

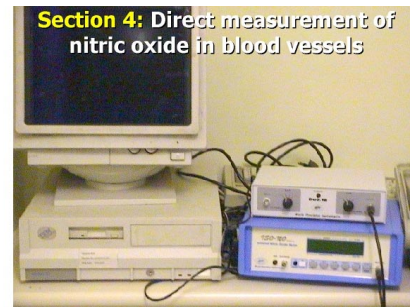
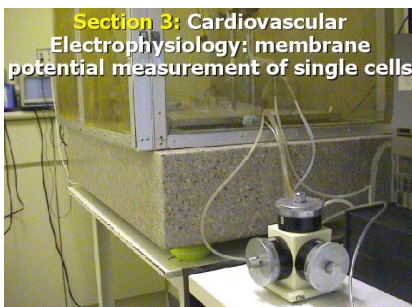
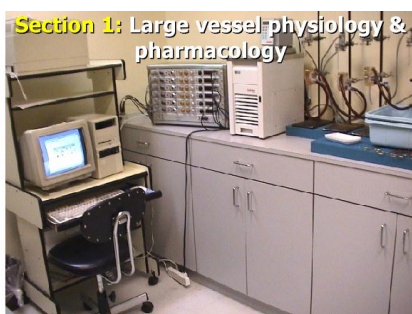
**Cardiovascular Surgical Research Laboratory**  
**Division of Cardiothoracic Surgery,**  
**Department of Surgery, The Chinese University of Hong Kong**

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The Cardiovascular Surgical Research Laboratory is newly established, based on the previous work supported by Hong Kong RGC grants, led by Professor Guo-Wei He, MD, PhD.

**Director : Professor Guo-Wei He**  
**Co-Director : Professor Anthony P.C. Yim**  
**Team : Research Assistants**  
**Postdoctoral**  
**Ph.D. Students**  
**M. Phil. Students**

The Laboratory has well-established four sections to investigate cardiothoracic surgery-related basic sciences.



The Laboratory is well-known in the following research areas:

- 1). Biological characteristics of coronary artery bypass grafts; and
- 2). Dysfunction and protection of coronary circulation during open heart surgery.

In the past decade, the Laboratory has published more than 250 publications. The following are the representative research papers published.

**Representative Papers:**

- Zhi-Gang Liu, Zhi-Dong Ge and Guo-Wei He: Difference in hyperpolarization between human internal mammary artery and saphenous vein. *Circulation* 2000; (in press). (Impact Factor: 9.762).
- Zhi-Dong Ge and Guo-Wei He. Comparison of University of Wisconsin an St. Thomas' Hospital solution on EDHF-mediated function in coronary micro-arteries. *Transplantation* 2000 (in press). (Impact Factor: 3.522).
- Guo-Wei He & Cheng-Qin Yang: Effect of PDE inhibitor milrinone on the human radial artery. *The Journal of Thoracic and Cardiovascular Surgery* 2000 (in press) (Impact Factor: 3.068).

- Zhi-Dong Ge, Xiao-Hui Zhang, Peter Fung, and Guo-Wei He. Endothelium-dependent hyperpolarization and relaxation resistant to NG-nitro-L-arginine and indomethacin in coronary circulation. *Cardiovascular Research* 2000 (in press). (Impact Factor: 3.0).
- Guo-Wei He & Cheng-Qin Yang: Comparative study on calcium channel antagonists in the human radial artery: clinical implications. *The Journal of Thoracic and Cardiovascular Surgery* 2000;119:94-100 (Impact Factor: 3.068).
- Zhi-Dong Ge & Guo-Wei He: Altered EDHF-mediated endothelial function in coronary micro-arteries by St. Thomas' Hospital solution. *The Journal of Thoracic and Cardiovascular Surgery* 1999;118:173-80. (Impact Factor: 3.068).
- Guo-Wei He, Cheng-Qin Yang: Impaired endothelium-derived hyperpolarizing factor-mediated relaxation in coronary arteries by cold storage with University of Wisconsin solution. *The Journal of Thoracic and Cardiovascular Surgery* 1998;116:122-30. (Impact Factor: 3.068).
- Guo-Wei He, Cheng-Qin Yang: Characteristics of adrenoceptors in the human radial artery. Clinical implications *The Journal of Thoracic and Cardiovascular Surgery* 1998;115:1136-41. (Impact Factor: 3.068).
- Guo-Wei He: Verapamil plus nitroglycerin solution maximally preserves endothelial function of the radial artery: comparison with papaverine solution.. *The Journal of Thoracic and Cardiovascular Surgery* 1998;115:1321-7. (Impact Factor: 3.068).
- Guo-Wei He, and Cheng-Qin Yang: Superiority of hyperpolarizing to depolarizing cardioplegia on the EDHF-mediated relaxation. *The Journal of Thoracic and Cardiovascular Surgery* 1997;114:643-650. (Impact Factor: 3.068).
- Guo-Wei He, Cheng-Qin Yang, Jian-An Yang: Depolarizing cardiac arrest and EDHF-mediated hyperpolarization and relaxation in coronary arteries: The effect and mechanism. *The Journal of Thoracic and Cardiovascular Surgery* 1997;113:932-41. (Impact Factor: 3.068).
- Guo-Wei He: Hyperkalemia-exposure impairs EDHF-mediated endothelial function in the human coronary artery. *The Annals of Thoracic Surgery* 1997;63:84-7. (Impact Factor: 2.053).
- Jian-An Yang & Guo-Wei He: Surgical preparation abolishes the effect of endothelium-derived hyperpolarizing factor in the human saphenous vein. *The Annals of Thoracic Surgery* 1997;63:429-33. (Impact Factor: 2.053).
- Guo-Wei He, Cheng-Qin Yang, Wolfgang F. Graier, Jian-An Yang: Hyperkalemia alters EDHF-mediated hyperpolarization and relaxation in coronary arteries. *American Journal of Physiology* 1996;271 (Heart Circ. Physiol. 40):H760-H767. (Impact Factor: 3.323).
- Guo-Wei He & Cheng-Qin Yang: Comparison among arterial grafts and coronary artery. An attempt at functional classification. *The Journal of Thoracic and Cardiovascular Surgery* 1995;109:707-15. (Impact Factor: 3.068).
- Guo-Wei He, Tea E. Acuff, Cheng-Qin Yang, William H. Ryan, and Michael J. Mack: Comparative study of the human inferior epigastric artery and internal mammary artery: Similarities and differences. *The Journal of Thoracic and Cardiovascular Surgery* 1995;109:13-20. (Impact Factor: 3.068).
- Guo-Wei He, Cheng-Qin Yang, Albert Starr: An overview of the nature of vasoconstriction in arterial grafts for coronary surgery. *The Annals of Thoracic Surgery* 1995;59:676-683. (Impact Factor: 2.053).
- Guo-Wei He, Cheng-Qin Yang, I.M.Rebeyka, G. Wilson: Effect of neonatal endothelium and smooth muscle to hyperkalemic cardioplegic solutions. *The Journal of Heart and Lung Transplantation* 1995;14:92-101. (Impact Factor: 2.652).
- Guo-Wei He, Tea E. Acuff, Cheng-Qin Yang, William H. Ryan, and Michael J. Mack: The mid and the proximal sections of the human internal mammary artery are not "passive conduit". *The Journal of Thoracic and Cardiovascular Surgery* 1994;108:741-746. (Impact Factor: 2.61).
- Guo-Wei He, F.L. Rosenfeldt, J.A. Angus and B.F. Buxton: Pharmacological dilatation of internal mammary artery during surgery. *The Journal of Thoracic and Cardiovascular Surgery* 1994;107:1440-4. (Impact Factor: 2.61).
- Guo-Wei He, Cheng-Qin Yang, G.J.Wilson, I.M.Rebeyka: Tolerance of coronary endothelium and smooth muscle to hyperkalemia. *The Annals of Thoracic Surgery* 1994;57:682-8. (Impact Factor: 2.053).
- Guo-Wei He: Contractility of the human internal mammary artery at the distal section increases towards the end. Emphasis on not using the end of the artery for grafting. *The Journal of Thoracic and Cardiovascular Surgery* 1993;106:406-11. (Impact Factor: 2.61).

