

Stanford



William Clusin, MD

Associate Professor of Medicine (Cardiovascular Medicine)

Medicine - Cardiovascular Medicine

 Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Medicine - Cardiovascular Medicine
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Medical Director Adult ECG Laboratory, Stanford Medical Center, (2000-2012)
- Attending Cardiologist, Stanford Medical Center, (1981- present)
- Consultant Cardiologist, Palo Alto VA Medical Center, (1994- present)

HONORS AND AWARDS

- Member, American Society for Clinical Investigation (1987)
- Fellow, American Heart Association (2001)
- Fellow, American College of Physicians (1998)
- Associate Editor, Journal of Clinical Investigation (1988-1992)
- Member, NIH Cardiovascular Study Section (1988-1992)
- Overseas Fellow, Royal Society of Medicine (London) (2008)
- Lifetime Achievement Award, Marquis Who's Who (2018)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Cardiology Plus (2017 - present)
- Editorial Board, Heart Rhythm Case Reports (2014 - present)

PROFESSIONAL EDUCATION

- MD, PhD, Albert Einstein College of Med. , Medicine; Neuroscience (1976)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Cardiac action potentials; tissue culture, voltage, clamp technique; role of calcium in ischemia arrhythmias; coronary, artery disease; myocardial infarction.

Publications

PUBLICATIONS

- **Further studies of ion channels in the electroreceptor of the skate through deep sequencing, cloning and cross species comparisons.** *Gene*
Clusin, W. T., Wu, T., Shi, L., Kao, P. N.
2019; 143989
- **Confocal Microscopy of Skate Electroreceptors: Fluorescent Antibodies Used to Localize Cav1.3 and B-K Channels**
Clusin, W. T.
CELL PRESS.2018: 127A
- **Role of Calcium-activated Potassium Channels in the Heart** *Cardiology Plus*
Clusin, W. T.
2017; 2 (1): 29-45
- **Calcium activated K(+) channels in the electroreceptor of the skate confirmed by cloning. Details of subunits and splicing.** *Gene*
King, B. L., Shi, L. F., Kao, P., Clusin, W. T.
2016; 578 (1): 63-73
- **Further developments in the electrophysiology of induced stem cell-derived human cardiomyocytes** *Medical Research Archives*
Clusin, W. T.
2016; 4: 1-12
- **Restoring the resting potential brings maturity to induced stem cell-derived human cardiac myocytes.** *Heart rhythm*
Clusin, W. T.
2013; 10 (12): 1911-1912
- **Role of sodium/calcium exchange in heart failure-induced arrhythmias: A potential therapeutic target** *HEART RHYTHM*
Clusin, W. T.
2012; 9 (4): 579-580
- **Basic Concepts of Optical Mapping Techniques in Cardiac Electrophysiology** *BIOLOGICAL RESEARCH FOR NURSING*
Attin, M., Clusin, W. T.
2009; 11 (2): 195-207
- **Low-dose growth hormone is cardioprotective in uremia** *JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY*
Rabkin, R., Awwad, I., Chen, Y., Ashley, E. A., Sun, D., Sood, S., Clusin, W., Heidenreich, P., Piecha, G., Gross, M.
2008; 19 (9): 1774-1783
- **Mechanisms of calcium transient and action potential alternans in cardiac cells and tissues** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
Clusin, W. T.
2008; 294 (1): H1-H10
- **Calcium signalling during acute myocardial ischemia: New insights from optical mapping techniques** *17th World Congress of the International-Society-for-Heart-Research*
Clusin, W. T.
KLUWER ACADEMIC PUBLISHERS.2004: 239-255
- **Spatial heterogeneity of action potential alternans during global ischemia in the rabbit heart** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
Qian, Y. W., Sung, R. J., Lin, S. F., Province, R., Clusin, W. T.
2003; 285 (6): H2722-H2733
- **Calcium and cardiac arrhythmias: DADs, EADs, and alternans** *CRITICAL REVIEWS IN CLINICAL LABORATORY SCIENCES*
Clusin, W. T.
2003; 40 (3): 337-375
- **Spatial heterogeneity of calcium transient alternans during the early phase of myocardial ischemia in the blood-perfused rabbit heart** *CIRCULATION*

