Meeting on Glial Cell Function in Health and Disease*
Kuipers, H., Yoon, J., Winderl, J., van Horsen, J., Palmer, T., Steinman, L.
WILEY-BLACKWELL.2013: S185-S185
- **Absence of CCL2 is sufficient to restore hippocampal neurogenesis following cranial irradiation.** *Brain, behavior, and immunity*
Lee, S. W., Haditsch, U., Cord, B. J., Guzman, R., Kim, S. J., Boettcher, C., Priller, J., Ormerod, B. K., Palmer, T. D.
2013; 30: 33-44
- **Differential roles of TNFR1 and TNFR2 signaling in adult hippocampal neurogenesis.** *Brain, behavior, and immunity*
Chen, Z., Palmer, T. D.
2013; 30: 45-53
- **Lineage tracing with Axin2 reveals distinct developmental and adult populations of Wnt/ β -catenin-responsive neural stem cells.** *Proceedings of the National Academy of Sciences of the United States of America*
Bowman, A. N., van Amerongen, R., Palmer, T. D., Nusse, R.
2013; 110 (18): 7324-7329
- **PPAR gamma activation prevents impairments in spatial memory and neurogenesis following transient illness** *BRAIN BEHAVIOR AND IMMUNITY*
Ormerod, B. K., Hanft, S. J., Asokan, A., Haditsch, U., Lee, S. W., Palmer, T. D.
2013; 29: 28-38
- **LIPOPOLYSACCHARIDE EXPOSURE IN EARLY PREGNANCY IS ASSOCIATED WITH LATE PREGNANCY COMPLICATIONS** *Western Regional Meeting of the American-Federation-for-Medical-Research*
Ozen, M., Rivera, M., Saravanapandian, V., Palmer, T. D.
LIPPINCOTT WILLIAMS & WILKINS.2013: 191-191
- **The small heat shock protein alpha B-crystallin reveals a prominent role for astrogliosis in cuprizone-induced demyelination** *11th International Congress of Neuroimmunology (ISNI)*
Kuipers, H. F., Yoon, J., Vister, J., Palmer, T. D., Steinman, L.
ELSEVIER SCIENCE BV.2012: 64-64
- **The small heat shock protein Alpha B-Crystallin rescues oligodendrocyte progenitors from cuprizone-induced demyelination and promotes remyelination** *11th International Congress of Neuroimmunology (ISNI)*
Kuipers, H. F., Yoon, J., Vister, J., Palmer, T. D., Steinman, L.
ELSEVIER SCIENCE BV.2012: 128-128
- **Adult neural progenitor cells reactivate superbursting in mature neural networks** *EXPERIMENTAL NEUROLOGY*
Stephens, C. L., Toda, H., Palmer, T. D., DeMarse, T. B., Ormerod, B. K.
2012; 234 (1): 20-30
- **Using iPSC-derived neurons to uncover cellular phenotypes associated with Timothy syndrome** *NATURE MEDICINE*
Pasca, S. P., Portmann, T., Voineagu, I., Yazawa, M., Shecheglovitov, A., Pasca, A. M., Cord, B., Palmer, T. D., Chikahisa, S., Nishino, S., Bernstein, J. A., Hallmayer, J., Geschwind, et al
2011; 17 (12): 1657-U176
- **SNCA Triplication Parkinson's Patient's iPSC-derived DA Neurons Accumulate alpha-Synuclein and Are Susceptible to Oxidative Stress** *PLOS ONE*
Byers, B., Cord, B., Ha Nam Nguyen, H. N., Schuele, B., Fenno, L., Lee, P. C., Deisseroth, K., Langston, J. W., Pera, R. R., Palmer, T. D.

2011; 6 (11)

- **The CCR2/CCL2 Interaction Mediates the Transendothelial Recruitment of Intravascularly Delivered Neural Stem Cells to the Ischemic Brain** *STROKE*
Andres, R. H., Choi, R., Pendharkar, A. V., Gaeta, X., Wang, N., Nathan, J. K., Chua, J. Y., Lee, S. W., Palmer, T. D., Steinberg, G. K., Guzman, R.
