

University of California, San Francisco

CURRICULUM VITAE

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Name: Matthew Lawrence Springer, Ph.D.

Position: Professor of Medicine
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EDUCATION:

1981-1985:	UC Berkeley	B.A.	Molecular Biology
1985-1991:	Stanford University (PI: Charles Yanofsky)	Ph.D.	Biological Sciences
1991-1993:	Stanford University (PI: James A. Spudich)	Postdoctoral	Biochemistry
1993-1997:	Stanford University (PI: Helen M. Blau)	Postdoctoral	Molecular Pharmacology

PRINCIPAL POSITIONS HELD:

1997-1999:	Stanford University	Research Scientist	Molecular Pharmacology
1999-2003:	Stanford University	Senior Research Scientist	Genetic Pharmacology
2003-2008:	UC San Francisco	Assistant Professor	Medicine/Cardiology
2008-2014:	UC San Francisco	Associate Professor	Medicine/Cardiology
2014-now:	UC San Francisco	Professor	Medicine/Cardiology

CONCURRENT POSITIONS AND AFFILIATIONS:

2003-2008: Director, UCSF Cardiology Division Laboratory of Molecular Cardiology
 2008-now: Investigator, UCSF Cardiovascular Research Institute
 2008-now: Faculty, UCSF Broad Center of Regeneration Medicine and Stem Cell Research
 2008-now: Faculty, UCSF Center for Tobacco Control Research & Education

2008-now: Faculty, UCSF Biomedical Sciences Graduate Program
2010-now: Member, UCSF Helen Diller Family Comprehensive Cancer Center
2010-now: Faculty, UCSF Developmental and Stem Cell Biology Graduate Program

HONORS AND AWARDS:

1985: Selected graduation speaker, Department of Molecular Biology, UC Berkeley
1985: Graduated with Distinction, UC Berkeley
1987: Exceptional Contributions in Teaching Award, Dept. of Biol. Sciences, Stanford University
2008: Winner 4th Prize, Nikon Small World Competition for microscopy (>2000 entries)
2012: 3rd Annual Vascular Biology Center Student's Choice Speaker, Georgia Health Sciences University
2019: Dean's Apple Award (teaching) for Fall 2019, School of Pharmacy, UCSF
2023: UC Berkeley Bakar Fellows Spark Award (selected as a Bakar Faculty Fellow, UCSF track)

KEYWORDS/AREAS OF INTEREST:

Angiogenesis, VEGF, stem cells, gene therapy, myocardial infarction, cardiovascular disease, vascular injury, endothelial function, nitric oxide, myoblasts, tobacco secondhand smoke, marijuana secondhand smoke

PROFESSIONAL ACTIVITIES

PROFESSIONAL ORGANIZATIONS:

MEMBERSHIPS

1993-now: American Association for the Advancement of Science
1997-now: American Society of Gene & Cell Therapy (formerly Am. Society of Gene Therapy)
2004-now: American Heart Association
2005-2014: American Physiological Society

SERVICE TO PROFESSIONAL ORGANIZATIONS:

2005-2008: American Heart Association grant peer reviewer
2005: Session co-chair, American Society of Gene Therapy 8th Annual Meeting
2007-2013: Member, American Society of Gene Therapy, Cardiovascular Gene Therapy Committee
2007: Session organizer and moderator, American Heart Association Scientific Sessions
2008: Session chair, American Society of Gene Therapy 11th Annual Meeting
2009: Session chair, American Society of Gene Therapy 12th Annual Meeting
2009: Ad hoc grant peer reviewer, Association Française contre les Myopathies
2009: Ad hoc grant peer reviewer, American Institute of Biological Sciences
2010-2014: American Heart Association grant peer reviewer
2016-2021: Member, American Society of Gene & Cell Therapy, Cardiovascular Gene & Cell Therapy Committee
2018: Session co-chair, American Society of Gene & Cell Therapy 21st Annual Meeting
2018-now: American Heart Association fellowship peer reviewer

2021: Session chair and discussant, Society for Research on Nicotine and Tobacco Annual Meeting

SERVICE TO PROFESSIONAL PUBLICATIONS:

1995-1996: Contributors panel for literature review section, *Molecular Medicine Today*
 1990-now: Ad hoc referee for *American Journal of Physiology-Heart and Circulatory Physiology*, *Arteriosclerosis Thrombosis and Vascular Biology*, *BioEssays*, *Blood*, *Cancer Gene Therapy*, *Cancer Research*, *Cell*, *Circulation*, *Circulation Cardiovascular Imaging*, *Circulation Research*, *Development*, *Differentiation*, *FASEB Journal*, *Gene Therapy*, *Genetics*, *Genomics*, *International Journal of Cardiology*, *Journal of the American Association for Laboratory Animal Science*, *Journal of the American Heart Association*, *Journal of Cardiac Failure*, *Journal of Cell Biology*, *Journal of Cellular and Molecular Medicine*, *Journal of Gene Medicine*, *JoVE*, *JSRM Cardiovascular Disease*, *The Lancet*, *Molecular Therapy*, *Pediatric Research*, *PLOS ONE*, *PNAS*, *Preventive Medicine Reports*, *Recent Patents on Regenerative Medicine*, *Scientific Reports*, *Stem Cells and Development*, *Tissue Engineering*, *Tobacco Regulatory Science*, *Regulatory Toxicology and Pharmacology*, *Toxicological Sciences*, *Toxicology and Applied Pharmacology*, *Toxicology in Vitro*, *Vascular Health and Risk Management*
 2011-2015 Associate Editor-in-Chief, *American Journal of Cardiovascular Disease*
 2015-2021 Associate Editorial Board member, *Tobacco Regulatory Science*

INVITED PRESENTATIONS:

INTERNATIONAL

1996: International Congress of the Cell Transplant Society, Miami Beach, FL, speaker
 1997: Interamerican Medical Dental Congress, New York City, NY, plenary speaker
 1999: International Congress, Medical Students' Council of the Technological Institute of Advanced Studies, Monterrey, Mexico, plenary speaker
 2001: 1st Annual Congress, Spanish Gene Therapy Society, Valencia, Spain, speaker
 2002: Seminar, Biomedical Research Centre, Univ. of British Columbia, Vancouver, BC, Canada
 2002: 11th International meeting, Society for Cancer Gene Therapy, London, UK, plenary speaker
 2005: Symposium, Swiss Cardiovascular Research and Training Network, Geneva, Switzerland
 2007: Seminar, National Cheng Kung University, Tainan, Taiwan
 2009: Seminar, Klinikum Großhadern, Ludwig Maximilian University, Munich, Germany
 2009: Seminar, Helmholtz Zentrum, Munich, Germany
 2009: Seminar, Heinrich Heine University, Düsseldorf, Germany
 2009: Taiwan Society for Stem Cell Research Conference, Tainan, Taiwan, plenary speaker
 2015: 5th International Conference on Clinical & Experimental Cardiology, Philadelphia, PA, plenary speaker
 2016: International Summit on Preventive, Personalized and Translational Medicine as the Basis of New Healthcare Model, Moscow, Russia, speaker
 2018: Teleconference seminar, Clean Air Coalition of British Columbia, Canadian audience

- 2020: 59th Annual Meeting, Society of Toxicology, session presented as international webinar, speaker
- 2021: Presentation to the Cannabis Regulators Association (CANNRA; multiple US states and Health Canada) (online)

NATIONAL

- 1995: Keystone Symposium: Gene Therapy and Molecular Medicine, Steamboat Springs, CO, plenary speaker
- 1998: 1st Annual Meeting of the American Society of Gene Therapy, Seattle, WA, oral abstract
- 1998: Annual meeting, American Society for Cell Biology, San Francisco, CA, oral abstract
- 1998: Seminar, Baylor College of Medicine, Houston, TX
- 1999: Seminar, Harvard Medical School, Boston, MA
- 1999: Seminar, Baylor College of Medicine, Houston, TX
- 2000: 3rd Gene Transfer Clinical Research Safety Symposium, NIH, Bethesda, MD, speaker and discussion panelist
- 2000: 3rd Annual Meeting of the American Society of Gene Therapy, Denver, CO, oral abstract
- 2001: Annual meeting, Association of Medical Illustrators (National), Pacific Grove, CA, speaker
- 2002: Seminar, University of Washington, Seattle, WA
- 2006: 9th Annual Meeting of the American Society of Gene Therapy, Baltimore, MD, oral abstract
- 2007: Scientific Sessions, American Heart Association, Orlando, FL, speaker
- 2008: Annual Meeting, Experimental Biology, San Diego, CA, speaker
- 2009: 12th Annual Meeting, American Society of Gene Therapy, San Diego, CA, speaker
- 2012: Seminar, Georgia Health Sciences Univ., Augusta, GA (now Georgia Regents University)
- 2013: 24th Annual Vascular Biology and Hypertension Symposium, University of Alabama at Birmingham, Birmingham, AL, speaker for two talks
- 2016: American Public Health Association Annual Meeting and Expo, Denver, CO, speaker/panelist
- 2017: National Conference on Tobacco or Health, National Network of Public Health Institutes, Austin, TX, speaker/panelist
- 2018: 21st Annual Meeting of the American Society of Gene & Cell Therapy, Chicago, IL, speaker
- 2018: Webinar, Community Anti-Drug Coalitions of America, national audience
- 2019: North American Cannabis Summit, Los Angeles, CA, speaker/panelist
- 2019: Webinar, Multi-State Collaborative on Cannabis and Public Health (organized by the CDC), national audience
- 2019: National Conference on Tobacco or Health ancillary session (organized by the American Non-Smokers' Rights Foundation): "Marijuana Industry Threats to Smokefree Laws: What to Expect and How to Protect Smokefree Spaces," Minneapolis, MN, speaker/panelist
- 2019: Seminar, West Virginia University, Morgantown, WV
- 2020: Webinar, Center for Coordination of Analytics, Science, Enhancement, and Logistics in Tobacco Regulatory Science, national audience
- 2021: Public Health Cannabis and Vaping Summit, Nevada Dept. of Health and Human Services, keynote speaker/panelist
- 2021: Webinar, Center for Coordination of Analytics, Science, Enhancement, and Logistics in Tobacco Regulatory Science, national audience
- 2021: Seminar, Tulane University, New Orleans, LA (online)

