



Joseph Shrager

Professor of Cardiothoracic Surgery at the Stanford University Medical Center

 NIH Biosketch available Online

 Curriculum Vitae available Online

CLINICAL OFFICES

- **Stanford Cancer Center**

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Bio

BIO

Dr. Shrager assumed the role of Professor and Chief of the Division of Thoracic Surgery in July 2008. He came to Stanford from the University of Pennsylvania School of Medicine where he served as Associate Professor and Chief of Thoracic Surgery at the Hospital of the University of Pennsylvania and Pennsylvania Hospital. He earned his medical degree at Harvard, trained in surgery at Penn, and completed his thoracic surgery training at Massachusetts General Hospital.

Dr. Shrager has been identified as one of “America’s Top Doctors” and one of “America’s Top Doctors for Cancer” in Castle Connolly’s prestigious listings for multiple years running. Dr. Shrager has been awarded US News and World Report “Top Doctor” recognition in every year since that rating system was inaugurated in 2012 ; this award places him among the top 1% of thoracic surgeons nationwide based upon reviews by physician-peers. Evidence of his expert status among his peers also includes membership on the editorial board of the Annals of Thoracic Surgery.

Dr. Shrager practices all aspects of thoracic surgery but has special interest and experience in lung cancer, surgery for emphysema, and mediastinal diseases. His clinical publications reflect these interests. In all cases, he looks towards minimally invasive approaches where appropriate, including VATS (thoracoscopic) lobectomy for early stage lung cancer and transcervical thymectomy.

In the basic research realm, Dr. Shrager has focused upon the responses of the respiratory muscles to various disease states and interventions. His lab’s work has been published in important journals such as The New England Journal of Medicine, The Journal of Thoracic and Cardiovascular Surgery, and The American Journal of Respiratory and Critical Care Medicine.

CLINICAL FOCUS

- Cancer > Thoracic Oncology
- Thoracic Surgery
- Video Assisted Thoracic Surgery
- Lung Cancer
- Thymoma
- Esophageal Cancer
- Mediastinal Diseases
- Lung Volume Reduction
- VATS
- Sympathectomy
- Mediastinal Cyst
- Thoracoscopy
- Thymectomy
- Myasthenia Gravis
- Emphysema Surgery
- Bullectomy
- Minimally Invasive Surgical Procedures
- Pneumothorax
- Pleural Diseases
- sarcoma

ACADEMIC APPOINTMENTS

- Professor - Med Center Line, Cardiothoracic Surgery
- Member, Cardiovascular Institute
- Member, Stanford Cancer Institute

ADMINISTRATIVE APPOINTMENTS

- Director, Stanford Respiratory Muscle Research Laboratory, (2008- present)
- Member, STS Workforce on Evidence-based Surgery, (2006- present)
- Member, AATS Workforce on Education, (2008- present)
- Editorial Board Member, Annals of Thoracic Surgery, (2001- present)
- Chief, Section of General Thoracic Surgery, UPenn, (2003-2007)
- Chief, Stanford Division of Thoracic Surgery, (2008- present)
- Physician Leader Thoracic Oncology DMG, Stanford Cancer Center, (2010- present)

HONORS AND AWARDS

- Phi Beta Kappa, Junior year induction, Amherst College (1983)
- Elected Member, Society for Clinical Surgery (2008)
- Summa Cum Lauda, Amherst College (1984)
- Manstein Graduation Prize, Amherst College (Top Premed Athlete) (1984)
- Havighurst Graduation Prize, Amherst College (Top History Thesis) (1984)
- Simpson Fellowship, (For study at Harvard Medical School) (1984-1988)
- Cabot Graduation Prize, Harvard Medical School (1988)
- William I Inouye Award for Excellence in Teaching, Department of Surgery, University of Pennsylvania Sch. of Med. (1991)
- National Research Service Award, National Institutes of Health (1990-1992)
- 2nd Edward D. Churchill Research Scholarship, American Association for Thoracic Surgery (1999-2001)
- Fellow, American College of Chest Physicians (2000)
- Fellow, American College of Surgeons (2001)
- "Top Doctors" Listing, San Francisco Magazine (2009, 10, 11, 12, 13, 14, 15, 17)
- "Top Docs" Listing, Philadelphia Magazine (2002, 2005, 2006, 2007)
- "Top Doctors" Listing, "America's Top Doctors for Cancer -- peer-elected (2006,07,08 09 10 11 12 13 14 15 16 17)