2011; 42 (10): 2923-U387
- **ALPHA B-CRYSTALLIN PLAYS DIFFERENTIAL ROLES IN CUPRIZONE-INDUCED DEMYELINATION AND REMYELINATION** *10th European Meeting on Glial Cells in Health and Disease*
Kuipers, H. F., Brownell, S., Kurnellas, M., Palmer, T., Steinman, L.
WILEY-BLACKWELL.2011: S142-S142
- **Placental TNF-alpha Signaling in Illness-Induced Complications of Pregnancy** *AMERICAN JOURNAL OF PATHOLOGY*
Carpentier, P. A., Dingman, A. L., Palmer, T. D.
2011; 178 (6): 2802-2810
- **Neural Stem/Progenitor Cells Are Targets for Natural Killer Cell-Mediated Killing** *American Transplant Congress*
Phillips, L. K., GOULD, E. A., Palmer, T. D., Krams, S. M., Martinez, O. M.
WILEY-BLACKWELL.2011: 439-439
- **MHC Mismatch Inhibits Neurogenesis and Neuron Maturation in Stem Cell Allografts** *PLOS ONE*
Chen, Z., Phillips, L. K., Gould, E., Campisi, J., Lee, S. W., Ormerod, B. K., Zwierzchoniowska, M., Martinez, O. M., Palmer, T. D.
2011; 6 (3)
- **LRRK2 mutant iPSC-derived DA neurons demonstrate increased susceptibility to oxidative stress.** *Cell stem cell*
Nguyen, H. N., Byers, B., Cord, B., Shcheglovitov, A., Byrne, J., Gujar, P., Kee, K., Schüle, B., Dolmetsch, R. E., Langston, W., Palmer, T. D., Pera, R. R.
2011; 8 (3): 267-280
- **LRRK2 Mutant iPSC-Derived DA Neurons Demonstrate Increased Susceptibility to Oxidative Stress** *CELL STEM CELL*
Ha Nam Nguyen, N. N., Byers, B., Cord, B., Shcheglovitov, A., Byrne, J., Gujar, P., Kee, K., Schuele, B., Dolmetsch, R. E., Langston, W., Palmer, T. D., Pera, R. R.
2011; 8 (3): 267-280
- **Transplanted Stem Cell-Secreted Vascular Endothelial Growth Factor Effects Poststroke Recovery, Inflammation, and Vascular Repair** *STEM CELLS*
Horie, N., Pereira, M. P., Niizuma, K., Sun, G., Keren-Gill, H., Encarnacion, A., Shamloo, M., Hamilton, S. A., Jiang, K., Huhn, S., Palmer, T. D., Bliss, T. M., Steinberg, et al
2011; 29 (2): 274-285
- **A protocol for isolation and enriched monolayer cultivation of neural precursor cells from mouse dentate gyrus.** *Frontiers in neuroscience*
Babu, H., Claasen, J., Kannan, S., Rünker, A. E., Palmer, T., Kempermann, G.
2011; 5: 89-?
- **Vacuum soft lithography to direct neuronal polarization** *SOFT MATTER*
Nevill, J. T., Mo, A., Cord, B. J., Palmer, T. D., Poo, M., Lee, L. P., Heilshorn, S. C.
2011; 7 (2): 343-347
- **A protocol for isolation and enriched monolayer cultivation of neural precursor cells from mouse dentate gyrus** *FRONTIERS IN NEUROSCIENCE*
Babu, H., Claasen, J., Kannan, S., Ruenker, A. E., Palmer, T., Kempermann, G.
2011; 5
- **PET imaging of cerebral ischemia-induced neuroinflammation in mice using F-18-PBR06**
Lartey, F. M., Ahn, G., Shen, B., Cord, K., Smith, T., Chua, J. Y., Rosenblum, S., Tirouvanziam, R., Palmer, T., Guzman, R., Chin, F. T., Graves, E., Loo, et al
WILEY-BLACKWELL.2011: S319-S319
- **Transplanted Stem Cell-Secreted VEGF Effects Post-Stroke Recovery, Inflammation, and Vascular Repair.** *Stem cells (Dayton, Ohio)*
Horie, N., Pereira, M. P., Niizuma, K., Sun, G., Keren-Gill, H., Encarnacion, A., Shamloo, M., Hamilton, S. A., Jiang, K., Huhn, S., Palmer, T. D., Bliss, T. M., Steinberg, et al
2011
- **Characterization of axon guidance cue sensitivity of human embryonic stem cell-derived dopaminergic neurons** *MOLECULAR AND CELLULAR NEUROSCIENCE*
Cord, B. J., Li, J., Works, M., McConnell, S. K., Palmer, T., Hynes, M. A.