- 2021: Presentation to CDC/NIH National Cancer Institute's Community Engagement Workgroup for Tobacco Policy Research Conference Call (online)
- 2021: Presentation to Nevada Cannabis Advisory Commission – Public Health Subcommittee (online)
- 2023: Webinar, UCSF Smoking Cessation Leadership Center, national audience (online)
- 2023: 4th Annual Teaching Cannabis Awareness & Prevention Conference: A Focus on the Triangulum of Cannabis, Tobacco, and Vaping; Stanford University with national audience, speaker (online)

REGIONAL, OTHER

- 1998: Seminar, Geron Corporation, Menlo Park, CA
- 1999: Seminar, Genentech, South San Francisco, CA
- 1999: Seminar, UCSF, San Francisco, CA
- 2000: Seminar, Stanford University, Stanford, CA
- 2000: Seminar, Systemix, Palo Alto, CA
- 2000: Seminar, NASA Ames Research Center, Moffett Field, CA
- 2001: Seminar, Stanford University, Stanford, CA
- 2002: Seminar, Stanford University, Stanford, CA
- 2002: UC Systemwide Biomedical Engineering Symposium, Berkeley, CA, speaker
- 2002: Seminar, Sangamo Biosciences, Richmond, CA
- 2003: Seminar, SUGEN, South San Francisco, CA
- 2003: Seminar, Guidant Corporation., Santa Clara, CA
- 2003: Seminar, Exelixis, South San Francisco, CA
- 2005: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2005: Seminar, Five Prime Therapeutics, South San Francisco, CA
- 2006: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2006: Seminar, Surgical Research Laboratory, San Francisco General Hospital, San Francisco, CA
- 2007: Seminar, Department of Surgery, UCSF, San Francisco, CA
- 2007: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2007: Seminar, Center for Cerebrovascular Research, San Francisco General Hospital, SF, CA
- 2008: Seminar, Cardiovascular Research Group, San Francisco General Hospital, SF, CA
- 2008: Seminar, Center for Tobacco Control Research and Education, UCSF, San Francisco, CA
- 2008: UCSF Cardiovascular Research Institute annual retreat, Marshall, CA, speaker
- 2009: UCSF Institute of Regeneration Medicine annual retreat, Pacific Grove, CA, speaker
- 2009: Seminar, Buck Institute for Age Research, Novato, CA
- 2009: UCSF BMS Graduate Program annual retreat, Tahoe City, CA, speaker
- 2010: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2012: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2013: Annual symposium: "It's About a Billion Lives," Center for Tobacco Control Research & Education, UCSF, San Francisco, CA, speaker
- 2013: UCSF BMS Graduate Program annual retreat, Tahoe City, CA, speaker
- 2013: UCSF DSCB Graduate Program annual retreat, Marshall, CA, speaker
- 2014: Seminar, Center for Tobacco Control Research and Education, UCSF, San Francisco, CA
- 2015: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2015: Symposium: "Marijuana Regulation - Lessons from Tobacco-Related Research and Tobacco Control," California Tobacco-Related Disease Research Program, Oakland, CA, speaker

- 2015: Seminar, Flight Attendant Medical Research Institute Investigators meeting, UCSF, San Francisco, CA
- 2015: Tobacco Control, Research, and Education conference (multiple California agencies), Sacramento, CA, speaker
- 2016: Symposium: “The Intersection of Tobacco & Marijuana,” California Tobacco Control Program, California Dept. of Public Health, Sacramento, CA, speaker
- 2016: Policy seminar, UC Center Sacramento, Sacramento, CA
- 2016: Workshop on marijuana regulation, Santa Clara County Public Health Dept., San Jose, CA, speaker
- 2016: Silicon Valley Marijuana Awareness Conference (Santa Clara County DA and Behavioral Health Services), Santa Clara, CA, speaker
- 2017: Seminar, Cancer Center Tobacco Control Program, UCSF, San Francisco, CA
- 2017: Workshop on tobacco and marijuana regulation, County of San Mateo Health System, speaker
- 2018: Symposium: “The Buzz on Cannabis: Health & Safety in the Workplace,” UC Berkeley Center for Occupational and Environmental Health, Berkeley, CA, speaker and panelist
- 2018: Grand Rounds, Division of Cardiology, UCSF, San Francisco, CA
- 2018: Workshop of First 5 Association of California and the CA Dept. of Public Health: Cannabis Safety Promotion for Pregnant Women and Families with Young Children, Los Angeles, CA, speaker
- 2018: Symposium: Margaret M. Walsh Memorial Symposium, UCSF, San Francisco, CA, speaker
- 2019: Seminar, Cardiovascular Institute, Stanford University, Stanford, CA
- 2019: Lecture, San Francisco Public Library Main Library, science series talk about health issues regarding secondhand marijuana smoke and e-cigarettes, San Francisco, CA
- 2020: Symposium: “Symposium on Cannabis Research at UCSF” (online), UCSF, San Francisco, CA, speaker
- 2020: Cardiology Research in Progress talk (online), UCSF, San Francisco, CA
- 2020: Panel on Cannabis and Public Health (online), UC Center Sacramento, CA, speaker and panelist
- 2023: Seminar, Touro University (online), Vallejo, CA

GOVERNMENT AND OTHER PROFESSIONAL SERVICE:

- 2000: Speaker, discussion panelist, 3rd Gene Transfer Clinical Research Safety Symposium, NIH
- 2007: Peer reviewer, NIH special review committee for Program Project Grant
- 2009: Ad hoc grant peer reviewer, Virginia Tobacco Settlement Fund grant reviewer
- 2010: Ad hoc grant peer reviewer, Italian Ministry of Health
- 2012: Ad hoc grant peer reviewer, Virginia Foundation for Healthy Youth grant reviewer
- 2013: Ad hoc grant peer reviewer, Italian Ministry of Health
- 2014: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 CB-J (55)R (Improvement of Animal Models for Stem Cell-Based Regenerative Medicine)
- 2015: Policy briefing submitted to California’s Blue Ribbon Commission on Marijuana Policy (Springer and Glantz, “Marijuana Use and Heart Disease: Potential Effects of Public Exposure to Smoke”)
- 2015: Ad hoc grant peer reviewer, National Medical Research Council, Singapore
- 2016: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 AARR-G (51)R (Chemistry, Toxicology, and Addiction Research on Waterpipe Tobacco)

- 2017: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 CB-J (55)R (Improvement of Animal Models for Stem Cell-Based Regenerative Medicine)
- 2017: FDA public comment submitted in reference to Philip Morris International's Modified Risk Tobacco Product (MRTP) application for IQOS heat-not-burn system (Springer, Nabavizadeh, and Mohammadi, Docket Number FDA-2017-D-3001, November 20, 2017, entitled "The evidence PMI presents in its MRTP application for IQOS is misleading and does not support the conclusion that IQOS will not harm endothelial function; independent research done in a more relevant physiological model shows that IQOS harms endothelial function as much as conventional cigarettes")
- 2017: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 BST-H (55) (Tobacco Regulatory Science)
- 2018: Reviewed and commented on draft of ventilation rules and regulations for cannabis smoking consumption rooms, San Francisco Department of Public Health
- 2018: FDA public comment submitted in reference to FDA's request for input about regulation of "premium" cigars (Lempert, Chaffee, Persai, Halpern-Felsher, Max, Wang, Sung, Yao, Lightwood, Springer, Benowitz, Liu, Narayan, Wang, Nabavizadeh, Mohammadi, Schick, Kim, Glantz, Docket Number FDA-2017-N-6107, July 12, 2018, entitled "FDA Should Not Create a Separate Category for So-Called "Premium Cigars" Because it has Already Correctly Concluded that there is No Appropriate Public Health Justification to Exclude Premium Cigars from Regulation")
- 2018: FDA public comment submitted in reference to FDA's request for input about tobacco product standard for nicotine level (Glantz, Benowitz, Chaffee, Gotts, Halpern-Felsher, Jacob, Ling, Max, Moazed, Springer, St.Helen, Vogel, and Lempert, Docket Number FDA-2017-N-6189, July 12, 2018, entitled "Tobacco Product Standard for Nicotine Level: The FDA Should Set a Nicotine Level to be Achieved in a Single Step for All Combusted Tobacco Products")
- 2018: Expert witness (phone-in) for the American Cancer Society Cancer Action Network (Alaska) and the American Lung Association in Alaska, in public hearing for Alaska's Marijuana Control Board (12/19/18)
- 2019: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 VH-J (02) M (Member Conflict: Vascular Biology)
- 2019: FDA public comment submitted in reference to FDA's request for input about length of grace period for marketing e-cigarettes (Lempert, Halpern-Felsher, Springer, and Glantz, Docket Number FDA-2019-D-0661, March 21, 2019, entitled "FDA's proposed modifications to its compliance policy for e-cigarettes leaves millions of youth at risk for starting to use e-cigarettes; FDA needs to remove these products from the market now and clamp down on illegal therapeutic and modified risk claims in Juul and other e-cigarette advertising")
- 2019: FDA public comment submitted in reference to FDA's request for input about cannabis and cannabis-derived products (Bowling, Hafez, Lempert, Springer, Benowitz, and Glantz, Docket Number FDA-2019-N-1482, July 5, 2019, entitled "Scientific Data and Information About Products Containing Cannabis or Cannabis-Derived Compounds; Public Hearing; Request for Comments")
- 2019-2020: Aerosolized Vaping Machine Working Group, FDA Center for Tobacco Products - Center for Coordination of Analytics, Science, Enhancement, and Logistics in Tobacco Regulatory Science