- "Top Doctors" Listing, "America's Top Doctors" - peer elected (2007,08,09,10,11,12, 13, 14, 15, 16, 17)
- Elected Member, American Association for Thoracic Surgery (2002)
- Elected Member, Society of Clinical Surgery (2008)
- Elected Member, American Surgical Association (2010)

PROFESSIONAL EDUCATION

- Residency: Massachusetts General Hospital Thoracic Surgery Residency (1997) MA
- Residency: Hospital of University of Pennsylvania Surgery Residency (1995) PA
- Board Certification: General Surgery, American Board of Surgery (1996)
- Medical Education: Harvard Medical School (1988) MA
- Board Certification: Thoracic Surgery, American Board of Thoracic Surgery (1999)
- Thoracic Surgery, Massachusetts General Hospital , Thoracic Surgery (1997)
- Surgery Training, Hospital of the Univ of Penn , Surgery (1995)
- MD, Harvard University , Medicine (1988)

LINKS

- Stanford Thoracic Surgery Services: <http://med.stanford.edu/ctsurgery/clinical-care/thoracic-surgery-services.html>
- Make an Appointment: <http://med.stanford.edu/ctsurgery/contact-us.html#division-of-thoracic-surgery>
- Stanford Thoracic Surgery Lab: <http://med.stanford.edu/ctsurgery/research/thoracic-surgery-lab.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

In clinical research, Dr. Shrager has been an innovator studying outcomes in a variety of areas within Thoracic Surgery including: parenchyma-sparing operations and minimally invasive resections for lung cancer, transcervical thymectomy for myasthenia gravis, and surgical treatment of emphysema.

In the lab, Dr. Shrager is focused on the impact of disease states upon the diaphragm. His group published the seminal paper (NEJM) describing diaphragm atrophy assoc'd with mechanical ventilation.

CLINICAL TRIALS

- 4D-CT-based Ventilation Imaging for Adaptive Functional Guidance in Radiotherapy, Not Recruiting
- Chemotherapy and Radiation Therapy With or Without Panitumumab in Treating Patients With Stage IIIA Non-Small Cell Lung Cancer, Not Recruiting
- CyberKnife Radiosurgical Treatment of Inoperable Early Stage Non-Small Cell Lung Cancer, Not Recruiting
- GSK1572932A Antigen-Specific Cancer Immunotherapeutic as Adjuvant Therapy in Patients With Non-Small Cell Lung Cancer, Not Recruiting
- Imaging and Biomarkers of Hypoxia in Solid Tumors, Not Recruiting
- JAK Inhibition to Prevent Ventilator-induced Diaphragm Dysfunction, Not Recruiting
- Microarray Analysis of Gene Expression and Identification of Progenitor Cells in Lung Carcinoma, Not Recruiting
- Pulmonary Interstitial Lymphography in Early Stage Lung Cancer, Not Recruiting
- Radiation Therapy in Treating Patients With Stage I Non-Small Cell Lung Cancer, Not Recruiting
- Radiation Therapy Regimens in Treating Patients With Limited-Stage Small Cell Lung Cancer Receiving Cisplatin and Etoposide, Not Recruiting
- Randomized Study to Compare CyberKnife to Surgical Resection In Stage I Non-small Cell Lung Cancer, Not Recruiting
- Safety and Effectiveness of a New Pleural Catheter for Symptomatic, Recurrent, MPEs Versus Approved Pleural Catheter, Not Recruiting

- Surgery With or Without Internal Radiation Therapy Compared With Stereotactic Body Radiation Therapy in Treating Patients With High-Risk Stage I Non-Small Cell Lung Cancer, Not Recruiting

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Deven Patel

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cardiothoracic Surgery (Fellowship Program)