2010; 45 (4): 324-334

- **Mitochondrial Protection Attenuates Inflammation-Induced Impairment of Neurogenesis In Vitro and In Vivo** *JOURNAL OF NEUROSCIENCE*
Voloboueva, L. A., Lee, S. W., Emery, J. F., Palmer, T. D., Giffard, R. G.
2010; 30 (37): 12242-12251
- **The Innate Immune Response Impairs Differentiation of Neural Progenitor Stem Cell Allografts** *10th American Transplant Congress*
Phillips, L., Gould, E., Palmer, T., Krams, S. S., Martinez, O. M.
WILEY-BLACKWELL.2010: 365-365
- **Murine Embryonic Stem Cell-Derived Pyramidal Neurons Integrate into the Cerebral Cortex and Appropriately Project Axons to Subcortical Targets** *JOURNAL OF NEUROSCIENCE*
Ideguchi, M., Palmer, T. D., Recht, L. D., Weimann, J. M.
2010; 30 (3): 894-904
- **FoxO3 Regulates Neural Stem Cell Homeostasis** *CELL STEM CELL*
Renault, V. M., Rafalski, V. A., Morgan, A. A., Salih, D. A., Brett, J. O., Webb, A. E., Villeda, S. A., Thekkat, P. U., Guillerey, C., Denko, N. C., Palmer, T. D., Bufta, A. J., Brunet, et al
2009; 5 (5): 527-539
- **Immune Influence on Adult Neural Stem Cell Regulation and Function** *NEURON*
Carpentier, P. A., Palmer, T. D.
2009; 64 (1): 79-92
- **A central role for the small GTPase Rac1 in hippocampal plasticity and spatial learning and memory** *MOLECULAR AND CELLULAR NEUROSCIENCE*
Haditsch, U., Leone, D. P., Farinelli, M., Chrostek-Grashoff, A., Brakebusch, C., Mansuy, I. M., McConnell, S. K., Palmer, T. D.
2009; 41 (4): 409-419
- **Therapeutic Homing of Neurosphere-Derived Multipotent Precursors After Intracarotid Delivery in Stroke is Dependent on the MCP-1/CCR2 Interaction.** *American-Association-International-Stroke Conference 2009*
Andres, R. H., Choi, R., Gaeta, X., Wang, N., Cote, J., Lee, S. W., Palmer, T. D., Guzman, R., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.2009: E171-E171
- **Functional Engraftment of the Medial Ganglionic Eminence Cells in Experimental Stroke Model** *CELL TRANSPLANTATION*
Daadi, M. M., Lee, S. H., Arac, A., Grueter, B. A., Bhatnagar, R., Maag, A., Schaar, B., Malenka, R. C., Palmer, T. D., Steinberg, G. K.
2009; 18 (7): 815-826
- **Endogenous Wnt Signaling Maintains Neural Progenitor Cell Potency** *STEM CELLS*
Wexler, E. M., Pauer, A., Kornblum, H. I., Plamer, T. D., Geschwind, D. H.
2009; 27 (5): 1130-1141
- **Wnt-mediated self-renewal of neural stem/progenitor cells** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kalani, M. Y., Cheshier, S. H., Cord, B. J., Bababegy, S. R., Vogel, H., Weissman, I. L., Palmer, T. D., Nusse, R.
2008; 105 (44): 16970-16975
- **Long-term transgene expression in mouse neural progenitor cells modified with phi C31 integrase** *JOURNAL OF NEUROSCIENCE METHODS*
Keravala, A., Ormerod, B. K., Palmer, T. D., Calos, M. P.