- 2019: FDA public comment submitted in reference to FDA's request for input about additions to their list of Harmful and Potentially Harmful Constituents (Lempert, St.Helen, Gotts, Kozlovich, Springer, Halpern-Felsher, and Glantz, Docket Number FDA-2012-N-0143, October 2, 2019, entitled "In addition to the 19 constituents FDA proposes to add to the list of Harmful and Potentially Harmful Constituents, FDA should also add compounds that may be carcinogenic or cause pulmonary or cardiovascular harms when inhaled, especially oils and chemicals and chemical classes found in e-cigarette flavorants, and FDA should use as additional criteria California's Proposition 65 list of carcinogens and reproductive toxicants and the California Air Resources Board's list of Toxicant Air Contaminants")
- 2020: FDA public comment submitted in reference to FDA's request for additional input about Philip Morris International's Modified Risk Tobacco Product (MRTP) application for IQOS heat-not-burn system (Lempert, Kim, Chaffee, Halpern-Felsher, Springer, Popova, and Glantz, Docket Number FDA-2017-D-3001, February 23, 2020, entitled "FDA should not authorize Philip Morris International to market IQOS with claims of reduced risk or reduced exposure")
- 2020: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 CVRS-H 50 R (Electronic Nicotine Delivery Systems: Basic Mechanisms of Health Effects)
- 2020: FDA public comment submitted in reference to FDA's request for information on Vaping Products Associated with Lung Injuries (Lempert, St.Helen, Calfee, Gotts, Matthay, Springer, and Glantz, Docket Number FDA-2020-N-0597, April 24, 2020, entitled "FDA should prohibit additives and design elements in e-cigarettes known to increase the risk of severe lung injury, but the burden remains with manufacturers to demonstrate that their products are appropriate for the protection of the public health, notwithstanding the fact that their products exclude the prohibited ingredients and designs")
- 2020: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 IFCN-E 56 R (Understanding Tobacco Product Toxicology and Abuse Liability)
- 2021: FDA public comment submitted in reference to FDA's request for information on IQOS 3 (Lempert, Springer, Mohammadi, Han, Rao, Glantz, Halpern-Felsher, and Ling, Docket Number FDA-2021-N-0408, September 9, 2021, entitled "PMPSA's supplemental modified risk tobacco product application for IQOS 3 does not support the conclusion that IQOS will not harm vascular endothelial function and does not address new published research, so FDA should not issue an exposure modification MRTP order for IQOS 3")
- 2022: Ad hoc grant peer reviewer, NIH Special Emphasis Panel ZRG1 VH-K 90 (ENDS & Tobacco Use Special Emphasis Panel)
- 2022: FDA public comment submitted in reference to FDA's request for information about tobacco product standard for menthol (Max, Lempert, Glantz, Benowitz, Sung, Halpern-Felsher, Fung, Pravosud, Mohammadi, Hoeft, Schick, Springer, and Ling, Docket Number FDA-2021-N-1349, June 1, 2022, entitled "FDA should not allow any extensions of time to submit public comments about the proposed rule")
- 2022: FDA public comment submitted in reference to FDA's request for information about tobacco product standard for menthol (Max, Lempert, Glantz, Benowitz, Sung, Halpern-Felsher, Fung, Pravosud, Mohammadi, Hoeft, Schick, Springer, and Ling, Docket Number FDA-2021-N-1349, June 1, 2022, entitled "FDA should finalize the proposed rule and make it effective 90 days after publication of the final rule")

- 2022: FDA public comment submitted in reference to FDA’s request for information about tobacco product standard for menthol (Yerger, McGruder, Gardiner, Mendez, Le, Lempert, Glantz, Halpern-Felsher, Fung, Max, Hoeft, Sung, Springer, Malone, Guydish, Woodruff, Mock, Klausner, Kim, Song, Gordon, and Ling, Docket Number FDA-2021-N-1349, June 24, 2022, entitled “As a matter of health equity and social justice, FDA should immediately finalize and implement the proposed standard for menthol in cigarettes to reduce smoking-attributable deaths and health disparities among African Americans”)
- 2022: FDA public comment submitted in reference to FDA’s request for information about tobacco product standard for menthol (Lempert, Glantz, Oliveira Da Silva, Bialous, Chaffee, Cheng, Fung, Gaiha, Guerra, Halpern-Felsher, Han, Kim, Matthay, Max, McCauley, Pravosud, Shaffer, Springer, St.Helen, Sung, Vijayaraghavan, Wang, and Ling, Docket Number FDA-2021-N-1349, August 1, 2022, entitled “FDA should prohibit all menthol flavor additives, compounds, constituents, and ingredients in cigarettes, and should not limit the proposed standard to prohibiting menthol as a ‘characterizing flavor’”)
- 2022: FDA public comment submitted in reference to FDA’s request for information about tobacco product standard for menthol (Lempert, Glantz, Chaffee, Matthay, Springer, Mohammadi, Cheng, Fung, Gaiha, Guerra, Halpern-Felsher, Han, Kim, Max, McCauley, Oliveira Da Silva, Pravosud, Shaffer, St.Helen, Sung, Wang, and Ling, Docket Number FDA-2021-N-1349, August 1, 2022, entitled “FDA should not grant exemptions to the proposed standard on a case-by-case basis for certain cigarettes such as heated tobacco products or low nicotine cigarettes”)
- 2023: FDA public comment submitted in reference to FDA’s request for information about requirements for tobacco product manufacturing practice (Lempert, Halpern-Felsher, Glantz, Benowitz, Calfee, Chaffee, Fung, Gansky, Max, Pravosud, Springer, and Ling, Docket Number FDA-2013-N-0227, April 13, 2023, entitled “FDA’s proposed regulation establishes reasonable tobacco product manufacturing practice requirements that could help minimize the risks of products, especially to youth and young adults”)
- 2023: Speaker, discussion panelist, Cannabis and Cannabinoids in Heart, Lung, Blood, and Sleep Virtual workshop, NHLBI
- 2023: FDA public comment submitted in reference to FDA’s request for information about developing a strategic plan for its Center for Tobacco Products (Lempert, Ling, Springer, Glantz, Fung, Gansky, Max, Schick, Kim, Halpern-Felsher, Islam, Pravosud, Sung, Wojcicki, Llanes, and Wang, Docket Number FDA–2023–N–2873, August 25, 2023, entitled “To ensure that its review of new tobacco product applications is not only efficient but also best protects the public health, FDA should communicate and use a process that denies marketing authorization of any new tobacco product has characteristics that appeal to kids, that requires applicants to present data demonstrating impacts of the product on non-users including youth and young adults, that does not allow applicants to use a definition of ‘switch completely’ that includes dual use, and that considers unifying health effects of categories of products”)
- 2023: FDA public comment submitted in reference to FDA’s request for information about developing a strategic plan for its Center for Tobacco Products (Ling, Nguyen, Benowitz, Lempert, Glantz, Springer, Mohammadi, Halpern-Felsher, Chaffee, Islam, Provasud, Sung, Apollonio, Bialous, Max, Wojcicki, Llanes, Wang, Matthay, and Kim, Docket Number FDA–2023–N–2873, August 25, 2023, entitled “CTP should actively

integrate the relationship between cannabis and tobacco use into its tobacco regulation and proactively identify regulatory approaches from tobacco product regulation that can be applied to cannabis”)

UNIVERSITY AND PUBLIC SERVICE

PRE-UCSF UNIVERSITY SERVICE

1984-1985: President, Molecular Biology Undergraduate Society, UC Berkeley
1986-1987: Graduate Admissions Committee, Dept. of Biological Sciences, Stanford University
1988-1989: Graduate student representative, Dept. of Biological Sciences, Stanford University

UC SYSTEM-WIDE SERVICE

2006-2007: UC Discovery Grant reviewer
2018: Panelist, UC Workshop on Policy and Legal Issues Related to Cannabis Research

UCSF CAMPUS-WIDE SERVICE

2004-2008: UCSF Academic Senate Committee on Research
2005-2009: UCSF Research Administration Board
2006-2012: Emergency floor warden, Medical Sciences Building 11th floor
2007-2008: Chair, Research Administration Board task force to create faculty/industry resources website (<http://ctsi.ucsf.edu/research/industry-faq>)
2007-now: Recurring lectures to campus community about home earthquake preparedness (106 UCSF talks out of 176 total as of 4/21/20)
2010-now: UCSF Research Administration Board (name changed to Research Advisory Board)
2012-2015: UCSF Academic Senate Committee on Research
2013-2014: UCSF Indirect Cost Recovery Waiver Policy Taskforce, Academic Senate representative
2019-2022: UCSF Academic Senate Rules & Jurisdiction Committee
2020-now: Executive Committee, UCSF Tobacco Center of Regulatory Science

UCSF SCHOOL OF MEDICINE SERVICE

2005-2006: Faculty search committee, UCSF Dept. of Surgery
2011-2012: Dean's Communications Advisory Board
2016-2017: Faculty search committee, UCSF Division of Cardiology

UCSF DEPARTMENTAL SERVICE

2020-now: Reviewer for PREPARE (pre-submission NIH grant review), UCSF Dept. of Medicine
2020-now: Fellowship Committee, Center for Tobacco Control Research and Education

PUBLIC SERVICE

2007-now: San Francisco Fire Department Neighborhood Emergency Response Team (NERT)
2008-now: Recurring public lectures about home earthquake preparedness at SF Public Library and other public locations (70 public talks out of 176 total as of 4/21/20)
2009-2017: Member, SF South Beach/Rincon/Mission Bay Neighborhood Association

- 2011-2017: Board of Directors, SF South Beach/Rincon/Mission Bay Neighborhood Association
2011-now: Quaketips blog about earthquake preparedness (<http://quaketips.blogspot.com>);
>500,000 page views

TEACHING AND MENTORING

FORMAL SCHEDULED CLASSES FOR UCSF STUDENTS:

- 2010-2011: BMS 270: Angiogenesis & Vascular Biology (organizer and primary session leader; yearly)
2012-2016: BMS 270 / DSCB 270: Angiogenesis & Vascular Biology (organizer and primary session leader; yearly)
2019-now: PharmIS 111: Cardiovascular Science & Therapeutics (yearly Inquiry: Frontiers lecture)
2020: Grant Writing 2020, Center for Tobacco Control Research and Education, course for postdoctoral fellows (Co-Director for second half of course, last 7 sessions)
2021-now: Grant Writing, Center for Tobacco Control Research and Education, yearly course for postdoctoral fellows (Co-Director)

