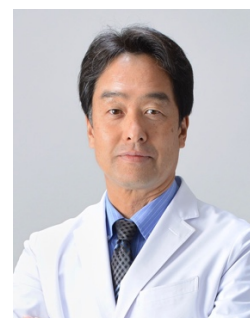


## Thoracic Surgery

Principal Investigator Yukio Sato

E-mail.address ysato@mdd.tsukuba.ac.jp



### Other Faculty Members

Professor Hideo Ichimura: ichimura@tmch.or.jp

Associate Professor Yukinobu Goto: ygoto@mdd.tsukuba.ac.jp

Associate Professor Shiji Kikuchi: S.kikuchi@md.tsukuba.ac.jp

Associate Professor Naohiro Kobayashi: naohiro.kobayashi@md.tsukuba.ac.jp

### Major Scientific Interests of the Group

Lung cancer has become a major cause of death in most of countries. Surgical resection is the most effective for the treatment of lung cancer. Minimal invasive video assisted thoracic surgery (VATS) lobectomy appears to be a safe and effective procedure for treatment of lung cancer. We are making progress not only in reducing surgical stress but also in improving the quality of surgery by developing original devises and techniques. We are focusing also on the multimodal treatment of lung cancer, surgical simulation and estimation of postoperative lung regeneration and function using 3D-CT, development of novel sealant material for surgery, mechanism of invasion of lung cancer, and the mechanism of acute lung injury.

### Projects for Regular Students in Doctoral or Master's Programs

- 1) Surgical simulation and estimation of postoperative lung regeneration and function using 3D-CT
- 2) Development of novel sealant material for surgery
- 3) Mechanism of invasion of lung cancer
- 4) Mechanism of acute lung injury

### Study Programs for Short Stay Students (one week – one trimester)

- 1) Surgical simulation and estimation of postoperative lung regeneration and function using 3D-CT
- 2) Mechanism of acute lung injury

### Selected Publications

- 1) Yamaoka M, Maki N, Wijesinghe A, Sato S, Yanagihara T, Kobayashi N, Kikuchi S, Goto Y, Taguchi T, Sato Y. Novel Alaska Pollock Gelatin Sealant Shows High Adhesive Quality and Conformability. *TheAnnals of thoracic surgery*. Epub.2019.01. DOI: 10.1016/j.athoracsur.2018.11.074
- 2) Goto Y, Hiramatsu Y, Ageyama N, Sato S, Mathis B J, Kitazawa S, Matsubara M, Sakamoto H, Sato Y. Rolipram plus Sivelestat inhibits bone marrow-derived leukocytic lung recruitment after cardiopulmonary bypass in a primate model. *Journal of artificial organs : the official journal of the Japanese Society for Artificial Organs*. 22(1).44-52.2018.10. DOI: 10.1007/s10047-018-1071-0
- 3) Kobayashi N, Kobayashi K, Kikuchi S, Goto Y, Ichimura H, Endo K, Sato Y. Long-term pulmonary function after surgery for lung cancer. *Interactive CardioVascular and Thoracic Surgery*. 24(5). 727-732. 2017.05 DOI: 10.1093/icvts/ivw414