2008; 173 (2): 299-305
- **Neurogenesis and alterations of neural stem cells in mouse models of cerebral amyloidosis** *AMERICAN JOURNAL OF PATHOLOGY*
Ermini, F. V., Grathwohl, S., Radde, R., Yamaguchi, M., Staufenbiel, M., Palmer, T. D., Jucker, M.
2008; 172 (6): 1520-1528
- **Cellular repair of CNS disorders: an immunological perspective** *HUMAN MOLECULAR GENETICS*
Chen, Z., Palmer, T. D.
2008; 17: R84-R92
- **Neural progenitor cells transplanted into the uninjured brain undergo targeted migration after stroke onset** *JOURNAL OF NEUROSCIENCE RESEARCH*
Guzman, R., Bliss, T., Angeles, A. D., Moseley, M., Palmer, T., Steinberg, G.
2008; 86 (4): 873-882

- **Lithium regulates adult hippocampal progenitor development through canonical Wnt pathway activation** *MOLECULAR PSYCHIATRY*
Wexler, E. M., Geschwind, D. H., Palmer, T. D.
2008; 13 (3): 285-292
- **Neurodegeneration and cell replacement** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
Ormerod, B. K., Palmer, T. D., Caldwell, M. A.
2008; 363 (1489): 153-170
- **Impaired human hippocampal neurogenesis after treatment for central nervous system** *ANNALS OF NEUROLOGY*
Monje, M. L., Vogel, H., Masek, M., Ligon, K. L., Fisher, P. G., Palmer, T. D.
2007; 62 (5): 515-520
- **Long-term monitoring of transplanted human neural stem cells in developmental and pathological contexts with MRI** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Guzman, R., Uchida, N., Bliss, T. M., He, D., Christopherson, K. K., Stellwagen, D., Capela, A., Greve, J., Malenka, R. C., Moseley, M. E., Palmer, T. D., Steinberg, G. K.
2007; 104 (24): 10211-10216
- **Enriched Monolayer Precursor Cell Cultures from Micro-Dissected Adult Mouse Dentate Gyrus Yield Functional Granule Cell-Like Neurons** *PLOS ONE*
Babu, H., Cheung, G., Kettenmann, H., Palmer, T. D., Kempermann, G.
2007; 2 (4)
- **Chronically increased transforming growth factor-beta 1 strongly inhibits hippocampal neurogenesis in aged mice** *AMERICAN JOURNAL OF PATHOLOGY*
Buckwalter, M. S., Yamane, M., Coleman, B. S., Ormerod, B. K., Chin, J. T., Palmer, T., Wyss-Coray, T.
2006; 169 (1): 154-164
- **Transplantation of hNT neurons into the ischemic cortex: Cell survival and effect on sensorimotor behavior** *JOURNAL OF NEUROSCIENCE RESEARCH*
Bliss, T. M., Kelly, S., Shah, A. K., Foo, W. C., Kohli, P., Stokes, C., Sun, G. H., Ma, M., Masel, J., Kleppner, S. R., Schallert, T., Palmer, T., Steinberg, et al
2006; 83 (6): 1004-1014
- **Neural stem cells do not require CXCR4 for targeted migration toward an ischemic lesion** *31st International Stroke Conference*
Bliss, T., Guzman, R., Sun, G. H., Rausch, H., Zou, Y. R., Palmer, T., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.2006: 731-32
- **Exploring the regulation of human neural precursor cell differentiation using arrays of signaling microenvironments** *MOLECULAR SYSTEMS BIOLOGY*
Soen, Y., Mori, A., Palmer, T. D., Brown, P. O.
2006; 2
- **Neurogenesis in rats after focal cerebral ischemia is enhanced by indomethacin** *STROKE*
Hoehn, B. D., Palmer, T. D., Steinberg, G. K.
2005; 36 (12): 2718-2724
- **Sleep restriction suppresses neurogenesis induced by hippocampus-dependent learning** *JOURNAL OF NEUROPHYSIOLOGY*
Hairston, I. S., Little, M. T., Scanlon, M. D., Barakat, M. T., Palmer, T. D., Sapolsky, R. M., Heller, H. C.