OTHER COURSES, WORKSHOPS, AND LECTURE SERIES:

- 1984: Teaching assistant, "Introduction to Molecular Biology," UC Berkeley
1986: Teaching assistant, "Biology Core Experimental Laboratory," Stanford University
1986: Teaching assistant, "Biochemistry, Genetics, and Molecular Biol.," Stanford University
1992-1998: Guest lecturer for graduate and undergraduate classes and to special high school programs, Stanford University and San Francisco State University
1997: Faculty discussion panelist, Stanford University undergraduate ethics symposium
1998: Faculty discussion panelist, Stanford University undergraduate ethics symposium
1999: Lectured to medical students at Technological Institute of Advanced Studies, Monterrey, Mexico, in conjunction with a conference at which I was a speaker
2005: Lecture to Cardiology fellows for weekly Fellows Session
2006: Group session leader, UCSF CTST-sponsored NIH Grant Workshop
2006: Lecture for Cardiology fellows summer session
2007: Class lecture at National Cheng Kung University, Tainan, Taiwan, with public seminar
2008: Chaired mock grant peer review panel for Tobacco Center fellows, UCSF
2009: "Pizza talk" for BMS graduate students, UCSF (1 of 2)
2009: Mock grant peer review panel for Tobacco Center fellows, UCSF
2009: Small group facilitator for UCSF Office of Career and Professional Development workshop on oral presentation skills
2009: "Pizza talk" for BMS graduate students, UCSF (2 of 2)
2010: Faculty discussion panelist (working with industry), UCSF Faculty Development Day
2010: Faculty discussion panelist, Future Faculty Seminar course, Stanford University
2010: Mock grant peer review panel for Tobacco Center fellows, UCSF
2010: "Pizza talk" for BMS graduate students, UCSF
2011: Mock grant peer review panel for Tobacco Center fellows, UCSF
2012: "Pizza talk" for DSCB graduate students, UCSF

- 2013: “Pizza talk” for DSCB graduate students, UCSF
- 2014: “Pizza talk” for DSCB graduate students, UCSF
- 2014: “Pizza talk” for BMS graduate students, UCSF
- 2015: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
- 2015: Speaker for Osher Mini Medical School session on emergency preparedness, UCSF
- 2015: Mock grant peer review panel for Tobacco Center fellows, UCSF
- 2015: “Pizza talk” for BMS and DSCB graduate students, UCSF
- 2016: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
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- 2018: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
- 2018: “Pizza talk” for DSCB graduate students, UCSF
- 2019: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
- 2019: Mock grant peer review panel for Tobacco Center fellows, UCSF
- 2020: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
- 2020: “Pizza talk” for DSCB graduate students, UCSF
- 2020: Responsible Conduct of Research seminar/discussion for Cancer Center T32 trainees, UCSF
- 2021: “Pizza talk” for BMS graduate students, UCSF
- 2021: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
- 2022: Music 6F – Career Development in Music (session about how to continue involvement in music without a music career), Stanford University
- 2022: “Pizza talk” for DSCB graduate students, UCSF
- 2023: Responsible Conduct of Research seminar/discussion for Cancer Center T32 trainees, UCSF
- 2023: “Pizza talk” for DSCB graduate students, UCSF

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH SUPPORT – CURRENT:

R01 DA058069 NIH/NIDA Effects of chronic marijuana use on endothelial function Role: PI	Springer (PI)	7/1/23-4/30/28
Discretionary Support UC Berkeley Bakar Fellows Program Spark Award Role: Bakar Foundation Faculty Fellow	Springer (PI)	7/1/23-6/30/26

R43HL149492 (SBIR) Yu (PI) 7/1/22-4/30/24
 NIH/NHLBI
 Novel therapy for myocardial ischemia-reperfusion injury (Subcontract)
 Role: Subcontract PI

U54 HL147127 Project 3 Ling (PI) 9/1/18-8/31/24
 NIH/NHLBI (NCE)
 Cardiovascular Health Effects of Emerging Heat-Not-Burn Tobacco Products
 Role: Project PI

RESEARCH SUPPORT – PAST:

Public University Research Grant RG-1603151328-913 Springer (PI) 7/1/21-10/13/23
 CA Department of Cannabis Control
 Effects of Chronic Cannabis Use on Endothelial Function
 Role: PI

R21 DA050995-S Springer (PI) 11/25/20-9/30/23
 NIH/NIDA (NCE)
 Upregulation of SARS-CoV-2 receptor and activation proteases by marijuana smoke and e-cigarette aerosols
 Role: PI

R21 DA050995 Springer (PI) 4/1/20-9/30/23
 NIH/NIDA (NCE)
 Validation of NIDA research marijuana as a model for cardiovascular research
 Role: PI

U54 HL147127 Administrative Core A Ling (PI) 9/1/20-8/31/23
 NIH/NHLBI
 Career Enhancement Core B
 Role: Core Leader

U54 HL147127 Rapid Response Project Ling (PI) 9/1/22-8/31/23
 NIH/NHLBI
 Chemical and Physiological Assessment of Coil-Less Ultrasonic Vaping Devices
 Role: Project PI

Pilot for Established Investigators Springer (PI) 1/1/20-12/31/22
 UCSF Research Evaluation & Allocation Committee (NCE)
 Potential therapeutic target to limit anthracycline-induced cardiotoxicity
 Role: PI

U54 HL147127 Developmental Project Ling (PI) 7/1/21-6/30/22
 NIH/NHLBI
 E-cigarette characteristics that influence endothelial toxicity from formation of advanced glycation end products
 Role: Project PI

High Impact Pilot Award T29IP0490 Springer (PI) 4/1/19-3/31/22
 California Tobacco-Related Disease Research Program (NCE)
 Models for Prospective Studies of Marijuana's Cardiac Effects

Role: PI

Emergency COVID-19 Research Seed Funding Springer (PI) 5/1/20-10/31/20
California Tobacco-Related Disease Research Program
Does Marijuana or E-cigarette Use Upregulate the SARS-CoV-2 Receptor ACE2 in Airway Epithelium?

Role: PI

U54 HL147127 Rapid Response Project Glantz (PI) 9/1/19-8/31/20
NIH/NHLBI

JUUL Versus Earlier Generation e-Cigarettes: Influence of e-Liquid Components on Vascular Toxicity

Role: Project PI

R44 AG054386 (SBIR Phase 2) John (PI) 4/15/17-3/31/20
NIH/NIA

Inhibition of Galectin-3 for Therapy of Remodeling After Myocardial Infarction

Role: Co-PI

High Impact Research Project Award 25IR-0030 Springer (PI) 7/1/16-6/30/19
California Tobacco-Related Disease Research Program

Tobacco/Marijuana Smoke: From Lab to Public Health Policy

Role: PI

R01 HL120062 Springer (PI) 6/1/14-5/31/19
NIH/NHLBI

Measuring Relative Cardiovascular Health Risks of Inhaled Tobacco Products

Role: PI

Grant-In-Aid 15GRNT22590001 Springer (PI) 1/1/15-12/31/17
American Heart Association

Overcoming Impairment of Bone Marrow Cell Therapy for Myocardial Infarction: Role of B Cells

Role: PI

R44 AG054386 (Fast Track SBIR Phase I) John (PI) 8/15/16-4/30/17
NIH/NIA

Inhibition of Galectin-3 for Therapy of Remodeling After Myocardial Infarction

Role: Co-PI

P50 CA180890 Glantz (PI) 3/1/16-2/28/17
NIH/NCI

Improved Models to Inform Tobacco Product Regulation

Role: Project PI

P50 CA180890-01 Glantz (PI) 9/1/14-8/31/15
NIH/NCI

Improved Models to Inform Tobacco Product Regulation

Role: Collaborator on subproject, PI: Glantz/Calfee

R43 HL120645 (SBIR Phase 1) John (PI) 9/1/13-12/31/14
NIH/NHLBI

Protein Inhibitor of Galectin-3 to Limit Fibrosis after Myocardial Infarction

Role: Subcontract PI

P50 CA180890 NIH/NCI Improved Models to Inform Tobacco Product Regulation Role: Project leader	Glantz (PI)	9/1/13-8/31/14
Hardship Award UCSF Research Allocation Program Consequences of age and disease on autologous cardiac cell therapy: partial salary support for lead researcher during funding gap Role: PI	Springer (PI)	6/17/13-6/16/14
R21 DA031699 NIH/NIDA Evaluation of Harmful Effects of Cannabis Smoke on Vascular Endothelial Function Role: PI	Springer (PI)	9/15/11-6/30/14
Innovative Research Grant 11IRG5250021 American Heart Association, National Angiogenesis in Moving Cardiac Tissue: Influence of Motion on Endothelial Pattern Formation and Gene Expression Role: PI	Springer (PI)	1/1/11-12/31/13
Dean's Bridge Funding UCSF School of Medicine Bridging the gap in Springer research program: Cell therapy for cardiovascular disease Role: PI	Springer (PI)	8/1/12-7/31/13
R01 HL086917 NIH/NHLBI The Role of Nitric Oxide Synthase in Circulating Progenitor Cell Function Role: PI	Springer (PI)	8/1/07-6/30/13
R01 HL086917-S1 (ARRA supplement) NIH/NHLBI The Role of Nitric Oxide Synthase in Circulating Progenitor Cell Function Role: PI	Springer (PI)	8/1/09-6/30/12
R21 HL097129 NIH/NHLBI Bone Marrow Cell Therapy for Cardiac Disease: Impact of Donor Age and Infarction Role: PI	Springer (PI)	7/1/10-6/30/12
Comprehensive Research Grant California Institute of Regenerative Medicine Embryonic Stem Cell-Derived Therapies Targeting Cardiac Ischemic Disease Role: Co-Investigator	Lee (PI)	7/1/07-7/31/11
Clinical Innovator Award 072131 Flight Attendant Medical Research Institute Long-Term Vascular Effects of Second Hand Smoke Role: PI	Springer (PI)	7/1/08-6/30/11
Industry-sponsored research grant	Springer (PI)	10/1/09-12/31/10

N30 Pharmaceuticals

Therapeutic Effects of Pharmacological Manipulation of Intracellular Nitric Oxide Levels in Cardiovascular Disease

Role: PI

R21 AR054746

Derynck (PI)

4/1/09-3/31/10

NIH/NIAMS

Conversion of Pre-Adipose Cells into Muscle Cells

Role: Consultant, PI: Derynck

UCSF REAC New Direction Grant

Springer (PI)

11/1/07-10/31/08

UCSF Research Evaluation and Allocation Committee

Long-Term Vascular Effects of Second Hand Smoke

Role: PI

Industry sponsored research grant

Springer (PI)

6/1/06-5/30/08

Mars, Inc.

