

Stanford



Marion S. Buckwalter, MD, PhD

Professor of Neurology and of Neurosurgery at the Stanford University Medical Center
Neurology & Neurological Sciences

CLINICAL OFFICES

- **Neurology and Neurological Sciences**

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Bio

CLINICAL FOCUS

- Neurology
- Neurologic Critical Care

ACADEMIC APPOINTMENTS

- Professor - Med Center Line, Neurology & Neurological Sciences
- Member, Neurology & Neurological Sciences
- Professor - Med Center Line, Neurosurgery
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

PROFESSIONAL EDUCATION

- Board Certification: Neurology, American Board of Psychiatry and Neurology (2011)
- Board Certification, United Council for Neurologic Subspecialties , Neurocritical care re-certification (2018)
- Internship: Univ of California San Francisco (1997) CA
- Fellowship: UCSF Medical Center (2002) CA
- Residency: UCSF Medical Center (2000) CA
- Board Certification, United Council for Neurologic Subspecialties , Neurocritical Care (2008)
- Medical Education: University of Michigan School of Medicine (1996) MI
- MD PhD, University of Michigan , Human Genetics (1996)
- Internship, UCSF , Medicine (1997)
- Residency, UCSF , Neurology (2000)
- Fellowship, UCSF , Neurological Critical Care (2002)

LINKS

- Buckwalter Lab Site: <http://med.stanford.edu/buckwalter-lab.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The goal of the Buckwalter Lab is to improve how people recover after a stroke. We use basic research to understand the cells, proteins, and genes that lead to successful recovery of function, and also how complications develop that impact quality of life after stroke. Ongoing projects are focused on understanding how inflammatory responses are regulated after a stroke and how to make recovery faster and better after stroke. With our collaborator Dr. Longo we have discovered a new drug that improves the speed and degree of recovery when mice are given the drug beginning three days after stroke. Developing it in animals to a point where it can be tried in people is a top priority. In terms of inflammation, we study how cells in the brain called astrocytes influence swelling and tissue cleanup after a stroke, and how similar cells in the lung influence stroke-induced immune insufficiency, which is a primary cause of pneumonias in stroke patients.

CLINICAL TRIALS

- Diagnostic Utility of MRI in Intracerebral Hemorrhage, Recruiting
- Clot Lysis: Evaluating Accelerated Resolution of Intraventricular Hemorrhage Phase III, Not Recruiting
- Computed Tomography Perfusion (CTP) to Predict Response to Recanalization in Ischemic Stroke Project (CRISP), Not Recruiting
- Efficacy and Safety Study of Desmoteplase to Treat Acute Ischemic Stroke (DIAS-4), Not Recruiting
- Efficacy and Safety Trial of Transcranial Laser Therapy Within 24 Hours From Stroke Onset (NEST-3), Not Recruiting
- Imaging Collaterals in Acute Stroke (iCAS), Not Recruiting

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Kendra Lechtenberg, Kristy Zera

Doctoral Dissertation Advisor (NonAC)

Tawaun Lucas

Doctoral Dissertation Co-Advisor (NonAC)

Victoria Hernandez

Doctoral Dissertation Reader (NonAC)

Eddy Albarran, Sarah Barnes, Kathy Heng, Brian Hsueh

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **Immune responses to stroke: mechanisms, modulation, and therapeutic potential.** *The Journal of clinical investigation*
Iadecola, C., Buckwalter, M. S., Anrather, J.
2020
- **Obesity Drives Delayed Infarct Expansion, Inflammation, and Distinct Gene Networks in a Mouse Stroke Model.** *Translational stroke research*