2005; 94 (6): 4224-4233
- **Transplanted human fetal neural stem cells survive, migrate, and differentiate in ischemic rat cerebral cortex** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kelly, S., Bliss, T. M., Shah, A. K., Sun, G. H., Ma, M., Foo, W. C., Masel, J., Yenari, M. A., Weissman, I. L., Uchida, N., Palmer, T., Steinberg, G. K.
2004; 101 (32): 11839-11844
- **Neuroscience. Cellular interactions in the stem cell niche.** *Science*
Wurmser, A. E., Palmer, T. D., Gage, F. H.
2004; 304 (5675): 1253-1255
- **Excitation-neurogenesis coupling in adult neural stem/progenitor cells** *NEURON*
Deisseroth, K., Singla, S., Toda, H., Monje, M., Palmer, T. D., Malenka, R. C.
2004; 42 (4): 535-552

- **Novel neuronal phenotypes from neural progenitor cells** *JOURNAL OF NEUROSCIENCE*
Markakis, E. A., Palmer, T. D., Randolph-Moore, L., RAKIC, P., Gage, F. H.
2004; 24 (12): 2886-2897
- **Radiation response of neural precursor cells: Linking cellular sensitivity to cell cycle checkpoints, apoptosis and oxidative stress** *RADIATION RESEARCH*
Limoli, C. L., Giedzinski, E., Rola, R., Otsuka, S., Palmer, T. D., Fike, J. R.
2004; 161 (1): 17-27
- **Inflammatory blockade restores adult hippocampal neurogenesis** *SCIENCE*
Monje, M. L., Toda, H., Palmer, T. D.
2003; 302 (5651): 1760-1765
- **New roles for astrocytes: The nightlife of an 'astrocyte'. La vida loca!** *TRENDS IN NEUROSCIENCES*
Horner, P. J., Palmer, T. D.
2003; 26 (11): 597-603
- **VEGF is necessary for exercise-induced adult hippocampal neurogenesis** *EUROPEAN JOURNAL OF NEUROSCIENCE*
Fabel, K., Fabel, K., Tam, B., Kaufer, D., Baiker, A., Simmons, N., Kuo, C. J., Palmer, T. D.
2003; 18 (10): 2803-2812
- **Stem cell-derived neural stem/progenitor cell supporting factor is an autocrine/paracrine survival factor for adult neural stem/progenitor cells** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Toda, H., Tsuji, M., Nakano, I., Kobuke, K., Hayashi, T., Kasahara, H., Takahashi, J., Mizoguchi, A., Houtani, T., Sugimoto, T., Hashimoto, N., Palmer, T. D., Honjo, et al
2003; 278 (37): 35491-35500
- **IGF-I has a direct proliferative effect in adult hippocampal progenitor cells** *MOLECULAR AND CELLULAR NEUROSCIENCE*
Aberg, M. A., Aberg, N. D., Palmer, T. D., Alborn, A. M., Carlsson-Skewir, C., Bang, P., Rosengren, L. E., Olsson, T., Gage, F. H., Eriksson, P. S.
2003; 24 (1): 23-40
- **Extreme sensitivity of adult neurogenesis to low doses of X-irradiation** *CANCER RESEARCH*
Mizumatsu, S., Monje, M. L., Morhardt, D. R., Rola, R., Palmer, T. D., Fike, J. R.
2003; 63 (14): 4021-4027
- **Radiation injury and neurogenesis** *CURRENT OPINION IN NEUROLOGY*
Monje, M. L., Palmer, T.
2003; 16 (2): 129-134
- **Copernican stem cells: Regulatory constellations in adult hippocampal neurogenesis** *JOURNAL OF CELLULAR BIOCHEMISTRY*
Fabel, K., Toda, H., Fabel, K., Palmer, T.
2003; 88 (1): 41-50
- **Irradiation induces neural precursor-cell dysfunction** *NATURE MEDICINE*
Monje, M. L., Mizumatsu, S., Fike, J. R., Palmer, T. D.
2002; 8 (9): 955-962
- **Adult neurogenesis and the vascular Nietzsche** *NEURON*
Palmer, T. D.