Impact of Flavanols on Vascular Reactivity and Cardiac Function in Rodents Measured with High Resolution Ultrasound

Role: PI

R03 EB005802

Springer (PI)

9/15/05-8/31/07

NIH/NIBIB

Closed-Chest Cell Injections into Mouse Myocardium Targeted by Ultrasound

Role: PI

UC Discovery Grant bio04-10481/Springer

Springer (PI)

8/16/05-8/15/06

UC Industry-University Cooperative Research, Program/Five Prime Therapeutics, Inc.

Molecular Mechanism of Post-Myocardial Infarction Cardiac Regeneration by Novel Therapeutic Peptides

Role: PI

Scientist Development Grant 0535244N

Springer (PI)

7/1/05-6/30/09

American Heart Association, National

Pleiotrophin Gene Delivery for Therapeutic Angiogenesis of Ischemic Heart and Limb

Role: PI

UCSF REAC Grant

Springer (PI)

3/1/05-2/28/06

UCSF Research Evaluation and Allocation Committee

Closed-Chest Cell Injections into Mouse Myocardium Guided by High-Resolution

Echocardiography

Role: PI

UCSF Individual Investigator Award

Springer (PI)

12/15/04-12/31/05

UCSF Academic Senate Committee on Research

Pleiotrophin Gene Delivery for Therapeutic Angiogenesis of Ischemic Heart and Limb

Role: PI

R01 HL65572

Blau (PI)

8/1/00-7/31/04

NIH/NHLBI

Delivery and Regulation of Angiogenic Genes

Role: Co-Investigator

NRSA 5F32HL008991

Springer (PI)

11/1/94-10/31/96

NIH/NHLBI

Cell Mediated Gene Therapy for Atherosclerosis

Role: PI - postdoctoral fellowship

PEER REVIEWED PUBLICATIONS:

1. **Springer, M.L.** and Yanofsky, C. (1989). A morphological and genetic analysis of conidiophore development in *Neurospora crassa*. *Genes Dev.* **3**:559-571. (cover photo)
2. **Springer, M.L.** (1989). An effective procedure for the preparation of *Neurospora crassa* conidiophores for scanning electron microscopy. *Fungal Genet. Newsl.* **36**:78.
3. **Springer, M.L.** (1991). Tergitol-induced colonial growth without inhibition of conidiation. *Fungal Genet. Newsl.* **38**:92.
4. **Springer, M.L.**, Hager, K.M., Garrett-Engele, C., and Yanofsky, C. (1992). Timing of synthesis and cellular localization of two conidiation-specific proteins of *Neurospora crassa*. *Dev. Biol.* **152**:255-262. (cover photo)
5. **Springer, M.L.** and Yanofsky, C. (1992). Expression of *con* genes along the three sporulation pathways of *Neurospora crassa*. *Genes Dev.* **6**:1052-1057.
6. **Springer, M.L.** (1993). Genetic control of fungal differentiation: The three sporulation pathways of *Neurospora crassa*. *BioEssays* **15**:365-374. (Review, peer-reviewed) (cover photo)
7. **Springer, M.L.**, Patterson, B., and Spudich, J.A. (1994). Stage-specific requirement for myosin II during *Dictyostelium* development. *Development* **120**:2651-2660.
8. Blau, H.M. and **Springer, M.L.** (1995). Gene therapy—A novel form of drug delivery. *N. Engl. J. Med.* **333**:1204-1207. (Review, peer-reviewed)
9. Blau, H.M. and **Springer, M.L.** (1995). Muscle-mediated gene therapy. *N. Engl. J. Med.* **333**:1554-1556. (Review, peer-reviewed)
10. **Springer, M.L.** and Blau, H.M. (1997). High-efficiency retroviral infection of primary myoblasts. *Som. Cell Mol. Genet.* **23**:203-209.
11. Kang, S.-M., Hofmann, A., Le, D.L., **Springer, M.L.**, Stock, P.G., and Blau, H.M. (1997). Immune response and myoblasts that express Fas ligand. *Science* **278**:1322-1324.
12. **Springer, M.L.**, Kraft, P.E., and Blau, H.M. (1998). Inhibition of solid tumor growth by Fas ligand-expressing myoblasts. *Som. Cell Mol. Genet.* **24**:281-289.
13. **Springer, M.L.**, Chen, A.S., Kraft, P.E., Bednarski, M., and Blau, H.M. (1998). VEGF gene delivery to muscle: Potential role for vasculogenesis. *Mol. Cell* **2**:549-558. (cover photo)
14. Abendroth, A., Slobedman, B., **Springer, M.L.**, Blau, H.M., and Arvin, A.M. (1999). Analysis of immune responses to varicella zoster viral proteins induced by DNA vaccination. *Antiviral Res.* **44**: 179-192.
15. **Springer, M.L.**, Ip, T.K., and Blau, H.M. (2000). Angiogenesis monitored by perfusion with a space-filling microbead suspension. *Mol. Therapy* **1**: 82-87.

16. **Springer, M.L.**, Hortelano, G., Bouley, D., Wong, J., Kraft, P.E., and Blau, H.M. (2000). Induction of angiogenesis by implantation of encapsulated primary myoblasts expressing vascular endothelial growth factor. *J. Gene Med.* **2**:279-288.
17. Lee, R.J., **Springer, M.L.**, Blanco-Bose, W.E., Shaw, R., Ursell, P.C., and Blau, H.M. (2000). VEGF gene delivery to myocardium: Deleterious effects of unregulated expression. *Circulation* **102**:898-901. (*Commentary in Nature Med.* **6**:1102-1103) (cover photo)
18. **Springer, M.L.**, Ozawa, C.R., and Blau, H.M. (2002). Transient production of α -smooth muscle actin by skeletal myoblasts during differentiation in culture and following intramuscular implantation. *Cell Motil. Cytoskeleton* **51**:177-186.
19. Munz, B., Hildt, E., **Springer, M.L.**, and Blau, H.M. (2002). RIP2, a checkpoint in myogenic differentiation. *Mol. Cell Biol.* **22**:5879-5886.
20. **Springer, M.L.**, Ozawa, C.R., Banfi, A., Kraft, P.E., Ip, T.K., Brazelton, T.R., and Blau, H.M. (2003). Localized arteriole formation adjacent to sites of implantation of myoblasts expressing VEGF. *Mol. Ther.*, **7**:441-449. (*Commentary in ibid.*, **7**:428)
21. Ozawa, C.R., Banfi, A., Glazer, N., Thurston, G., **Springer, M.L.**, Kraft, P.E., McDonald, D.M., and Blau, H.M. (2004). Microenvironmental VEGF concentration, not total dose, determines a threshold between normal and aberrant angiogenesis. *J. Clin. Invest.* **113**: 516-527. (*Commentary in ibid.*, **113**:493)
22. **Springer, M.L. [corresponding author]**, Sievers, R.E., Viswanathan, M.N., Yee, M.S., Foster, E., Grossman, W., and Yeghiazarians, Y. (2005). Closed-chest cell injections into mouse myocardium guided by high-resolution echocardiography. *Amer. J. Physiol. Heart Circ. Physiol.*, **289**:H1307-H1314.
23. Kamba, T., Tam, B.Y.Y., Hashizume, H., Haskell, A., Sennino, B., Mancuso, M.R., Norberg, S.M., O'Brien, S.M., Davis, R.B., Thurston, G., Joho, S., **Springer, M.L.**, Kuo, C.J., and McDonald, D.M. (2006). VEGF-dependent plasticity of fenestrated capillaries in the normal adult microvasculature. *Amer. J. Physiol. Heart Circ. Physiol.* **290**:H560-H576. (*Commentary in ibid.*, **290**:H509)
24. **Springer, M.L.** (2006). A Balancing Act: Therapeutic Approaches to the Modulation of Angiogenesis. *Current Opinion in Investigational Drugs* **7**:243-250. (Review, peer-reviewed)
25. von Degenfeld, G., Banfi, A., **Springer, M.L.**, Jacobi, J., Ozawa, C.R., Merchant, M.J., Cooke, J.P., and Blau, H.M. (2006). Microenvironmental concentration of VEGF is critical to stable and functional vessel growth in ischemia. *FASEB J.* **20**:2657-2659.
26. Zhang, Y., Takagawa, J., Sievers, R.E., Khan, M.F., Viswanathan, M.N., **Springer, M.L.**, Foster, E., and Yeghiazarians, Y. (2007) Validation of the wall motion score and myocardial performance indices as novel techniques to assess left ventricular function in mice post myocardial infarction. *Amer. J. Physiol. Heart Circ. Physiol.* **292**:H1187-H1192.
27. Takagawa, J., Zhang, Y., Sievers, R.E., Kapasi, N.K., Wong, M.L., Wang, Y., Yeghiazarians, Y., Lee, R.J., Grossman, W., and **Springer, M.L.** (2007) Myocardial infarct size measurement in the mouse chronic infarction model: Comparison of area- and length-based approaches. *J. Appl. Physiol.* **102**:2104-2111.
28. **Springer, M.L. [corresponding author]**, Banfi, A., Ye, J., von Degenfeld, G., Kraft, P.E., Saini, S.A., Kapasi, N.K., and Blau, H.M. (2007). Localization of vascular response to VEGF is not dependent on heparin binding. *FASEB J.* **21**:2074-2085.