- Qian, Y. W., Clusin, W. T., Lin, S. F., Han, J., Sung, R. J.
2001; 104 (17): 2082-2087
- **Calcium channel blockers: current controversies and basic mechanisms of action.** *Advances in pharmacology (San Diego, Calif.)*
Clusin, W. T., Anderson, M. E.
1999; 46: 253-296
 - **Calcium transient alternans in blood-perfused ischemic hearts: observations with fluorescent indicator Fura Red** *AMERICAN JOURNAL OF PHYSIOLOGY-HEART AND CIRCULATORY PHYSIOLOGY*
Wu, Y. M., Clusin, W. T.
1997; 273 (5): H2161-H2169
 - **ENDOTHELIN ACTIVATES VOLTAGE-DEPENDENT CA²⁺ CURRENT BY A G-PROTEIN-DEPENDENT MECHANISM IN RABBIT CARDIAC MYOCYTES** *JOURNAL OF PHYSIOLOGY-LONDON*
Lauer, M. R., Gunn, M. D., Clusin, W. T.
1992; 448: 729-747
 - **EFFECTS OF ISCHEMIA AND HYPERCARBIC ACIDOSIS ON MYOCYTE CALCIUM TRANSIENTS, CONTRACTION, AND PHI IN PERFUSED RABBIT HEARTS** *CIRCULATION RESEARCH*
Mohabir, R., Lee, H. C., Kurz, R. W., Clusin, W. T.
1991; 69 (6): 1525-1537
 - **INVIVO ELECTROPHYSIOLOGICAL DETECTION OF MYOCARDIAL-ISCHEMIA THROUGH MONOPHASIC ACTION-POTENTIAL RECORDING** *PROGRESS IN CARDIOVASCULAR DISEASES*
Mohabir, R., Franz, M. R., Clusin, W. T.
1991; 34 (1): 15-28
 - **EFFECT OF PLATELET-RELEASE PRODUCTS ON CYTOSOLIC CALCIUM IN CARDIAC MYOCYTES** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Chien, W. W., Mohabir, R., Newman, D., Leung, L. L., Clusin, W. T.
1990; 170 (3): 1121-1127
 - **EFFECT OF THROMBIN ON CALCIUM HOMEOSTASIS IN CHICK EMBRYONIC HEART-CELLS - RECEPTOR-OPERATED CALCIUM ENTRY WITH INOSITOL TRISPHOSPHATE AND A PERTUSSIS TOXIN SENSITIVE G-PROTEIN AS 2ND-MESSENGERS** *JOURNAL OF CLINICAL INVESTIGATION*
Chien, W. W., Mohabir, R., Clusin, W. T.
1990; 85 (5): 1436-1443
 - **CELLULAR MECHANISM FOR ISCHEMIC VENTRICULAR ARRHYTHMIAS** *ANNUAL REVIEW OF MEDICINE*
Opie, L. H., Clusin, W. T.
1990; 41: 231-238
 - **EFFECTS OF THROMBIN ON CALCIUM-TRANSPORT IN CULTURED CARDIAC MYOCYTES**
Chien, W., Mohabir, R., Leung, L. L., Clusin, W. T.
ROCKEFELLER UNIV PRESS.1989: A11-A11
 - **USE-DEPENDENT BLOCK OF SINGLE SODIUM-CHANNELS BY LIDOCAINE IN GUINEA-PIG VENTRICULAR MYOCYTES** *BIOPHYSICAL JOURNAL*
McDonald, T. V., COURTNEY, K. R., Clusin, W. T.
1989; 55 (6): 1261-1266
 - **EFFECT OF BAY K8644 ON CYTOSOLIC CALCIUM TRANSIENTS AND CONTRACTION IN EMBRYONIC CARDIAC VENTRICULAR MYOCYTES** *PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY*
Lee, H. C., Clusin, W. T.
1989; 413 (3): 225-233
 - **EFFECTS OF CORONARY FLOW, PACING RATE, ISOPRENALINE AND DILTIAZEM ON ISCHEMIC VENTRICULAR ARRHYTHMIAS IN GUINEA-PIG HEARTS** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
Dennis, S. C., Coetzee, W. A., DEJONG, J. W., CLUSIN, W., Opie, L. H.
1989; 248 (1): 372-377