- Peterson, T. C., Lechtenberg, K. J., Piening, B. D., Lucas, T. A., Wei, E., Chaib, H., Dowdell, A. K., Snyder, M., Buckwalter, M. S.
2020
- **The Local and Peripheral Immune Responses to Stroke: Implications for Therapeutic Development.** *Neurotherapeutics : the journal of the American Society for Experimental NeuroTherapeutics*
Zera, K. A., Buckwalter, M. S.
2020
 - **Immunological mechanisms in poststroke dementia.** *Current opinion in neurology*
Doyle, K. P., Buckwalter, M. S.
2019
 - **Aged blood impairs hippocampal neural precursor activity and activates microglia via brain endothelial cell VCAM1** *NATURE MEDICINE*
Yousef, H., Czupalla, C. J., Lee, D., Chen, M. B., Burke, A. N., Zera, K. A., Zandstra, J., Berber, E., Lehallier, B., Mathur, V., Nair, R. V., Bonanno, L. N., Yang, et al
2019; 25 (6): 988-+
 - **A YEAR-LONG IMMUNE PROFILE OF THE SYSTEMIC RESPONSE IN ACUTE STROKE SURVIVORS**
Tsai, A., Berry, K., Beneyto, M. M., Gaudilliere, D., Ganio, E. A., Culos, A., Ghaemi, M. S., Choisy, B., Djebali, K., Einhaus, J. F., Bertrand, B., Tanada, A., Stanley, et al
LIPPINCOTT WILLIAMS & WILKINS.2019: 155
 - **Augmented beta2-adrenergic signaling dampens the neuroinflammatory response following ischemic stroke and increases stroke size.** *Journal of neuroinflammation*
Lechtenberg, K. J., Meyer, S. T., Doyle, J. B., Peterson, T. C., Buckwalter, M. S.
2019; 16 (1): 112
 - **Radiolabeling and pre-clinical evaluation of a first-in-class CD19 PET Tracer for imaging B cells in multiple sclerosis**
Stevens, M., Cropper, H., Jackson, I., Chaney, A., Lechtenberg, K., Buckwalter, M., James, M. L.
SOC NUCLEAR MEDICINE INC.2019
 - **A year-long immune profile of the systemic response in acute stroke survivors.** *Brain : a journal of neurology*
Tsai, A. S., Berry, K., Beneyto, M. M., Gaudilliere, D., Ganio, E. A., Culos, A., Ghaemi, M. S., Choisy, B., Djebali, K., Einhaus, J. F., Bertrand, B., Tanada, A., Stanley, et al
2019
 - **Deep Immune Profiling of the Post-Stroke Peripheral Immune Response Reveals Tri-phasic Response and Correlations With Long-Term Cognitive Outcomes**
Tsai, A. S., Berry, K., Beneyto, M. M., Gaudilliere, D., Ganio, E. A., Choisy, B., Djebali, K., Baca, Q., Quach, L., Drag, L., Lansberg, M. G., Angst, M. S., Gaudilliere, et al
LIPPINCOTT WILLIAMS & WILKINS.2019
 - **Feasibility and Utility of Home-Based Gait Analysis Using Body-Worn Sensors**
Huang, E., Sharp, M. T., Osborn, E., MacLellan, A., Mlynash, M., Kemp, S., Buckwalter, M. S., Lansberg, M. G.
LIPPINCOTT WILLIAMS & WILKINS.2019
 - **C-11-DPA-713 Versus F-18-GE-180: A Preclinical Comparison of Translocator Protein 18 kDa PET Tracers to Visualize Acute and Chronic Neuroinflammation in a Mouse Model of Ischemic Stroke** *JOURNAL OF NUCLEAR MEDICINE*
Chaney, A., Cropper, H. C., Johnson, E. M., Lechtenberg, K. J., Peterson, T. C., Stevens, M. Y., Buckwalter, M. S., James, M. L.
2019; 60 (1): 122-28
 - **Aged blood impairs hippocampal neural precursor activity and activates microglia via brain endothelial cell VCAM1.** *Nature medicine*
Yousef, H., Czupalla, C. J., Lee, D., Chen, M. B., Burke, A. N., Zera, K. A., Zandstra, J., Berber, E., Lehallier, B., Mathur, V., Nair, R. V., Bonanno, L. N., Yang, et al
2019
 - **11C-DPA-713 versus 18F-GE-180: A preclinical comparison of TSPO-PET tracers to visualize acute and chronic neuroinflammation in a mouse model of ischemic stroke.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
Chaney, A., Cropper, H. C., Johnson, E. M., Lechtenberg, K. J., Peterson, T. C., Stevens, M. Y., Buckwalter, M. S., James, M. L.
2018