29. Heiss, C., Sievers, R.E., Amabile, N., Momma, T.Y., Chen, Q., Natarajan, S., Yeghiazarians, Y., and **Springer, M.L.** (2008). *In vivo* measurement of flow-mediated vasodilation in living rats using high resolution ultrasound. *Amer. J. Physiol. Heart Circ. Physiol.* **294**:H1086-H1093.
30. Heiss, C., Wong, M.L., Block, V.I., Lao, D., Real, W.M., Yeghiazarians, Y., Lee, R.J., and **Springer, M.L.** (2008). Pleiotrophin induces nitric oxide dependent migration of endothelial progenitor cells. *J. Cell. Physiol.* **215**:366-373.
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32. Li, X., Tjwa, M., Van Hove, I., Enholm, B., Neven E., Paavonen, K., Jeltsch, M., Diez Juan, T., Sievers, R.E., Chorianopoulos, E., Wada, H., Vanwildemeersch, M., Noel, A., Foidart, J.-M., **Springer, M.L.**, von Degenfeld, G., Dewerchin, M., Blau, H.M., Alitalo, K., Eriksson, U., Carmeliet, P. and Moons, L. (2008). Re-evaluation of the role of VEGF-B suggests a restricted role in the revascularization of the ischemic myocardium. *Arterioscler. Thromb. Vasc. Biol.* **28**:1614-1620. (*Commentary in ibid.*, 28:1575-1576)
33. Yeghiazarians, Y., Zhang, Y., Prasad, M., Shih, H., Saini, S.A., Takagawa, J., Sievers, R.E., Wong, M.L., Kapasi, N.K., Mirsky, R., Koskenvuo, J., Minasi, P., Ye, J., Viswanathan, M.N., Angeli, F.S., Boyle A.J., **Springer, M.L.**, and Grossman, W. (2009). Injection of bone marrow cell extract into infarcted hearts results in functional improvement comparable to intact cell therapy. *Mol. Ther.* **17**:1250-1256. (*Commentary in ibid.*, 17:1120) (Cover photo)
34. Heiss, C., Jahn, S., Taylor, M., Real, W.M., Angeli, F., Wong, M.L., Amabile, N., Prasad, M., Rassaf, T., Ottaviani, J.I., Mihardja, S., Keen, C.L., **Springer, M.L.**, Boyle, A., Grossman, W., Glantz, S.A., Schroeter, H., and Yeghiazarians, Y. (2010). Improvement of endothelial function with dietary flavanols is associated with mobilization of circulating angiogenic cells in patients with coronary artery disease. *J. Am. Coll. Cardiol.* **56**:218-224.
35. Heiss, C., Schanz, A., Amabile, N., Jahn, S., Chen, Q., Wong, M.L., Rassaf, T., Heinen, Y., Cortese-Krott, M., Grossman, W., Yeghiazarians, Y., and **Springer, M.L.** (2010). Nitric oxide synthase expression and functional response to nitric oxide are both important modulators of circulating angiogenic cell response to angiogenic stimuli. *Arterioscler. Thromb. Vasc. Biol.* **30**:2212-2218.
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37. Zhang, Y., Sievers, R.E., Prasad, M., Mirsky, R., Shih, H., Wong, M.L., Angeli, F.S., Ye, J., Takagawa, J., Koskenvuo, J.W., **Springer, M.L.**, Grossman, W., Boyle, A.J., and Yeghiazarians, Y. (2011). Timing of bone marrow cell therapy is more important than repeated injections after myocardial infarction. *Cardiovasc. Pathol.* **20**:204-212.
38. Wang, X., Takagawa, J., Lam, V.C., Haddad, D.J., Tobler, D.L., Mok, P.Y., Zhang, Y., Clifford, B.T., Pinnamaneni, K., Saini, S.A., Su, R., Bartel, M.J., Sievers, R.E., Carbone, L., Kogan, S., Yeghiazarians, Y., Hermiston, M.L., and **Springer, M.L.** (2011). Donor myocardial infarction impairs the therapeutic potential of bone marrow cells by an interleukin-1-mediated

- inflammatory response. *Sci. Transl. Med.* **3**:100ra90. (Commentary in *Science online, ScienceNOW*, Sept 14, 2011; and in *Nature*, 477:373)
39. Wang, X., Takagawa, J., Haddad, D.J., Pinnamaneni, K., Zhang, Y., Sievers, R.E., Grossman, W., Yeghiazarians, Y., and **Springer, M.L.** (2011). Advanced donor age impairs bone marrow cell therapeutic efficacy for cardiac disease. *J. Tissue Sci. Eng.* **S3**:002.
 40. Aschbacher, K.*, Chen, Q.*, Varga, M., Haddad, D.J., Yeghiazarians, Y., Epel, E., Wolkowitz, O.M., and **Springer, M.L.** (2012). Higher fasting glucose levels are associated with reduced circulating angiogenic cell migratory capacity among healthy individuals. *Am. J. Cardiovasc. Dis.* **2**:12-19. (*co-first authors)
 41. Lin, Y.D., Luo, C.Y., Hu, Y.N., Yeh, M.L., Hsueh, Y.C., Chang, M.Y., Tsai, D.C., Wang, J.N., Tang, M.J., Wei, E.I., **Springer, M.L.**, and Hsieh, P.C.H. (2012). Instructive nanofiber scaffolds with VEGF creates a microenvironment for arteriogenesis and cardiac repair. *Sci. Transl. Med.* **4**:146ra109. (Commentary in *ibid.*, **4**:146fs26; coverage in the *Wall Street Journal* and *Nature*, 488:257)
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 44. Rafikov, R., Kumar, S., Aggarwal, S., Pardo, D., Fonseca, F.V., Ransom, J., Rafikova, O., Chen, Q., **Springer, M.L.**, and Black, S.M. (2014). Protein engineering to develop a redox insensitive endothelial nitric oxide synthase. *Redox Biol.* **2**:156-164.
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 46. Pinnamaneni, K., Sievers, R.E., Sharma, R., Selchau, A.M., Gutierrez, G., Nordsieck, E.J., Su, R., An, S., Chen, Q., Wang, X., Derakhshandeh, R., Aschbacher, K., Heiss, C., Glantz, S.A., Schick, S.F., and **Springer, M.L.** (2014). Brief exposure to secondhand smoke reversibly impairs endothelial vasodilatory function. *Nicotine Tob. Res.* **16**:584-590. (Coverage on *KGO 810 radio Morning Show*, 12/10/13, and in the *San Francisco Chronicle*, 12/11/13)
 47. Liu, J., Wang, X., Narayan, S., Glantz, S.A., Schick, S.F., and **Springer, M.L.** (2016). Impairment of endothelial function by little cigar secondhand smoke. *Tob. Regul. Sci.* **2**:56-63.
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52. An, S.*, Wang, X.*, Ruck, M.A., Rodriguez, H.J., Kostyushev, D.S., Varga, M., Luu, E., Derakhshandeh, R., Suchkov, S.V., Kogan, S.C., Hermiston, M.L., and **Springer, M.L.** (2018). Age-related impaired efficacy of bone marrow cell therapy for myocardial infarction reflects a decrease in B lymphocytes. *Mol. Ther.* **26**:1685-1693. (*co-first authors)
53. Nabavizadeh, P., Liu, J., Havel, C.M., Ibrahim, S., Derakhshandeh, R., Jacob, P., 3rd, and **Springer, M.L.** (2018). Vascular endothelial function is impaired by aerosol from a single IQOS HeatStick to the same extent as by cigarette smoke. *Tob. Control* **27**:s13-s19.
54. Lee, W.H.*, Ong, S.-G.*, Zhou, Y., Tian, L., Bae, H.R., Baker, N., Whitlatch, A., Mohammadi, L., Guo, H., Nadeau, K.C., **Springer, M.L.**, Schick, S.F., Bhatnagar, A., and Wu, J.C. (2019). Modeling cardiovascular risk of e-cigarettes with human induced pluripotent stem cell-derived endothelial cells. *J. Am. Coll. Cardiol.* **73**:2722-2737. (*co-first authors)
55. Rao, P., Liu, J., and **Springer, M.L.** (2020.) JUUL and combusted cigarettes comparably impair endothelial function. *Tob. Regul. Sci.* **6**:30-37. (Coverage including KCBS radio interview 1/6/20, KPIX TV interview 1/6/20, Rolling Stone, and UCSF Pulse Today)
56. Wang, X., Chacon, L.I., Derakhshandeh, R., Rodriguez, H.J., Han, D.D., Kostyushev, D.S., Henry, T.D., Traverse, J.H., Moye, L., Simari, R.D., Taylor, D.A., and **Springer, M.L.** (2020). Impaired therapeutic efficacy of bone marrow cells from post-myocardial infarction patients in the TIME and LateTIME clinical trials. *PLoS ONE* **15**:e0237401.
57. Rao, P., Han, D.D., Tan, K., Mohammadi, L., Derakhshandeh, R., Navabzadeh, M., Goyal, N., and **Springer, M.L.** (2022). Comparable impairment of vascular endothelial function by a wide range of electronic nicotine delivery devices. *Nicotine Tob. Res.* **24**:1055–1062.
58. Nabavizadeh, P.*, Liu, J.*, Rao, P., Ibrahim, S., Han, D.D., Derakhshandeh, R., Qiu, H., Wang, X., Glantz, S.A., Schick, S.F., and **Springer, M.L.** (2022) Impairment of endothelial function by cigarette smoke is not caused by a specific smoke constituent, but by vagal input from the airway. *Arterioscler. Thromb. Vasc. Biol.* **42**:1324-1332 (*co-first authors). (1 of 5 recent articles selected for Feb 2023 AHA Trend Watch from ATVB; selected for 7/28/23 ATVB Twitter Chat; commentary in *ibid.*, **42**:1351-1354)
59. Mohammadi, L., Han, D.D., Xu, F., Huang, A., Derakhshandeh, R., Rao, P., Whitlatch, A., Cheng, J., Keith, R.J., Hamburg, N.M., Ganz, P., Hellman, J., Schick, S.F., and **Springer, M.L.**