Publications

PUBLICATIONS

- **Factors Associated With Acute Pain Estimation, Postoperative Pain Resolution, Opioid Cessation, and Recovery: Secondary Analysis of a Randomized Clinical Trial.** *JAMA network open*
Hah, J. M., Cramer, E., Hilmoe, H., Schmidt, P., McCue, R., Trafton, J., Clay, D., Sharifzadeh, Y., Ruchelli, G., Goodman, S., Huddleston, J., Maloney, W. J., Dirbas, et al
2019; 2 (3): e190168
- **Cost reduction in video-assisted thoracoscopic lobectomy** *VIDEO-ASSISTED THORACIC SURGERY*
Richardson, M. T., Shrager, J. B.
2019; 4
- **A radiogenomic dataset of non-small cell lung cancer.** *Scientific data*
Bakr, S., Gevaert, O., Echegaray, S., Ayers, K., Zhou, M., Shafiq, M., Zheng, H., Benson, J. A., Zhang, W., Leung, A. N., Kadoch, M., D Hoang, C., Shrager, et al
2018; 5: 180202
- **POSTPARTUM DIAGNOSIS OF CARDIAC PARAGANGLIOMA: A CASE REPORT** *JOURNAL OF EMERGENCY MEDICINE*
Berona, K., Joshi, R., Woo, Y., Shrager, J.
2018; 55 (4): E101–E105
- **Examination of Optimal Timing of Post-Surgical Surveillance for Early Stage Lung Cancer Patients and Association with Outcomes**
Colwell, E., Bhandari, P., Benson, J., He, H., Lui, N., Berry, M., Shrager, J., Backhus, L.
ELSEVIER SCIENCE INC.2018: S819
- **Small Molecule Derived From Carboxyethylpyrrole Protein Adducts Promotes Angiogenesis in a Mouse Model of Peripheral Arterial Disease.** *Journal of the American Heart Association*
Hou, L., Yang, G., Tang, S., Alcazar, C., Joshi, P., Strassberg, Z., Kim, M., Kawamura, M., Woo, Y. J., Shrager, J., Ding, S., Huang, N. F.
2018; 7 (18): e009234
- **Synchronous primary lung adenocarcinomas harboring distinct MET Exon 14 splice site mutations.** *Lung cancer (Amsterdam, Netherlands)*
Wang, S. X., Lei, L., Guo, H. H., Shrager, J., Kunder, C. A., Neal, J. W.
2018; 122: 187–91
- **Minimally Invasive Thymectomy and Lung Volume Reduction in a Patient with Myasthenia Gravis.** *The Annals of thoracic surgery*
Salna, M., Kidambi, S., Sampson, J., Shrager, J. B.
2018
- **The Signaling Network Resulting in Ventilator-induced Diaphragm Dysfunction.** *American journal of respiratory cell and molecular biology*
Tang, H., Shrager, J. B.
2018
- **GFPT2-expressing cancer-associated fibroblasts mediate metabolic reprogramming in human lung adenocarcinoma.** *Cancer research*
Zhang, W., Bouchard, G., Yu, A., Shafiq, M., Jamali, M., Shrager, J. B., Ayers, K., Bakr, S., Gentles, A. J., Diehn, M., Quon, A., West, R. B., Nair, et al
2018