- **Depression one year after hemorrhagic stroke is associated with late worsening of outcomes.** *NeuroRehabilitation*
Stern-Nezer, S., Eyngorn, I., Mlynash, M., Snider, R. W., Venkatsubramanian, C., Wijman, C. A., Buckwalter, M. S.
2017
- **Neurotoxic reactive astrocytes are induced by activated microglia.** *Nature*
Liddelow, S. A., Guttenplan, K. A., Clarke, L. E., Bennett, F. C., Bohlen, C. J., Schirmer, L., Bennett, M. L., Münch, A. E., Chung, W., Peterson, T. C., Wilton, D. K., Frouin, A., Napier, et al
2017; 541 (7638): 481-487
- **Imaging B cells in a mouse model of multiple sclerosis using (64)Cu-Rituximab-PET.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
James, M. L., Hoehne, A., Mayer, A. T., Lechtenberg, K., Moreno, M., Gowrishankar, G., Ilovich, O., Natarajan, A., Johnson, E. M., Nguyen, J., Quach, L., Han, M., Buckwalter, et al
2017
- **Astrocytes: Integrative Regulators of Neuroinflammation in Stroke and Other Neurological Diseases.** *Neurotherapeutics*
Cekanaviciute, E., Buckwalter, M. S.
2016; 13 (4): 685-701
- **Stroke, Inflammation and the Immune Response: Dawn of a New Era** *NEUROTHERAPEUTICS*
Becker, K. J., Buckwalter, M.
2016; 13 (4): 659-60
- **Does B lymphocyte-mediated autoimmunity contribute to post-stroke dementia?** *Brain, behavior, and immunity*
Doyle, K. P., Buckwalter, M. S.
2016
- **Antibodies to myelin basic protein are associated with cognitive decline after stroke.** *Journal of neuroimmunology*
Becker, K. J., Tanzi, P., Zierath, D., Buckwalter, M. S.
2016; 295-296: 9-11
- **Antibodies to myelin basic protein are associated with cognitive decline after stroke** *JOURNAL OF NEUROIMMUNOLOGY*
Becker, K. J., Tanzi, P., Zierath, D., Buckwalter, M. S.
2016; 295: 9-11
- **Glial Fibrillary Acidic Protein-Expressing Glia in the Mouse Lung** *ASN NEURO*
Suarez-Mier, G. B., Buckwalter, M. S.
2015; 7 (5)
- **Metronidazole-Induced Encephalopathy: Not Always a Reversible Situation** *NEUROCRITICAL CARE*
Hobbs, K., Stern-Nezer, S., Buckwalter, M. S., Fischbein, N., Caulfield, A. F.
2015; 22 (3): 429-436
- **Albumin induces excitatory synaptogenesis through astrocytic TGF-beta/ALK5 signaling in a model of acquired epilepsy following blood-brain barrier dysfunction** *NEUROBIOLOGY OF DISEASE*
Weissberg, I., Wood, L., Kaminsky, L., Vazquez, O., Milikovsky, D. Z., Alexander, A., Oppenheim, H., Ardizzone, C., Becker, A., Frigerio, F., Vezzani, A., Buckwalter, M. S., Huguenard, et al
2015; 78: 115-125
- **B-Lymphocyte-Mediated Delayed Cognitive Impairment following Stroke.** *journal of neuroscience*
Doyle, K. P., Quach, L. N., Solé, M., Axtell, R. C., Nguyen, T. V., Soler-Llavina, G. J., Jurado, S., Han, J., Steinman, L., Longo, F. M., Schneider, J. A., Malenka, R. C., Buckwalter, et al
2015; 35 (5): 2133-2145
- **Ferumoxytol administration does not alter infarct volume or the inflammatory response to stroke in mice.** *Neuroscience letters*
Doyle, K. P., Quach, L. N., Arceuil, H. E., Buckwalter, M. S.
2015; 584: 236-240
- **Astrocytic transforming growth factor-beta signaling reduces subacute neuroinflammation after stroke in mice.** *Glia*
Cekanaviciute, E., Fathali, N., Doyle, K. P., Williams, A. M., Han, J., Buckwalter, M. S.