- (2022). Chronic e-cigarette use impairs endothelial function on the physiological and cellular levels. *Arterioscler. Thromb. Vasc. Biol.* **42**:1333-1350. (Chosen as Editor's Pick for Nov. 2022 issue; 1 of 5 recent articles selected for Feb 2023 AHA Trend Watch from ATVB; selected for 7/28/23 ATVB Twitter Chat; commentary in *ibid.*, **42**:1351-1354)
60. Qiu, H., Zhang, H., Han, D.D., Derakhshandeh, R., Wang, X., Goyal, N., Navabzadeh, M., Rao, P., Wilson, E.E., Mohammadi, L., Olgin, J.E., and **Springer, M.L.** (2023). Increased vulnerability to atrial and ventricular arrhythmias caused by different forms of inhaled tobacco or marijuana products. *Heart Rhythm* **20**:76-86. (Editorial in *ibid.*, **20**:87-88; coverage including interviews by KCBS news radio airing 11/15/22 also on KNX news radio LA, KRON4 TV 11/15/22, NBC Bay Area TV 11/16/22, and online coverage including Yahoo! News, MSN, and UCSF News)
 61. Wang, X.*, Gaur, M.*, Mounzih, K., Rodriguez, H.J., Qiu, H., Chen, M., Yan, L., Cooper, B.A., Narayan, S., Derakhshandeh, R., Rao, P., Han, D.D., Nabavizadeh, P., **Springer, M.L.****, and John, C.M.** (2023.) Inhibition of galectin-3 post-infarction impedes progressive fibrosis by regulating inflammatory profibrotic cascades. *Cardiovasc. Res.* 119:2536-2549 (*co-first authors, **co-corresponding authors). (Editorial in *ibid.*, **119**:2495-2496)
 62. Han, D.D., Rao, P., Qiu, H., Navabzadeh, M., Wang, X., Goyal, N., Mohammadi, L., Huang, A., Perez, B.G., Schick, S.F., and **Springer, M.L.** (2023.) Impairment of endothelial function by cigarette smoke and e-cigarette aerosol requires RAGE. *Arterioscler. Thromb. Vasc. Biol.* **43**:2369-2371.
 63. Mohindra, P., Zhong, J.X., Fang, Q., Cuylear, D.L., Huynh, C., Qiu, H., Gao, D., Kharbikar, B.N., Huang, X., **Springer, M.L.**, Lee, R.J., and Desai, T.A. (2023). Local decorin delivery via hyaluronic acid microrods improves cardiac performance, ventricular remodeling after myocardial infarction. *NPJ Regen. Med.* **8**:60.
 64. Liu, J.*, Nabavizadeh, P.*, Rao, P.*, Derakhshandeh, R., Han, D.D., Guo, R., Murphy, M.B., Cheng, J., Schick, S.F., and **Springer, M.L.** (2023). Impairment of endothelial function by aerosol from marijuana leaf vaporizers. *J. Am. Heart Assoc.* **12**:e032969 (*co-first authors).
 65. Strongin, R.M., Sharma, E., Erythropel, H.C., El-Hellani, A., Kassem, N.O.F., Mikheev, V.B., Noël, A., Peyton, D.H., and **Springer, M.L.** (2024). Emerging ENDS products and challenges in tobacco control toxicity research. *Tob. Control* **33**:110-115 (Epub ahead of print was Jun 17 2022).

NON-PEER REVIEWED PUBLICATIONS:

Preprints

1. Wang, X., Derakhshandeh, R., Rodriguez, H.J., Han, D.D., Kostyushev, D.S., Henry, T.D., Traverse, J.H., Moye, L., Simari, R.D., Taylor, D.A., and **Springer, M.L.** (2019). Impaired therapeutic efficacy of bone marrow cells from post-myocardial infarction patients in the TIME and LateTIME clinical trials. *bioRxiv* (not peer-reviewed) doi: 10.1101/721860. (Subsequent publication as #56 above.)
2. Rao, P., Liu, J., and **Springer, M.L.** (2019). JUUL and combusted cigarettes comparably impair endothelial function. *bioRxiv* (not peer-reviewed), doi: 10.1101/754069. (Subsequent publication as #55 above.)

Review Articles

1. von Degenfeld, G., Banfi, A., **Springer, M.L.**, and Blau, H.M. (2003). Myoblast-mediated gene transfer for therapeutic angiogenesis and arteriogenesis. *British J. Pharmacol.* 140:620-626.

Books and Chapters

1. **Springer, M.L.**, Rando, T., and Blau, H.M. (1997; revised 2002). Gene delivery to muscle. In *Current Protocols in Human Genetics*, A.L. Boyle, ed. John Wiley & Sons, N.Y., Unit 13.4.
2. Ozawa, C.R., **Springer, M.L.**, and Blau, H.M. (2000). A novel means of drug delivery: Myoblast-mediated gene therapy and regulatable retroviral vectors. *Annu. Rev. Pharmacol. Toxicol.* 40: 295–317.
3. Ozawa, C.R., **Springer, M.L.**, and Blau, H.M. (2000). Ex vivo gene therapy using myoblasts and regulatable retroviral vectors. In *Gene Therapy: Therapeutic Mechanisms and Strategies*. N.S. Templeton and D.D. Lasic, ed. Marcel Dekker, Inc., New York, pp. 61-80.
4. Banfi, A., **Springer, M.L.**, and Blau, H.M. (2002). Myoblast-mediated gene transfer for therapeutic angiogenesis. *Methods Enzymol.* 346:145-157.
5. **Springer, M.L.** (2010). Assessment of myocardial angiogenesis and vascularity in small animal models. In *Methods in Molecular Biology, vol 660: Stem Cells for Myocardial Regeneration: Methods and Protocols*. R.J. Lee, ed. Humana Press, Inc., Totowa, N.J., pp. 149-167.
6. **Springer, M.L.** (2013). Gene therapy and angiogenesis. In *Cardiology: An Illustrated Textbook*. K. Chatterjee *et al.*, eds. Jaypee Brothers Medical Publishers (P) Ltd., Maryland Heights, M.O., pp. 2013-2029.

Other Publications

1. **Springer, M.L.** (1995). Gene therapy for restenosis: retinoblastoma to the rescue. *Molec. Med. Today* 1:57. (Commentary)
2. **Springer, M.L.** (1995). Cell implantation treatment for MPS VII. *Molec. Med. Today* 1:111. (Commentary)
3. **Springer, M.L.** (1996). Towards a treatment for Tay-Sachs disease. *Molec. Med. Today* 2:232. (Commentary)
4. **Springer, M.L.**, Brazelton, T.R., and Blau, H.M. (2001). Not the usual suspects: The unexpected sources of tissue regeneration. *J. Clin. Invest.* 107:1355-1356. (Invited commentary)
5. **Springer, M.L.** (2002). VEGF therapy in heart disease: For better or for worse? *Drug Discovery Today*. 7:209-211. (Invited editorial)
6. **Springer, M.L.** (2008). Living both music and medicine: Where the two practices intersect. (One of several sections.) *San Francisco Medicine* 81(2):38-39. (Invited commentary)
7. Roberts, W.C., **Springer, M.L.**, Wang, X., and Wang, D. (2011). The launch of American Journal of Cardiovascular Disease. *Am. J. Cardiovasc. Dis.* 1:i-ii. (Invited editorial)

8. **Springer, M.L.** and Wang, X. (2011). Blunting half of the double-edged sword: Potential use of interleukin-10 to protect bone marrow-derived cells after myocardial infarction. *Circ. Res.* **109**:1196-1198. (Invited editorial)
9. **Springer, M.L.** (2012). Earthquake safety at work: An important topic to review with patients. *San Francisco Medicine* **85(9)**:12-13. (Invited article)
10. **Springer, M.L.** (2016). CANNABIS: Clearing some smoke? *San Francisco Medicine* **89(2)**:26. (Invited editorial)
11. Glantz, S.A., Halpern-Felsher, B., and **Springer, M.L.** (2018). Marijuana, Secondhand Smoke, and Social Acceptability. *JAMA Intern. Med.* **178**:13-14. (Invited editorial)
12. **Springer, M.L.** (2021). Letter to the editor. *Am. J. Infect. Control* 49:530-531. (Letter about valved N95 respirators and COVID-19)

NON-SCIENCE ARTICLES:

1. **Springer, M.L.** (2006). No guts, no glory: Digging into 'Chanukah, Oh Chanukah.' *Strings* **144**:42-45.
2. **Springer, M.L.** (2007). Half a world away: Exploring celebratory music from China. *Strings* **145**:26-29.