- **Computed Tomography Features associated With the Eighth Edition TNM Stage Classification for Thymic Epithelial Tumors** *JOURNAL OF THORACIC IMAGING*
Padda, S. K., Terrone, D., Tian, L., Khuong, A., Neal, J. W., Riess, J. W., Berry, M. F., Hoang, C. D., Burt, B. M., Leung, A. N., Schwartz, E. J., Shrager, J. B., Wakelee, et al
2018; 33 (3): 176–83
- **Paraneoplastic Syndromes and Thymic Malignancies: An Examination of the International Thymic Malignancy Interest Group Retrospective Database** *JOURNAL OF THORACIC ONCOLOGY*
Padda, S. K., Yao, X., Antonicelli, A., Riess, J. W., Shang, Y., Shrager, J. B., Korst, R., Detterbeck, F., Huang, J., Burt, B. M., Wakelee, H. A., Badve, S. S.
2018; 13 (3): 436–46
- **Stage IB: To give (chemo), or not to give? That is the question** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
Shrager, J. B.
2018; 155 (3): 1206
- **Intraoperative costs of video-assisted thoracoscopic lobectomy can be dramatically reduced without compromising outcomes** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
Richardson, M. T., Backhus, L. M., Berry, M. F., Vail, D. G., Ayers, K. C., Benson, J. A., Bhandari, P., Teymourash, M., Shrager, J. B.
2018; 155 (3): 1267–+
- **Induction therapy for locally advanced distal esophageal adenocarcinoma: Is radiation Always necessary?** *The Journal of thoracic and cardiovascular surgery*
Liou, D. Z., Backhus, L. M., Lui, N. S., Shrager, J. B., Berry, M. F.
2018
- **Presence of Even a Small Ground-Glass Component in Lung Adenocarcinoma Predicts Better Survival** *CLINICAL LUNG CANCER*
Berry, M. F., Gao, R., Kunder, C. A., Backhus, L., Khuong, A., Kadoch, M., Leung, A., Shrager, J.
2018; 19 (1): E47–E51
- **Genomic Profiling of Bronchoalveolar Lavage Fluid in Patients with Non-Small Cell Lung Cancer**
Nair, V. S., Li, A., Stehr, H., Chabon, J., Chaudhuri, A., Zhou, L., Naemi, H., Ayers, K., Ramsey, M., Bedi, H. S., Van Wert, R., Sung, A. W., Lui, et al
AMER THORACIC SOC.2018
- **Bioengineered Viral Platform for Intramuscular Passive Vaccine Delivery to Human Skeletal Muscle.** *Molecular therapy. Methods & clinical development*
Paulk, N. K., Pekrun, K., Charville, G. W., Maguire-Nguyen, K., Wosczyzna, M. N., Xu, J., Zhang, Y., Lisowski, L., Yoo, B., Vilches-Moure, J. G., Lee, G. K., Shrager, J. B., Rando, et al
2018; 10: 144–55
- **Non-Small Cell Lung Cancer Radiogenomics Map Identifies Relationships between Molecular and Imaging Phenotypes with Prognostic Implications.** *Radiology*
Zhou, M., Leung, A., Echegaray, S., Gentles, A., Shrager, J. B., Jensen, K. C., Berry, G. J., Plevritis, S. K., Rubin, D. L., Napel, S., Gevaert, O.
2018; 286 (1): 307–15
- **Smad3 initiates oxidative stress and proteolysis that underlies diaphragm dysfunction during mechanical ventilation** *SCIENTIFIC REPORTS*
Tang, H., Kennedy, C. L., Lee, M., Gao, Y., Xia, H., Olguin, F., Fraga, D. A., Ayers, K., Choi, S., Kim, M., Tehrani, A., Sowb, Y. A., Rando, et al
2017; 7: 14530
- **Comparison of Circulating Tumor DNA Analysis and Surveillance Imaging After Treatment for Localized Lung Cancer**
Chaudhuri, A. A., Chabon, J. J., Lovejoy, A. F., Newman, A., Stehr, H., Azad, T. D., Carter, J. N., Merriott, D. J., Liu, C. L., Kurtz, D. M., Gensheimer, M. F., Shrager, J. B., Wakelee, et al
ELSEVIER SCIENCE INC.2017: S114
- **Circulating Tumor DNA Detects Residual Disease and Anticipates Tumor Progression Earlier Than CT Imaging**
Chaudhuri, A. A., Chabon, J. J., Lovejoy, A. F., Newman, A. M., Stehr, H., Azad, T. D., Zhou, L., Liu, C., Scherer, F., Kurtz, D. M., Esfahani, M. S., Say, C., Carter, et al
ELSEVIER SCIENCE INC.2017: E4
- **Prediction of EGFR and KRAS mutation in non-small cell lung cancer using quantitative 18F FDG-PET/CT metrics.** *Oncotarget*
Minamimoto, R., Jamali, M., Gevaert, O., Echegaray, S., Khuong, A., Hoang, C. D., Shrager, J. B., Plevritis, S. K., Rubin, D. L., Leung, A. N., Napel, S., Quon, A.
2017

