

Robert Mallet, PhD  
Physiology & Anatomy  
School of Biomedical Sciences  
Email: Robert.Mallet@unthsc.edu



## Area of Expertise

Dr. Robert Mallet's research focuses on developing treatments to protect the heart and brain from heart attack, stroke, and cardiac arrest. These three diseases, which result from interruptions in the blood flow to the heart and/or brain, are among the leading causes of death and disability in the United States. Dr. Mallet's team has discovered that breathing air containing reduced amounts of oxygen, for a few daily exposures lasting a few minutes each, causes adaptations in the heart and brain that make these organs much more resistant to interruptions in their blood flow. As a result, the damage to the heart and brain inflicted by temporary loss of blood flow is greatly decreased, enabling these vital organs to recover and resume their normal function.

Current work in the Mallet laboratory is studying the favorable changes in the brain's and heart's biochemical makeup which underlie the adaptations to low oxygen, so that these adaptations can be safely harnessed to help human patients survive and recover from strokes, heart attacks, and cardiac arrest.

## Qualifications

BS in Biology, Catholic University of America

PhD in Physiology, George Washington University

## Recent Publications

### Editorial: Climate Change in Mountainous Areas and Related Health Effects

Mallet, R. T., Burtscher, M. & Cogo, A., 14 Oct 2021, In: *Frontiers in Physiology*. 12, 768112.

### Conditioning the Brain: From Exercise to Hypoxia

Burtscher, J., Mallet, R. T., Burtscher, M. & Millet, G. P., 1 Oct 2021, In: *Exercise and sport sciences reviews*. 49, 4, p. 291-292 2 p.

### Intermittent Hypoxia Training Prevents Deficient Learning-Memory Behavior in Mice Modeling Alzheimer's Disease: A Pilot Study

Ryou, M. G., Chen, X., Cai, M., Wang, H., Jung, M. E., Metzger, D. B., Mallet, R. T. & Shi, X., 1 Jul 2021, In: *Frontiers in Aging Neuroscience*. 13, 674688.

### Hypoxia and brain aging: Neurodegeneration or neuroprotection?

Burtscher, J., Mallet, R. T., Burtscher, M. & Millet, G. P., Jul 2021, In: *Ageing Research Reviews*. 68, 101343.

### Store-operated calcium entry: Pivotal roles in renal physiology and pathophysiology

Chaudhari, S., Mallet, R. T., Shotorbani, P. Y., Tao, Y. & Ma, R., Feb 2021, In: *Experimental Biology and Medicine*. 246, 3, p. 305-316 12 p.

### Impact of high altitude on cardiovascular health: Current perspectives

Mallet, R. T., Burtscher, J., Richalet, J. P., Millet, G. P. & Burtscher, M., 2021, In: *Vascular Health and Risk Management*. 17, p. 317-335 19 p.

### Inhibition of interleukin-6 on matrix protein production by glomerular mesangial cells and the pathway involved

Chaudhari, S., Yazdizadeh Shotorbani, P., Tao, Y., Davis, M. E., Mallet, R. T. & Ma, R., 1 Jun 2020, In: *American journal of physiology. Renal physiology*. 318, 6, p. F1478-F1488

### Hypoxic-hyperoxic conditioning and dementia

Mallet, R. T., Burtscher, J., Manukhina, E. B., Downey, H. F., Glazachev, O. S., Serebrovskaya, T. V. & Burtscher, M., 1 Jan 2020, *Diagnosis and Management in Dementia: The Neuroscience of Dementia, Volume 1*. Elsevier, p. 745-760 16 p.

**Reduced cerebrovascular and cardioventilatory responses to intermittent hypoxia in elderly**

Liu, X., Chen, X., Kline, G., Ross, S. E., Hall, J. R., Ding, Y., Mallet, R. T. & Shi, X., Jan 2020, In: Respiratory Physiology and Neurobiology. 271, 103306.

**Intermittent Hypoxia Training for Treating Mild Cognitive Impairment: A Pilot Study**

Wang, H., Shi, X., Schenck, H., Hall, J. R., Ross, S. E., Kline, G. P., Chen, S., Mallet, R. T. & Chen, P., 2020, In: American journal of Alzheimer's disease and other dementias. 35

**Sponsored Projects**

**Anti-Inflammatory Effects of Pyruvate - Fortified Resuscitation in Pulmonary Tissue During Hypoxia with TCOM Student Charla Baker**

Mallet, R.

Intramural Research(UNTHSC)

1/09/13 → 31/12/14

**Cardioprotective Adaptation to Intermittent Hypoxia**

Mallet, R. & MALLEY, R. T.