- **EFFECT OF ISCHEMIA ON CALCIUM-DEPENDENT FLUORESCENCE TRANSIENTS IN RABBIT HEARTS CONTAINING INDO-1 - CORRELATION WITH MONOPHASIC ACTION-POTENTIALS AND CONTRACTION** *CIRCULATION*
Lee, H. C., Mohabir, R., Smith, N., Franz, M. R., Clusin, W. T.
1988; 78 (4): 1047-1059
- **MECHANISM OF DEPOLARIZATION IN THE ISCHEMIC DOG HEART - DISCREPANCY BETWEEN T-Q POTENTIALS AND POTASSIUM ACCUMULATION** *JOURNAL OF PHYSIOLOGY-LONDON*
Blake, K., Clusin, W. T., Franz, M. R., Smith, N. A.
1988; 397: 307-330
- **CYTOSOLIC CALCIUM TRANSIENTS FROM THE INTACT MAMMALIAN HEART**
Lee, H. C., Mohabir, R., Clusin, W. T.
ELSEVIER SCI LTD.1988: A641-A641
- **What is the solution to sudden cardiac death: calcium modulation or arrhythmia clinics?** *Cardiovascular drugs and therapy*
Clusin, W. T.
1987; 1 (4): 335-342
- **CYTOSOLIC CALCIUM STAIRCASE IN CULTURED MYOCARDIAL-CELLS** *CIRCULATION RESEARCH*
Lee, H. C., Clusin, W. T.
1987; 61 (6): 934-939
- **CYTOSOLIC CALCIUM TRANSIENTS FROM THE BEATING MAMMALIAN HEART** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Lee, H. C., Smith, N., Mohabir, R., Clusin, W. T.
1987; 84 (21): 7793-7797
- **NA⁺/CA-2⁺ EXCHANGE IN CARDIAC MYOCYTES - EFFECT OF OUABAIN ON VOLTAGE DEPENDENCE** *BIOPHYSICAL JOURNAL*
Lee, H. C., Clusin, W. T.
1987; 51 (2): 169-176
- **RATE DEPENDENCE OF ISCHEMIC MYOCARDIAL DEPOLARIZATION - EVIDENCE FOR A NOVEL MEMBRANE CURRENT** *CARDIOVASCULAR RESEARCH*
Blake, K., Smith, N. A., Clusin, W. T.
1986; 20 (8): 557-562
- **PARADOXICAL ELECTROMECHANICAL EFFECT OF LANTHANUM IONS IN CARDIAC-MUSCLE CELLS** *BIOPHYSICAL JOURNAL*
Mead, R. H., Clusin, W. T.
1985; 48 (5): 695-700
- **DO CAFFEINE AND METABOLIC-INHIBITORS INCREASE FREE CALCIUM IN THE HEART - INTERPRETATION OF CONFLICTING INTRACELLULAR CALCIUM MEASUREMENTS** *JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY*
Clusin, W. T.
1985; 17 (3): 213-220
- **REDUCTION OF ISCHEMIC DEPOLARIZATION BY THE CALCIUM-CHANNEL BLOCKER DILTIAZEM - CORRELATION WITH IMPROVEMENT OF VENTRICULAR CONDUCTION AND EARLY ARRHYTHMIAS IN THE DOG** *CIRCULATION RESEARCH*
Clusin, W. T., Buchbinder, M., Ellis, A. K., Kernoff, R. S., Giacomini, J. C., HARRISON, D. C.
1984; 54 (1): 10-20
- **ORIGIN OF THE BACKGROUND SODIUM CURRENT AND EFFECTS OF SODIUM REMOVAL IN CULTURED EMBRYONIC CARDIAC-CELLS** *CIRCULATION RESEARCH*
Mead, R. H., Clusin, W. T.
1984; 55 (1): 67-77
- **NEW HORIZONS IN ANTI-ARRHYTHMIC THERAPY** *JOURNAL OF CARDIOVASCULAR MEDICINE*
Gillis, A. M., Clusin, W. T., Mason, J. W.
1983; 8 (9): 959-964
- **CAFFEINE INDUCES A TRANSIENT INWARD CURRENT IN CULTURED CARDIAC-CELLS** *NATURE*
Clusin, W. T.