2002; 34 (6): 856-858
- **Where, oh where, have my stem cells gone?** *TRENDS IN NEUROSCIENCES*
Wexler, E., Palmer, T.
2002; 25 (5): 225-227
- **Functional neurogenesis in the adult hippocampus** *NATURE*
van Praag, H., Schinder, A. F., Christie, B. R., Toni, N., Palmer, T. D., Gage, F. H.
2002; 415 (6875): 1030-1034
- **Expression of IL-17B in neurons and evaluation of its possible role in the chromosome 5q-linked form of Charcot-Marie-Tooth disease** *NEUROMUSCULAR DISORDERS*

- Moore, E. E., Presnell, S., Garrigues, U., Guilbot, A., LeGuern, E., Smith, D., Yao, L., Whitmore, T. E., Gilbert, T., Palmer, T. D., Horner, P. J., Kuestner, R. E. 2002; 12 (2): 141-150
- **Adult neurogenesis: a compensatory mechanism for neuronal damage** *EUROPEAN ARCHIVES OF PSYCHIATRY AND CLINICAL NEUROSCIENCE*
Kuhn, H. G., Palmer, T. D., Fuchs, E.
2001; 251 (4): 152-158
 - **Cell culture - Progenitor cells from human brain after death** *NATURE*
Palmer, T. D., Schwartz, P. H., Taupin, P., Kaspar, B., Stein, S. A., Gage, F. H.
2001; 411 (6833): 42-43
 - **Vascular niche for adult hippocampal neurogenesis** *JOURNAL OF COMPARATIVE NEUROLOGY*
Palmer, T. D., Willhoite, A. R., Gage, F. H.
2000; 425 (4): 479-494
 - **Proliferation and differentiation of progenitor cells throughout the intact adult rat spinal cord** *JOURNAL OF NEUROSCIENCE*
Horner, P. J., Power, A. E., Kempermann, G., Kuhn, H. G., Palmer, T. D., Winkler, J., Thal, L. J., Gage, F. H.
2000; 20 (6): 2218-2228
 - **The search for neural progenitor cells: prospects for the therapy of neurodegenerative disease** *MOLECULAR MEDICINE TODAY*
Shihabuddin, L. S., Palmer, T. D., Gage, F. H.
1999; 5 (11): 474-480
 - **Fibroblast growth factor-2 activates a latent neurogenic program in neural stem cells from diverse regions of the adult CNS** *JOURNAL OF NEUROSCIENCE*
Palmer, T. D., Markakis, E. A., Willhoite, A. R., Safar, F., Gage, F. H.
1999; 19 (19): 8487-8497
 - **Nurr1, an orphan nuclear receptor, is a transcriptional activator of endogenous tyrosine hydroxylase in neural progenitor cells derived from the adult brain** *DEVELOPMENT*
Sakurada, K., Ohshima-Sakurada, M., Palmer, T. D., Gage, F. H.
1999; 126 (18): 4017-4026
 - **Retinoic acid and neurotrophins collaborate to regulate neurogenesis in adult-derived neural stem cell cultures** *JOURNAL OF NEUROBIOLOGY*
Takahashi, J., Palmer, T. D., Gage, F. H.
1999; 38 (1): 65-81
 - **Widespread integration and survival of adult-derived neural progenitor cells in the developing optic retina** *MOLECULAR AND CELLULAR NEUROSCIENCE*
Takahashi, M., Palmer, T. D., Takahashi, J., Gage, F. H.
1998; 12 (6): 340-348
 - **Multipotent progenitor cells in the adult dentate gyrus** *JOURNAL OF NEUROBIOLOGY*
Gage, F. H., Kempermann, G., Palmer, T. D., Peterson, D. A., Ray, J.
1998; 36 (2): 249-266
 - **The adult rat hippocampus contains primordial neural stem cells** *MOLECULAR AND CELLULAR NEUROSCIENCE*
Palmer, T. D., Takahashi, J., Gage, F. H.