- **Pulmonary function after lung tumor stereotactic ablative radiotherapy depends on regional ventilation within irradiated lung.** *Radiotherapy and oncology*
Binkley, M. S., King, M. T., Shrager, J. B., Bush, K., Chaudhuri, A. A., Popat, R., Gensheimer, M. F., Maxim, P. G., Henry Guo, H., Diehn, M., Nair, V. S., Loo, B. W.
2017; 123 (2): 270-275
- **Evolved AAV Capsids for Intramuscular Passive Vaccine Administration to Human Skeletal Muscle**
Paulk, N. K., Pekrun, K., Charville, G., Maguire-Nguyen, K., Xu, J., Wosczyzna, M., Lisowski, L., Lee, G., Shrager, J., Rando, T., Kay, M. A.
CELL PRESS.2017: 96
- **Predictive radiogenomics modeling of EGFR mutation status in lung cancer** *SCIENTIFIC REPORTS*
Gevaert, O., Echegaray, S., Khuong, A., Hoang, C. D., Shrager, J. B., Jensen, K. C., Berry, G. J., Guo, H. H., Lau, C., Plevritis, S. K., Rubin, D. L., Napel, S., Leung, et al
2017; 7
- **Determinants of Complete Resection of Thymoma by Minimally Invasive and Open Thymectomy: Analysis of an International Registry** *JOURNAL OF THORACIC ONCOLOGY*
Burt, B. M., Yao, X., Shrager, J., Antonicelli, A., Padda, S., Reiss, J., Wakelee, H., Su, S., Huang, J., Scott, W.
2017; 12 (1): 129-136
- **Fdg Pet-CT Suvmax And Circulating Tumor Microemboli Identify Recurrence In Patients With Non-Small Cell Lung Cancer**
Nair, V. S., Carlsson, F., Carlsson, A., Jamali, M., Keu, K., Vasanawala, M., Shrager, J., Loo, B. W., Horng, G., Kuschner, W., Gambhir, S. S., Kuhn, P.
AMER THORACIC SOC.2017
- **Improving Care With a Portfolio of Physician-Led Cancer Quality Measures at an Academic Center** *Improving Care With a Portfolio of Physician-Led Cancer Quality Measures at an Academic Center*
Porter, J. B.
2017; 13 (8): e673-e682
- **Circulating Tumor DNA Detects Minimal Residual Disease and Predicts Outcome in Localized Lung Cancer**
Chaudhuri, A., Lovejoy, A., Chabon, J., Newman, A., Stehr, H., Say, C., Carter, J., Zhou, L., West, R., Shrager, J., Neal, J., Wakelee, H., Loo, et al
ELSEVIER SCIENCE INC.2017: S445
- **Using Tissue Gene Expression To Predict Survival Following 'curative' Surgical Resection In Lung Adenocarcinoma**
Shafiq, M., Zhang, W., Gentles, A., Ayers, K., Nair, V. S., Shrager, J., Hoang, C., Gevaert, O., Napel, S., Plevritis, S.
AMER THORACIC SOC.2017
- **Effect of Perioperative Gabapentin on Postoperative Pain Resolution and Opioid Cessation in a Mixed Surgical Cohort: A Randomized Clinical Trial.** *JAMA surgery*
Hah, J., Mackey, S. C., Schmidt, P., McCue, R., Humphreys, K., Trafton, J., Efron, B., Clay, D., Sharifzadeh, Y., Ruchelli, G., Goodman, S., Huddleston, J., Maloney, et al
2017
- **Early detection of molecular residual disease in localized lung cancer by circulating tumor DNA profiling.** *Cancer discovery*
Chaudhuri, A. A., Chabon, J. J., Lovejoy, A. F., Newman, A. M., Stehr, H., Azad, T. D., Khodadoust, M. S., Esfahani, M. S., Liu, C. L., Zhou, L., Scherer, F., Kurtz, D. M., Say, et al
2017
- **Molecular profiling of single circulating tumor cells from lung cancer patients** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Park, S., Wong, D. J., Ooi, C. C., Kurtz, D. M., Vermesh, O., Aalipour, A., Suh, S., Pian, K. L., Chabon, J. J., Lee, S. H., Jamali, M., Say, C., Carter, et al
2016; 113 (52): E8379-E8386
- **Video-assisted thoracoscopic diaphragm plication using a running suture technique is durable and effective.** *journal of thoracic and cardiovascular surgery*
Demos, D. S., Berry, M. F., Backhus, L. M., Shrager, J. B.
2016
- **Randomized Trial of Thymectomy in Myasthenia Gravis** *NEW ENGLAND JOURNAL OF MEDICINE*
Shrager, J. B.
2016; 375 (20): 2005-6
- **Regional Ventilation Predicts Change in Pulmonary Function After Stereotactic Ablative Radiation Therapy of Lung Tumors**