2014; 62 (8): 1227-1240

- **Astrocytic TGF- β signaling limits inflammation and reduces neuronal damage during central nervous system Toxoplasma infection.** *Journal of immunology*
Cekanaviciute, E., Dietrich, H. K., Axtell, R. C., Williams, A. M., Egusquiza, R., Wai, K. M., Koshy, A. A., Buckwalter, M. S.
2014; 193 (1): 139-149
- **A mouse model of permanent focal ischemia: distal middle cerebral artery occlusion.** *Methods in molecular biology (Clifton, N.J.)*
Doyle, K. P., Buckwalter, M. S.
2014; 1135: 103-110
- **Chronic Over-Expression of TGF beta 1 Alters Hippocampal Structure and Causes Learning Deficits** *HIPPOCAMPUS*
Martinez-Canabal, A., Wheeler, A. L., Sarkis, D., Lerch, J. P., Lu, W., Buckwalter, M. S., Wyss-Coray, T., Josselyn, S. A., Frankland, P. W.
2013; 23 (12): 1198-1211
- **Suppression of Inflammation with Conditional Deletion of the Prostaglandin E-2 EP2 Receptor in Macrophages and Brain Microglia** *JOURNAL OF NEUROSCIENCE*
Johansson, J. U., Pradhan, S., Lokteva, L. A., Woodling, N. S., Ko, N., Brown, H. D., Wang, Q., Loh, C., Cekanaviciute, E., Buckwalter, M., Manning-Bog, A. B., Andreasson, K. I.
2013; 33 (40): 16016-16032
- **Serum Neuron-Specific Enolase Levels from the Same Patients Differ Between Laboratories: Assessment of a Prospective Post-cardiac Arrest Cohort.** *Neurocritical care*
Mlynash, M., Buckwalter, M. S., Okada, A., Caulfield, A. F., Venkatasubramanian, C., Eyngorn, I., Verbeek, M. M., Wijman, C. A.
2013; 19 (2): 161-166
- **A small molecule p75(NTR) ligand prevents cognitive deficits and neurite degeneration in an Alzheimer's mouse model.** *Neurobiology of aging*
Knowles, J. K., Simmons, D. A., Nguyen, T. V., Vander Griend, L., Xie, Y., Zhang, H., Yang, T., Pollak, J., Chang, T., Arancio, O., Buckwalter, M. S., Wyss-Coray, T., Massa, et al
2013; 34 (8): 2052-2063
- **Blood-brain barrier dysfunction-induced inflammatory signaling in brain pathology and epileptogenesis** *EPILEPSIA*
Kim, S. Y., Buckwalter, M., Soreq, H., Vezzani, A., Kaufer, D.
2012; 53: 37-44
- **Stratification substantially reduces behavioral variability in the hypoxic-ischemic stroke model.** *Brain and behavior*
Pollak, J., Doyle, K. P., Mamer, L., Shamloo, M., Buckwalter, M. S.
2012; 2 (5): 698-706
- **Stratification substantially reduces behavioral variability in the hypoxic-ischemic stroke model** *BRAIN AND BEHAVIOR*
Pollak, J., Doyle, K. P., Mamer, L., Shamloo, M., Buckwalter, M. S.
2012; 2 (5): 698-706
- **Delayed Administration of a Small Molecule Tropomyosin-Related Kinase B Ligand Promotes Recovery After Hypoxic-Ischemic Stroke** *STROKE*
Han, J., Pollak, J., Yang, T., Siddiqui, M. R., Doyle, K. P., Taravosh-Lahn, K., Cekanaviciute, E., Han, A., Goodman, J. Z., Jones, B., Jing, D., Massa, S. M., Longo, et al
2012; 43 (7): 1918-1924
- **The double-edged sword of inflammation after stroke: What sharpens each edge?** *ANNALS OF NEUROLOGY*
Doyle, K. P., Buckwalter, M. S.
2012; 71 (6): 729-731
- **Distal hypoxic stroke: A new mouse model of stroke with high throughput, low variability and a quantifiable functional deficit** *JOURNAL OF NEUROSCIENCE METHODS*
Doyle, K. P., Fathali, N., Siddiqui, M. R., Buckwalter, M. S.
2012; 207 (1): 31-40
- **A comparison of cooling techniques to treat cardiac arrest patients with hypothermia.** *Stroke research and treatment*
Finley Caulfield, A., Rachabattula, S., Eyngorn, I., Hamilton, S. A., Kalimuthu, R., Hsia, A. W., Lansberg, M. G., Venkatasubramanian, C., BAUMANN, J. J., Buckwalter, M. S., Kumar, M. A., Castle, J. S., Wijman, et al
2011; 2011: 690506-?