- Guo-Wei He, J.Shaw, Cheng-Qin Yang, C.F.Hughes, D.S.Thomson, B.McCaughan, P.N.Hendle, D.K.Baird: Inhibitory effects of glyceryl trinitrate on  $\alpha$ -adrenoceptor mediated contraction in the human internal mammary artery. *British Journal of Clinical Pharmacology* 1992;34:236-43. (Impact Factor: 2.214).
- Guo-Wei He, B.F.Buxton, F.L.Rosenfeldt and J.A.Angus. Reactivity of human isolated internal mammary artery to constrictor and dilator agents. Implications for treatment of internal mammary artery spasm. *Circulation* 1989;80(Suppl I):I-141-150. (Impact Factor: 9.762).
- Guo-Wei He, B.Buxton, F.L.Rosenfeldt, A.C.Wilson and J.A.Angus: Weak  $\beta$ -adrenoceptor mediated relaxation in human internal mammary artery. *The Journal of Thoracic and Cardiovascular Surgery* 1989;97: 259-66. (Impact Factor: 2.61).

#### **Most recent reports:**

- Ming-Hui Liu, Zhen Ren, Anthony Furnary & Guo-Wei He. Inhibition of Vasoconstriction by a Nonpeptide Angiotensin Receptor AT1 Antagonist GR117289C in Human Coronary Conduit Arteries. *FASEB Journal* 2000 (in press) (Impact Factor: 14.629).
- Zhi-Gang Liu and Guo-Wei He. Nitric oxide (NO) release and endothelium-derived hyperpolarizing factor (EDHF)-mediated hyperpolarization in human coronary artery after exposure to university of Wisconsin solution (UWS). *FASEB Journal* 2000 (in press) (Impact Factor: 14.629).
- Zhen Ren, Minghui Liu, Guo-Wei He: ATP-sensitive potassium channel openers mimic the effects of hypoxic preconditioning on the coronary artery. *FASEB Journal* 2000 (in press) (Impact Factor: 14.629).
- Guo-Wei He & Ming-Hui Liu: Inhibition of Vasoconstriction by AJ-2615, a Novel Calcium Antagonist with  $\alpha$ 1-Adrenergic Blocking Activity in Human Conduit Arteries Used as Bypass Grafts. *FASEB Journal* 2000 (in press) (Impact Factor: 14.629).

#### **Current Research Directions:**

- ❖ Endothelium-smooth muscle interaction in coronary and pulmonary circulation
- ❖ Electrophysiological properties in the coronary artery during cardioplegic arrest for open heart surgery
- ❖ Interaction of nitric oxide and other factors during open heart surgery
- ❖ Functional studies of receptors in coronary artery bypass grafts and surgical implications
- ❖ Interaction between coronary circulation and cardiac myocytes during open heart surgery
- ❖ Preservation of donor hearts and lungs for transplantation

#### **Current Support:**

- ❖ Hong Kong Research Grants Council
  - RGC CUHK7280/97M
  - RGC CUHK7246/99M
- ❖ Current Collaboration in U.S.A.:
  - St. Vincent Medical Foundation, OR, U.S.A.