Binkley, M. S., King, M., Bush, K., Shrager, J. B., Chaudhuri, A. A., Popat, R., Maxim, P. G., Guo, H. H., Diehn, M., Nair, V. S., Loo, B. W.
ELSEVIER SCIENCE INC.2016: E456–E457

- **Determinants of Complete Resection of Thymoma by Minimally Invasive and Open Thymectomy: Analysis of an International Registry.** *Journal of thoracic oncology*
Burt, B. M., Yao, X., Shrager, J., Antonicelli, A., Padda, S., Reiss, J., Wakelee, H., Su, S., Huang, J., Scott, W.
2016
- **An artificial niche preserves the quiescence of muscle stem cells and enhances their therapeutic efficacy.** *Nature biotechnology*
Quarta, M., Brett, J. O., DiMarco, R., de Morree, A., Boutet, S. C., Chacon, R., Gibbons, M. C., Garcia, V. A., Su, J., Shrager, J. B., Heilshorn, S., Rando, T. A.
2016; 34 (7): 752-759
- **Concordant and Discordant EGFR Mutations in Patients With Multifocal Adenocarcinomas: Implications for EGFR-Targeted Therapy.** *Clinical therapeutics*
Chuang, J. C., Shrager, J. B., Wakelee, H. A., Neal, J. W.
2016; 38 (7): 1567-1576
- **Invited Commentary.** *Annals of thoracic surgery*
Shrager, J.
2016; 101 (6): 2146-2147
- **Integrated digital error suppression for improved detection of circulating tumor DNA** *NATURE BIOTECHNOLOGY*
Newman, A. M., Lovejoy, A. F., Klass, D. M., Kurtz, D. M., Chabon, J. J., Scherer, F., Stehr, H., Liu, C. L., Bratman, S. V., Say, C., Zhou, L., Carter, J. N., West, et al
2016; 34 (5): 547-555
- **AAV Capsid Evolution for Enhanced Antibody Delivery to Human Skeletal Muscle for Use in Next-Generation HIV Vaccines and Muscle Gene Therapies**
Paulk, N. K., Charville, G., Maguire, K., Pekrun, K., Zhang, Y., Tiffany, M., Vilches-Moure, J., Lee, G., Shrager, J., Rando, T., Kay, M. A.
NATURE PUBLISHING GROUP.2016: S284–S285
- **Thoracoscopic Resection of a Symptomatic, Congenital Rib Synostosis.** *Annals of thoracic surgery*
Brewer, Z. E., Vokic, N. C., Shrager, J. B.
2016; 101 (4): 1596-1598
- **Time course and predictive factors for lung volume reduction following stereotactic ablative radiotherapy (SABR) of lung tumors** *RADIATION ONCOLOGY*
Binkley, M. S., Shrager, J. B., Chaudhuri, A., Popat, R., Maxim, P. G., Shultz, D. B., Diehn, M., Loo, B. W.
2016; 11
- **CRISPR/Cas-mediated genome editing to treat EGFR-mutant lung cancer: apersonalized molecular surgical therapy** *EMBO MOLECULAR MEDICINE*
Tang, H., Shrager, J. B.
2016; 8 (2): 83-85
- **Diameter of Solid Tumor Component Alone Should be Used to Establish T Stage in Lung Adenocarcinoma** *ANNALS OF SURGICAL ONCOLOGY*
Burt, B. M., Leung, A. N., Yanagawa, M., Chen, W., Groth, S. S., Hoang, C. D., Nair, V. S., Shrager, J. B.
2015; 22: S1318-S1323
- **Pruritus as a Paraneoplastic Symptom of Thymoma** *JOURNAL OF THORACIC ONCOLOGY*
Padda, S. K., Shrager, J. B., Riess, J. W., Pagtama, J. Y., Tisch, A. J., Kwong, B. Y., Liang, Y., Schwartz, E. J., Loo, B. W., Neal, J. W., Hardy, R., Wakelee, H. A.
2015; 10 (11): E110-E112
- **Imaging Based Parameters Associated With Disease Progression of Early-Stage NSCLC Treated With Surgical Resection**
Wang, A., von Eyben, R., Loo, B. W., Diehn, M., Shrager, J. B., Maxim, P. G., Guo, H. H., Burt, B., Shultz, D. B.
ELSEVIER SCIENCE INC.2015: E414
- **Time Course and Predictive Factors for Lung Volume Reduction Following Stereotactic Ablative Radiation Therapy (SABR) of Lung Tumors**
Binkley, M. S., Shrager, J. B., Chaudhuri, A., Popat, R., Maxim, P. G., Shultz, D. B., Diehn, M., Loo, B. W.
ELSEVIER SCIENCE INC.2015: E424
- **The Prevention and Management of Air Leaks Following Pulmonary Resection.** *Thoracic surgery clinics*
Burt, B. M., Shrager, J. B.