- **A Comparison of Cooling Techniques to Treat Cardiac Arrest Patients with Hypothermia** *STROKE RESEARCH AND TREATMENT*
Caulfield, A., Rachabattula, S., Eyingorn, I., Hamilton, S. A., Kalimuthu, R., Hsia, A. W., Lansberg, M. G., Venkatasubramanian, C., Baumann, J. J., Buckwalter, M. S., Kumar, M. A., Castle, J. S., Wijman, et al
2011
- **TGF beta signaling in the brain increases with aging and signals to astrocytes and innate immune cells in the weeks after stroke** *JOURNAL OF NEUROINFLAMMATION*
Doyle, K. P., Cekanaviciute, E., Mamer, L. E., Buckwalter, M. S.
2010; 7
- **Outcome prediction in mechanically ventilated neurologic patients by junior neurointensivists** *NEUROLOGY*
Caulfield, A. F., GABLER, L., Lansberg, M. G., Eyingorn, I., Mlynash, M., Buckwalter, M. S., Venkatasubramanian, C., Wijman, C. A.
2010; 74 (14): 1096-1101
- **Diagnostic Yield of CT Angiography in Addition to MRI/MRA in Spontaneous Intracerebral Hemorrhage**
Snider, R. W., Thai, D., Narayana, R. K., Mlynash, M., Caulfield, A., Venkatasubramanian, C., Buckwalter, M., Fischbein, N., Wijman, C. A.
LIPPINCOTT WILLIAMS & WILKINS.2010: E310
- **Diagnostic Accuracy of MRI in Spontaneous Intra-cerebral Hemorrhage (DASH): Initial Results** *International Stroke Conference*
Wijman, C. A., Snider, R. W., Venkatasubramanian, C., Caulfield, A. F., Buckwalter, M., Eyingorn, I., Fischbein, N., Gean, A., Schwartz, N., Lansberg, M., Mlynash, M., Kemp, S., Thai, et al
LIPPINCOTT WILLIAMS & WILKINS.2010: E210-E211
- **Accuracy of Serum NSE and S-100 Protein in Predicting Outcome After Cardiac Arrest**
Mlynash, M., Caulfield, A., Eyingorn, I., Buckwalter, M. S., Wijman, C. A.
LIPPINCOTT WILLIAMS & WILKINS.2010: E307
- **Prognostic Accuracy of Serum Neuron-Specific Enolase Levels in Comatose Post-Cardiac Arrest Patients**
Mlynash, M., Caulfield, A., Eyingorn, I., Buckwalter, M. S., Wijman, C. A.
LIPPINCOTT WILLIAMS & WILKINS.2009: E146-E147
- **A Mouse Model for Studying Functional Recovery from Stroke**
Pollak, J., Debsi, B., Mamer, L. E., Liu, S., Doyle, K. P., Jones, B., Shamloo, M., Buckwalter, M.
LIPPINCOTT WILLIAMS & WILKINS.2009: E214
- **TGF-beta Production And Signaling After Stroke.**
Doyle, K. P., Mamer, L. E., Buckwalter, M. S.
LIPPINCOTT WILLIAMS & WILKINS.2009: E174
- **Real-time Imaging of molecular signaling after stroke - Novel reporter mice for dissection of in vivo responses to TGF-beta** *33rd International Stroke Conference*
Buckwalter, M. S., Luo, J., Debsi, B., Wyss-Coray, T.
LIPPINCOTT WILLIAMS & WILKINS.2008: 659-59
- **Glia-dependent TGF-beta signaling, acting independently of the TH17 pathway, is critical for initiation of murine autoimmune encephalomyelitis** *JOURNAL OF CLINICAL INVESTIGATION*
Luo, J., Ho, P. P., Buckwalter, M. S., Hsu, T., Lee, L. Y., Zhang, H., Kim, D., Kim, S., Gambhir, S. S., Steinman, L., Wyss-Coray, T.
2007; 117 (11): 3306-3315
- **Immune Regulation of Regenerative Responses to Stroke: TGF-b1 and Neurogenesis**
Buckwalter, M. S., Yamane, M., Wyss-Coray, T.
WILEY-LISS.2007: 532
- **Increased T cell recruitment to the CNS after amyloid beta(1-42) immunization in Alzheimer's mice overproducing transforming growth factor-beta 1** *JOURNAL OF NEUROSCIENCE*
Buckwalter, M. S., Coleman, B. S., Buttini, M., Barbour, R., Schenk, D., Games, D., Seubert, P., Wyss-Coray, T.
2006; 26 (44): 11437-11441
- **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.