- 4) Kobayashi K, Saeki Y, Kitazawa S, Kobayashi N, Kikuchi S, Goto S, Sakai M, Sato Y. Three-dimensional computed tomographic volumetry precisely predicts the postoperative pulmonary function. *Surg Today*. 47(11). 1301-1311. 2017.04. DOI: 10.1007/s00595-017-1505-y
- 5) Maki N, Takahashi H, Nakata T, Wakayama S, Hasegawa D, Sakamoto H, Fujita Y, Takata Y, Sukada T, Sato Y, Yanagi H. The effect of respiratory rehabilitation for the frail elderly: a pilot study. *Journal of General and Family Medicine*. 17(4). 289-298. 2016.12
- 6) Goto Y, Hiramatsu Y, Ageyama N, Sato S, Kanemoto S, Sato Y, Sakakibara Y. Cardiopulmonary bypass induces recruitment of bone marrow-derived leukocytes to the lungs in monkeys. *Ann Thorac Surg*. 97(2). 617-622. 2014.02. DOI: 10.1016/j.athoracsur.2013.10.072
- 7) Usui S, Minami Y, Siosawa T, Iyama S, Satomi K, Sakashita S, Sato Y, Noguchi M. Differences in the prognostic implications of vascular invasion between lung adenocarcinoma and squamous cell carcinoma. *Lung Cancer*. 82(3). 407-412. 2013.12. DOI: 10.1016/j.lungcan.2013.09.001
- 8) Kikuchi S, Iwai M, Sakurai-Yageta M, Tsuboi Y, Ito T, Maruyama T, Tsuda H, Kanai Y, Onizuka M, Sato Y, Murakami Y. Expression of a splicing variant of the CADM1 specific to small cell lung cancer. *Cancer Science*. 103(6). 1051-1057. 2012.06. DOI: 10.1111/j.1349-7006.2012.02277.x
- 9) Kobayashi N, Usui S, Kikuchi S, Goto Y, Sakai M, Onizuka M, Sato Y. Preoperative lymphocyte count is an independent prognostic factor in node-negative non-small cell lung cancer. *Lung Cancer*. 75(2). 223-227. 2012.02. DOI: 10.1016/j.lungcan.2011.06.009
- 10) Sato Y, Tezuka Y, Kanai Y, Otani S, Yamamoto S, Tetsuka K, Sohara Y. Novel retractor for lymph node dissection by video-assisted thoracic surgery. *Ann Thorac Surg*. 86(3). 1036-37. 2008.09. DOI: 10.1016/j.athoracsur.2008.04.002
- 11) Sato Y, Hiramatsu Y, Homma S, Sato M, Sato S, Endo S, Sohara Y. Phosphodiesterase type 4 inhibitor rolipram inhibits activation of monocytes during extracorporeal circulation. *J Thorac Cardiovasc Surg*. 130(2). 346-350. 2005.08. DOI: 10.1016/j.jtcvs.2004.12.028
- 12) Sakai M, Sato Y, Sato S, Ihara S, Onizuka M, Sakakibara Y, Takahashi H. Effect of relocating to areas of reduced atmospheric particulate matter levels on the human circulating leukocyte count. *J Appl Physiol*. 97(5). 1774-80. 2004.11. DOI: 10.1152/jappphysiol.00024.2004
- 13) Sato Y, Hiramatsu Y, Homma S, Sato S, Onizuka M, Sakakibara Y. Phosphodiesterase type 4 inhibition of activated polymorphonuclear leukocytes in a simulated extracorporeal circulation model. *J Thorac Cardiovasc Surg*. 125(1). 172-177. 2003.01. DOI: 10.1067/mtc.2003.98
- 14) Sato Y, Goto Y, Sato S, Endo S, Sohara Y. Continuous subcutaneous injection reduces polymorphonuclear leukocyte activation by granulocyte colony-stimulating factor. *Am J Physiol Lung Cell Mol Physiol*. 286(1). L143-148. 2004.01. DOI: 10.1152/ajplung.00248.2003
- 15) Sato Y. Modulation of PMN-endothelial cells interactions by cyclic nucleotides. *Curr Pharm Des* 10(2). 163-170. 2004.01
- 16) Sato Y, Sato S, Yamamoto T, Ishikawa S, Onizuka M, Sakakibara Y. Phosphodiesterase type 4 inhibitor reduces the retention of polymorphonuclear leukocytes in the lung. *Am J Physiol Lung Cell Mol Physiol*. 282(6). L1376-81. 2002.01. DOI: 10.1152/ajplung.00433.2001
- 17) Sato Y, Hogg JC, English D, van Eeden SF. Endothelin-1 changes polymorphonuclear leukocytes' deformability and CD11b expression and promotes their retention in the lung. *Am J Respir Cell Mol Biol*. 23(3). 404-410. 2000.09. DOI: 10.1165/ajrcmb.23.3.4057
- 18) Sato Y, Walley KR, Klut ME, English D, D'yachkova Y, Hogg JC, van Eeden SF. Nitric oxide reduces the sequestration of polymorphonuclear leukocytes in lung by changing deformability and CD18 expression. *Am J Respir Crit Care Med*. 159(5 Pt 1) 1469-76. 1999.05. DOI: 10.1164/ajrccm.159.5.9808063
- 19) Sato Y, van Eeden SF, English D, Hogg JC. Bacteremic pneumococcal pneumonia: bone marrow release and pulmonary sequestration of neutrophils. *Crit Care Med*. 26(3) 501-509. 1998.05
- 20) Sato Y, Van Eeden SF, English D, Hogg JC. Pulmonary sequestration of polymorphonuclear leukocytes released

from bone marrow in bacteremic infection. *Am J Physiol.* 275(2). L255-261  
1998.08. DOI: 10.1152/ajplung.1998.275. 2L255