2015; 25 (4): 411-419

- **Ex Vivo Expansion and In Vivo Self-Renewal of Human Muscle Stem Cells** *STEM CELL REPORTS*
Charville, G. W., Cheung, T. H., Yoo, B., Santos, P. J., Lee, G. K., Shrager, J. B., Rando, T. A.
2015; 5 (4): 621-632
- **Endobronchial valves in a highly parsed emphysema population** *LANCET*
Shrager, J. B.
2015; 386 (9998): 1022-23
- **Computed Tomography (CT) Characteristics Associated with the Proposed IASLC/ITMIG TNM Pathologic Staging System for Thymoma**
Padda, S. K., Terrone, D., Khuong, A., Tian, L., Neal, J. W., Riess, J. W., Berry, M., Leung, A. N., Schwartz, E. J., Shrager, J. B., Wakelee, H. A.
ELSEVIER SCIENCE INC.2015: S196
- **Ultrasensitive Detection of Circulating Tumor DNA in Non-Small Cell Lung Cancer by Deep Sequencing**
Diehn, M., Bratman, S. V., Newman, A. M., Neal, J. W., Wakelee, H. A., Merritt, R. E., Shrager, J. B., Loo, B. W., Alizadeh, A.
ELSEVIER SCIENCE INC.2014: S75
- **Failure to Isolate the Right Lung with an EZ-Blocker. A & A case reports**
Obaidi, R. A., O'Hear, K. E., Kulkarni, V. N., Brodsky, J. B., Shrager, J. B.
2014; 3 (8): 110-111
- **Lung Volume Reduction After Stereotactic Ablative Radiation Therapy of Lung Tumors: Potential Application to Emphysema** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Binkley, M. S., Shrager, J. B., Leung, A. N., Popat, R., Trakul, N., Atwood, T. F., Chaudhuri, A., Maxim, P. G., Diehn, M., Loo, B. W.
2014; 90 (1): 216-223
- **PRURITUS AS A PARANEOPLASTIC SYMPTOM OF THYMOMA**
Padda, S., Pagtama, J. Y., Tisch, A. H., Neal, J. W., Riess, J. W., Loo, B. W., Hardy, R., Shrager, J. B., Wakelee, H. A.
LIPPINCOTT WILLIAMS & WILKINS.2014: S240-S241
- **COMPUTED TOMOGRAPHY (CT) CHARACTERISTICS ASSOCIATED WITH MASAOKA-KOGA PATHOLOGIC STAGE IN THYMOMA**
Padda, S., Terrone, D., Khuong, A., Tian, L., Neal, J. W., Riess, J. W., Hoang, C. D., Burt, B. M., Leung, A. N., Shrager, J. B., Wakelee, H. A.
LIPPINCOTT WILLIAMS & WILKINS.2014: S222
- **Circulating Tumor DNA Concentrations Reflect Metabolic Tumor Volume in NSCLC**
Modlin, L. A., Bratman, S. V., Newman, A. M., Eclov, N. W., Neal, J. W., Wakelee, H. A., Shrager, J. B., Loo, B. W., Alizadeh, A. A., Diehn, M.
ELSEVIER SCIENCE INC.2014: S812
- **Circulating Tumor Microemboli Diagnostics for Patients with Non-Small-Cell Lung Cancer** *JOURNAL OF THORACIC ONCOLOGY*
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