1983; 301 (5897): 248-250

- **MECHANISM BY WHICH METABOLIC-INHIBITORS DEPOLARIZE CULTURED CARDIAC-CELLS** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA-BIOLOGICAL SCIENCES*
Clusin, W. T.
1983; 80 (12): 3865-3869
- **PROGRAMMED VENTRICULAR STIMULATION IN PREDICTING VULNERABILITY TO VENTRICULAR ARRHYTHMIAS AND THEIR RESPONSE TO ANTIARRHYTHMIC THERAPY** *AMERICAN HEART JOURNAL*
Mason, J. W., Swerdlow, C. D., WINKLE, R. A., Griffin, J. C., Ross, D. L., Keefe, D. L., Clusin, W. T.
1982; 103 (4): 633-639
- **THE EFFECTS OF DILTIAZEM AND REDUCED SERUM IONIZED CALCIUM ON ISCHEMIC VENTRICULAR-FIBRILLATION IN THE DOG** *CIRCULATION RESEARCH*
Clusin, W. T., Bristow, M. R., Baim, D. S., Schroeder, J. S., Jaillon, P., Brett, P., HARRISON, D. C.
1982; 50 (4): 518-526
- **PROLONGATION OF THE HUMAN CARDIAC MONOPHASIC ACTION-POTENTIAL BY SOTALOL** *AMERICAN JOURNAL OF CARDIOLOGY*
ECHT, D. S., BERTE, L. E., Clusin, W. T., SAMUELSSON, R. G., HARRISON, D. C., Mason, J. W.
1982; 50 (5): 1082-1086
- **DO CALCIUM-DEPENDENT IONIC CURRENTS MEDIATE ISCHEMIC VENTRICULAR-FIBRILLATION** *AMERICAN JOURNAL OF CARDIOLOGY*
Clusin, W. T., Bristow, M. R., Karagueuzian, H. S., KATZUNG, B. G., Schroeder, J. S.
1982; 49 (3): 606-612
- **THE MECHANICAL-ACTIVITY OF CHICK EMBRYONIC MYOCARDIAL-CELL AGGREGATES** *JOURNAL OF PHYSIOLOGY-LONDON*
Clusin, W. T.
1981; 320 (NOV): 149-174
- **CORRELATION BETWEEN RELAXATION AND AUTOMATICITY IN EMBRYONIC HEART CELL AGGREGATES** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA-BIOLOGICAL SCIENCES*
Clusin, W. T.
1980; 77 (1): 679-683
- **OSCILLATORY RESPONSES OF SKATE ELECTRORECEPTORS TO SMALL VOLTAGE STIMULI** *JOURNAL OF GENERAL PHYSIOLOGY*
Clusin, W. T., Bennett, M. V.
1979; 73 (6): 685-702
- **IONIC BASIS OF OSCILLATORY RESPONSES OF SKATE ELECTRORECEPTORS** *JOURNAL OF GENERAL PHYSIOLOGY*
Clusin, W. T., Bennett, M. V.
1979; 73 (6): 703-723
- **Calcium activated conductance in skate electroreceptors: Current clamp experiments** *Journal of General Physiology*
Clusin, W. T., Bennett, M. V.
1977; 69: 121-143
- **Calcium-activated conductance in skate electroreceptors: Voltage clamp experiments** *Journal of General Physiology*
Clusin, W. T., Bennett, M. V.
1977; 69: 144-182
- **Activation of a voltage insensitive conductance by inward calcium current** *Nature*
Clusin, W., Spray, D. C., Bennett, M. V.
1975; 256: 425-527
- **A numerical approach to matching amplification for the spectral analysis of recorded EEG.** *Electrophysiology and Clinical Neurophysiology*
Clusin, W. T., Guiannitrapani, D., Roccaforte, P.
1970; 28: 639-641