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- **Chronically increased brain TGF beta-1 leads to hippocampal microgliosis and decreased hippocampal neurogenesis in adult mice**
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- **Modelling neuroinflammatory phenotypes in vivo.** *Journal of neuroinflammation*
Buckwalter, M. S., Wyss-Coray, T.
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- **Modelling neuroinflammatory phenotypes in vivo** *JOURNAL OF NEUROINFLAMMATION*
Buckwalter, M. S., Wyss-Coray, T.
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- **Molecular and functional dissection of TGF-beta 1-induced cerebrovascular abnormalities in transgenic mice** *3rd World Congress on Vascular Factors in Alzheimers Disease*
Buckwalter, M., Pepper, J. P., Gaertner, R. F., Von Euw, D., Lacombe, P., Wyss-Coray, T.
NEW YORK ACAD SCIENCES.2002: 87-95
- **Construction of a 3-Mb contig and partial transcript map of the central region of mouse chromosome 11** *GENOMICS*
WATKINSCHOW, D. E., Douglas, K. R., Buckwalter, M. S., Probst, F. J., Camper, S. A.
1997; 45 (1): 147-157
- **Genetic mapping of 21 genes on mouse chromosome 11 reveals disruptions in linkage conservation with human chromosome 5** *GENOMICS*
WATKINSCHOW, D. E., Buckwalter, M. S., Newhouse, M. M., Lossie, A. C., Brinkmeier, M. L., Camper, S. A.
1997; 40 (1): 114-122
- **A FRAMESHIFT MUTATION IN THE MOUSE ALPHA(1) GLYCINE RECEPTOR GENE (GLRA1) RESULTS IN PROGRESSIVE NEUROLOGICAL SYMPTOMS AND JUVENILE DEATH** *HUMAN MOLECULAR GENETICS*
Buckwalter, M. S., Cook, S. A., Davisson, M. T., White, W. F., Camper, S. A.
1994; 3 (11): 2025-2030
- **A MISSENSE MUTATION IN THE GENE ENCODING THE ALPHA(1) SUBUNIT OF THE INHIBITORY GLYCINE RECEPTOR IN THE SPASMODIC MOUSE** *NATURE GENETICS*
Ryan, S. G., Buckwalter, M. S., LYNCH, J. W., Handford, C. A., Segura, L., Shiang, R., Wasmuth, J. J., Camper, S. A., Schofield, P., OCONNELL, P.
1994; 7 (2): 131-135
- **GENETIC-MAPPING AND EVALUATION OF CANDIDATE GENES FOR SPASMODIC, A NEUROLOGICAL MOUSE MUTATION WITH ABNORMAL STARTLE RESPONSE** *GENOMICS*
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1993; 17 (2): 279-286
- **LYSYL OXIDASE (LOX) MAPS BETWEEN GRL-1 AND ADRB-2 ON MOUSE CHROMOSOME-18** *MAMMALIAN GENOME*
Lossie, A. C., Buckwalter, M. S., Camper, S. A.
1993; 4 (3): 177-178
- **LOCALIZATION OF THE HUMAN CHROMOSOME-5Q GENES GABRA-1, GABRG-2, IL-4, IL-5, AND IRF-1 ON MOUSE CHROMOSOME-11** *MAMMALIAN GENOME*
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- **MOUSE CHROMOSOME-11** *6TH INTERNATIONAL WORKSHOP ON MOUSE GENOME MAPPING*
BUCHBERG, A. M., Buckwalter, M. S., Camper, S. A.
SPRINGER VERLAG.1992: S162-S181
- **LOCALIZATION OF THE PANHYPOPITUITARY DWARF MUTATION (DF) ON MOUSE CHROMOSOME-11 IN AN INTERSUBSPECIFIC BACKCROSS** *GENOMICS*
Buckwalter, M. S., Katz, R. W., Camper, S. A.
1991; 10 (3): 515-526
- **Mouse chromosome 11.** *Mammalian genome*

BUCHBERG, A. M., Moskow, J. J., Buckwalter, M. S., Camper, S. A.
1991; 1: S158-91

● **BACTERIOPHAGE-MU SITES REQUIRED FOR TRANSPOSITION IMMUNITY** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*

Darzens, A., KENT, N. E., Buckwalter, M. S., CASADABAN, M. J.
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