National Center for Complementary and Integrative Health

1/05/07 → 30/04/09

**Cardioprotective Adaptation to Intermittent Hypoxia**

Mallet, R.

1/05/07 → 30/04/09

**Cardioprotective Mechanisms of Intermittent, Normobaric Hypoxia (For: Yang Jiang)**

Mallet, R. & Yurvati, A.

Intramural Research(UNTHSC)

1/06/16 → 31/05/17

**Cell Irradiation Services for Healthpoint Biotherapeutics**

Mallet, R.

Smith and Nephew

1/01/12 → 31/12/20

**ENERGETIC SUPPORT OF POST-ISCHEMIC CARDIAC PERFORMANCE**

Mallet, R.

National Heart, Lung, and Blood Institute

1/08/93 → 31/07/00

**ENERGETIC SUPPORT OF POST-ISCHEMIC CARDIAC PERFORMANCE**

Mallet, R.

1/08/93 → 31/07/00

**Impact of Cardiac Arrest and Resuscitation on Myocardial Structure and Protein Biochemistry**

Mallet, R.

Intramural Research(UNTHSC)

1/10/14 → 31/12/15

**Intermittent Hypoxia Induction of Nrf2 Gene Program in Rat Myocardium (For: Azaan Ramani)**

Mallet, R.

Intramural Research(UNTHSC)

1/03/16 → 28/02/17

**Intermittent Hypoxia Protects Brain from Ethanol Withdrawal: Mechanisms and Therapy**

Jung, E. & Mallet, R.

NIAAA: Alcohol Abuse and Alcoholism

5/03/10 → 28/02/14

**Intermittent Hypoxia: Salvaging Cerebral Function after Ischemic Stroke**

Mallet, R. & Jung, E.

Intramural Research(UNTHSC)

1/07/16 → 31/08/18

**Novel Split Chest Drain Improves Post Surgical Thoracic Drainage**

Yurvati, A. & Mallet, R.

Intramural Research(UNTHSC)

15/01/12 → 14/07/13

**Pyruvate-enhanced cardiopulmonary resuscitation**

Mallet, R. & MALLET, R. T.

National Heart, Lung, and Blood Institute

30/09/02 → 31/07/07

**Pyruvate-enhanced cardiopulmonary resuscitation**

Mallet, R.

30/09/02 → 31/07/04

**Pyruvate-enriched Resuscitation to Reduce Inflammation and Free Radical Production During Simulated Hemorrhage**

Rickards, C., Yurvati, A. & Mallet, R.

William & Ella Owens Med Research Foun

1/06/17 → 30/06/18

**Pyruvate: Powerful Brain Protection after Cardiac Arrest**

Mallet, R., MALLET, R. T. & MALLET, R. T.

National Institute of Neurological Disorders and Stroke

15/09/11 → 31/07/16

**Pyruvate: Powerful Brain Protection after Cardiac Arrest**

Mallet, R.

15/09/11 → 31/07/16

**Pyruvate: Powerful Brain Protection after Cardiac Arrest**

Mallet, R., Yurvati, A., Yurvati, A., Simecka, J. & Yang, S.

NINDS: Neurological Disorders & Stroke

1/08/11 → 31/07/16

**Pyruvate: Powerful Brain Protection after Cardiac Arrest (For: Dr. Gary Scott)**

Mallet, R. & Yang, S.

NINDS: Neurological Disorders & Stroke

1/02/13 → 31/07/16

**Renal inflammation triggered by inhaled particulate matter (For: Bryan McGee)**

Mallet, R.

Intramural Research(UNTHSC)

5/06/17 → 31/05/18

**SMALL INSTRUMENTATION GRANT**

Mallet, R.

National Heart, Lung, and Blood Institute

1/09/92 → 31/08/93

**SMALL INSTRUMENTATION GRANT**

Mallet, R.

1/09/92 → 31/08/93

**Texas Center of Minority Health, Education, Research and Outreach - Admin/Development Core**

Vishwanatha, J., Jones, H., He, J., Basha, R., Nandy, K., Mallet, R., Krishnamoorthy, R. & Simecka, J.

NIMHD: Natl Institute on Minority Health

23/09/17 → 31/05/22

**Texas Center of Minority Health, Education, Research and Outreach - Admin/Development Core**

Vishwanatha, J., Mallet, R., Krishnamoorthy, R., Jones, H., Fulda, K., He, J., Basha, R. & Nandy, K.

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23/09/17 → 31/05/22