1997; 8 (6): 389-404
 - **Prolonged expression of therapeutic levels of human granulocyte colony-stimulating factor in rats following gene transfer to skeletal muscle** *HUMAN GENE THERAPY*
Bonham, L., Palmer, T., Miller, A. D.
1996; 7 (12): 1423-1429
 - **SURVIVAL AND DIFFERENTIATION OF ADULT NEURONAL PROGENITOR CELLS TRANSPLANTED TO THE ADULT BRAIN** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Gage, F. H., Coates, P. W., Palmer, T. D., Kuhn, H. G., FISHER, L. J., SUHONEN, J. O., Peterson, D. A., Suhr, S. T., Ray, J.
1995; 92 (25): 11879-11883

- **FGF-2-RESPONSIVE NEURONAL PROGENITORS RESIDE IN PROLIFERATIVE AND QUIESCENT REGIONS OF THE ADULT RODENT BRAIN** *MOLECULAR AND CELLULAR NEUROSCIENCE*
Palmer, T. D., Ray, J., Gage, F. H.
1995; 6 (5): 474-486
- **EFFICIENT EXPRESSION OF A PROTEIN-CODING GENE UNDER THE CONTROL OF AN RNA POLYMERASE-I PROMOTER** *NUCLEIC ACIDS RESEARCH*
Palmer, T. D., Miller, A. D., Reeder, R. H., McStay, B.
1993; 21 (15): 3451-3457
- **HIGH-LEVEL HUMAN ADENOSINE-DEAMINASE EXPRESSION IN DOG SKIN FIBROBLASTS IS NOT SUSTAINED FOLLOWING TRANSPLANTATION** *HUMAN GENE THERAPY*
Ramesh, N., Lau, S., Palmer, T. D., STORB, R., Osborne, W. R.
1993; 4 (1): 3-7
- **GENETICALLY MODIFIED SKIN FIBROBLASTS PERSIST LONG AFTER TRANSPLANTATION BUT GRADUALLY INACTIVATE INTRODUCED GENES** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Palmer, T. D., Rosman, G. J., Osborne, W. R., Miller, A. D.
1991; 88 (4): 1330-1334
- **Gene transfer as an approach to cure patients with hemophilia A or B.** *Current studies in hematology and blood transfusion*
Thompson, A. R., Palmer, T. D., Lynch, C. M., Miller, A. D.
1991: 59-62
- **GENE-TRANSFER AS AN APPROACH TO CURE PATIENTS WITH HEMOPHILIA-A OR HEMOPHILIA-B** *INTERNATIONAL SYM ON BIOTECHNOLOGY OF PLASMA PROTEINS (BIOTECH RIA90)*
Thompson, A. R., Palmer, T. D., Lynch, C. M., Miller, A. D.
KARGER.1991: 59-62
- **PRODUCTION OF HUMAN FACTOR-IX IN ANIMALS BY GENETICALLY MODIFIED SKIN FIBROBLASTS - POTENTIAL THERAPY FOR HEMOPHILIA-B** *BLOOD*
Palmer, T. D., Thompson, A. R., Miller, A. D.
1989; 73 (2): 438-445
- **EVIDENCE THAT THE PACKAGING SIGNAL OF MOLONEY MURINE LEUKEMIA-VIRUS EXTENDS INTO THE GAG REGION** *JOURNAL OF VIROLOGY*
Bender, M. A., Palmer, T. D., Gelinas, R. E., Miller, A. D.
1987; 61 (5): 1639-1646
- **EFFICIENT RETROVIRUS-MEDIATED TRANSFER AND EXPRESSION OF A HUMAN ADENOSINE-DEAMINASE GENE IN DIPLOID SKIN FIBROBLASTS FROM AN ADENOSINE DEAMINASE-DEFICIENT HUMAN** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Palmer, T. D., Hock, R. A., Osborne, W. R., Miller, A. D.
1987; 84 (4): 1055-1059
- **TRANSFER OF GENES INTO HUMAN SOMATIC-CELLS USING RETROVIRUS VECTORS** *COLD SPRING HARBOR SYMPOSIA ON QUANTITATIVE BIOLOGY*
Miller, A. D., Palmer, T. D., Hock, R. A.
1986; 51: 1013-1019