PATENTS ISSUED OR PENDING:

Methods and compositions for preventing and treating damage to the heart
C.M. John, M. Gaur, M.L. Springer, X. Wang inventors
US Patent US-10369195 (allowed 8/6/2019); US-11,179,439 (allowed 11/23/2021)
EU Patent Application EP3496738A1
CN Patent Application 201780062232.1A

MEDIA COVERAGE, ADVOCACY, AND OTHER CREATIVE ACTIVITIES:

- 2005: Online video, lecture about ultrasound-guided injection into mouse myocardium, Swiss Cardiovascular Research and Training Network, Geneva, Switzerland
- 2006: Springer Laboratory website (<http://cardiolab.ucsf.edu/molcardiolab/>), including lab information, technical resources, and protocols
- 2007: Website as an information resource for UCSF faculty to learn about dealing with industry: through the Research Administration Board, I co-authored the content and coordinated the project (<http://ctsi.ucsf.edu/research/industry-faq>)
- 2008: Home earthquake preparedness website as a campus and public resource (moved in 2010 to <http://earthquake.matthewlspringer.com>)
- 2009: Interviewed for two KSFO radio news stories about earthquake safety (10/10/09)
- 2010: News interview for UCSF Today about earthquake safety, 2/1/10 (<http://www.ucsf.edu/news/2010/02/3181/professor-conduct-earthquake-preparedness-seminars>)

- 2010: Home earthquake preparedness lecture broadcast on UCTV national cable network (multiple broadcasts from 4/10-7/10), and available for online streaming on demand by UCTV (>200,000 online hits/views; <http://www.uctv.tv/search-details.aspx?showID=18193> and via YouTube at <http://www.youtube.com/watch?v=0Qa7gVrzFlk>)
- 2010: Interviewed for “Tech News” about microscopy contests, *Biotechniques*, 2010, 49:783-787
- 2011: First page coverage of earthquake safety talks in UCSF Synapse newspaper (3/10/11)
- 2011: Created Quaketips blog about earthquake preparedness (<http://quaketips.blogspot.com>); >500,000 page views
- 2011: News interview for UCSF Today regarding our research article about cardiac cell therapy (<http://www.ucsf.edu/news/2011/09/10649/ucsf-study-identifies-weakness-heart-attack-therapy>)
- 2011: Cardiac cell therapy research covered as a news item by *Science* online (ScienceNOW, Sept 14) and *Nature* (477:373 - Research Highlights)
- 2011: Interviewed about cardiac cell therapy research for German news radio broadcast (12/8/16): <http://www.dradio.de/dlf/sendungen/forschak/1623854/>
- 2013: Letter to the Editor, San Francisco Chronicle, 7/12/13 (“The other danger of e-cigarettes”) in response to editorial opposing limits on e-cigarette public use: <http://www.sfgate.com/opinion/letterstoeditor/article/Letters-to-the-editor-July-12-4660991.php>
- 2013: Quoted in material for Berkeley City Council hearing about proposed restrictions on e-cigarette sales and use: http://www.ci.berkeley.ca.us/Clerk/City_Council/2013/09Sep/Documents/2013-09-10_Item_36_Refer_Electronic_Cigarette_Sale.aspx
- 2013: Interviewed for two KGO radio news stories about our secondhand smoke research, aired 12/10/13; mp3 clips available at <https://cardiolab.ucsf.edu/kgontr12-10-13clips>
- 2013: Secondhand smoke research covered in the San Francisco Chronicle, 12/11/13: <http://www.sfgate.com/health/article/Questions-about-exercise-help-patients-shed-pounds-5052910.php> (one of several features; weight loss reference in URL refers to first feature)
- 2014: Letter to the Editor, Denver Post, 5/6/14 (“Colorado Symphony Orchestra shouldn’t cater to pot users”) expressing concern about potential smoke exposure resulting from the Colorado Symphony’s cannabis-themed concert series: <http://blogs.denverpost.com/eletters/2014/05/05/colorado-symphony-orchestra-shouldnt-cater-pot-users/30499/>
- 2014: Our cardiac cell therapy research mentioned in a news article in *Science*, 7/18/14: <http://www.sciencemag.org/content/345/6194/252.full?sid=8fdf8b96-e641-4d60-95bc-74c6ceff28be>
- 2014: Interviewed for San Francisco Examiner article about Napa earthquake: <http://www.sfexaminer.com/sanfrancisco/sf-escapes-largest-quake-in-decades-with-no-major-disturbances/Content?oid=2883955>
- 2014: Article in UCSF Synapse Newspaper orientation issue, 9/25/14 (“UCSF IS MOVING: Advice to new and old students alike about earthquake preparedness”):

<http://synapse.ucsf.edu/articles/2014/09/25/ucsf-moving-advice-new-and-old-students-alike-about-earthquake-preparedness>

- 2014: Extensive media coverage of abstract about marijuana secondhand smoke presented at the American Heart Association (AHA) Scientific Sessions, November 2014. Interviews included live KCBS radio phone interview and phone interview for news clips on KGO radio; separate video interviews for the AHA pressroom, HCPLive.com, and Medpage Today; and print/web coverage included Fox News, CBS, MSN Money, San Francisco Chronicle, San Francisco Examiner, WebMD, Cardiovascular Business, HealthDay, and Healthline.com, with commentary in the Washington Post and a long discussion segment on TYT Network's Young Turks news show. **Representative links:**

KCBS radio interview audio available at <https://cardiolab.ucsf.edu/kcbs2ndhandpot>

Video interview: <http://www.hcplive.com/conferences/aha-2014/Looking-at-Marijuana-Secondhand-Smoke-and-Vascular-Health>

<http://www.cbsnews.com/news/hazards-of-secondhand-marijuana-smoke/>

<http://www.foxnews.com/health/2014/11/17/secondhand-marijuana-smoke-may-harm-blood-vessel-function-as-much-as-cigarette/>

- 2014: Request for information about our marijuana secondhand smoke research from Alameda County Board of Supervisors.
- 2015: Front page coverage in Napa Valley Register's St. Helena Star newspaper of earthquake preparedness presentation for community of St. Helena, CA (near epicenter of 2014 South Napa earthquake), 1/6/15: http://napavalleyregister.com/star/news/local/ucsf-professor-shares-quake-preparedness-tips/article_06c214ea-2a0a-5ebd-9537-b7b78977c6f3.html
- 2015: Policy briefing submitted to California's Blue Ribbon Commission on Marijuana Policy (Springer and Glantz, "Marijuana Use and Heart Disease: Potential Effects of Public Exposure to Smoke"): <https://www.tobacco.ucsf.edu/marijuana-use-and-heart-disease-potential-effects-public-exposure-smoke>
- 2015: Interviewed for RadioMD about marijuana secondhand smoke: <http://radiomd.com/show/er-101/item/29615-medical-marijuana-and-secondhand-smoke>
- 2016: Letter to the Editor, Washington Post, 2/3/16 ("Secondhand marijuana smoke is harmful, just like tobacco smoke") commenting on controversy in Washington, DC about appropriate limitations on public smoking of tobacco and marijuana: https://www.washingtonpost.com/opinions/secondhand-marijuana-smoke-is-harmful-just-like-tobacco-smoke/2016/02/03/c454a080-c915-11e5-b9ab-26591104bb19_story.html
- 2016: Letter to the Editor, Toronto Star, 3/21/16 ("Vaping's effects still uncertain") in support of Ontario's proposed strict prohibitions on smoking and vaping medicinal marijuana in enclosed public places: https://www.thestar.com/opinion/letters_to_the_editors/2016/03/21/vapings-effects-still-uncertain.html
- 2016: Marijuana secondhand smoke research covered in the Sacramento Bee, 4/21/16: <http://www.sacbee.com/news/state/california/california-weed/article73208902.html>
- 2016: Interviewed for several news articles after our findings were cited as influencing proposal of California State Assembly bill AB2300 (allowing landlords who prohibit smoking of

- tobacco in rental units to prohibit smoking marijuana) was unanimously approved by the Assembly Judiciary Committee, including the Los Angeles Times (5/6/16: <http://www.latimes.com/politics/la-pol-sac-essential-poli-assembly-votes-to-allow-landlords-to-prohibit-tena-1462468568-htmlstory.html>) with more information in the Santa Rosa Press Democrat (5/4/16: <http://www.pressdemocrat.com/news/5564669-181/bill-by-assemblyman-jim-wood?artslide=0>)
- 2016: Extensive media coverage of our marijuana secondhand smoke paper after publication. Interviews included live KCBS radio phone interview with subsequent news clip; print/web coverage included Berkeley Wellness Letter (online), Fox News, CBS, Forbes, US News & World Report, Reuters Health, and medicalresearch.com. **Representative links:**
(Radio interview) <http://sanfrancisco.cbslocal.com/2016/08/01/secondhand-marijuana-smoke-worse-for-your-health-than-tobacco-study-finds/>
<http://www.cbsnews.com/news/smoking-heart-health-pot-or-tobacco/>
<http://www.foxnews.com/health/2016/07/28/secondhand-marijuana-smoke-may-be-more-harmful-than-that-from-tobacco.html>
<https://cardiolab.ucsf.edu/sites/g/files/tkssra1791/f/wysiwyg/BerkeleyWellnessRisksOfSecondhandMarijuanaSmoke-7-28-16.pdf>
<http://www.ucsf.edu/news/2016/07/403721/one-minute-second-hand-marijuana-smoke-impairs-cardiovascular-function>
- 2016: Interviewed for VICE about potential hazards of herbal cigarettes (8/24/16): <https://www.vice.com/en/article/4xkkkb/how-worried-you-should-be-about-smoking-herbal-cigarettes>
- 2016: Featured in an “Expert Q&A” article for the Berkeley Wellness Letter online (10/25/16): <https://cardiolab.ucsf.edu/sites/g/files/tkssra1791/f/wysiwyg/BerkeleyWellnessDoResearchersHaveTheRightMarijuana-10-25-16.pdf>
- 2017: Coverage of earthquake preparedness advocacy efforts, Digital Journal 1/6/17: (<http://www.digitaljournal.com/life/lifestyle/op-ed-earthquake-preparedness-is-ever-present-especially-for-sf-bay/article/483109>)
- 2017: Interviewed for comments about another researcher's conference report regarding cardiovascular effects of marijuana use, San Jose Mercury News print edition 3/16/17: (online article links to third party site) <http://www.thecannifornian.com/cannabis-health/study-marijuana-stroke-heart-failure/>
- 2017: Featured in UCSF Magazine Summer 2017 issue, pp 12-17: <https://issuu.com/ucsfmagazine/docs/ucsf-magazine-summer-2017> (excerpt subsequently appeared as a feature on the UCSF Campaign website: <https://campaign.ucsf.edu/stories/mustering-evidence-against-secondhand-marijuana-smoke>)
- 2017: Interviewed for HealthDay (11/14/17) and MedPage Today (11/16/17) about research into health effects of IQOS heat-not-burn system:
<https://consumer.healthday.com/cancer-information-5/cigarette-smoking-tobacco-health-news-665/new-heat-not-burn-cigarettes-harm-blood-vessels-study-728445.html>
<https://www.medpagetoday.com/meetingcoverage/aha/69338>

- 2017: Interviewed for San Francisco Chronicle story on marijuana health policy, 11/26/17: <http://www.sfchronicle.com/bayarea/article/SF-report-weighs-health-risks-raised-by-legal-pot-12383530.php>
- 2018: Featured in KALW Public Radio news story about secondhand marijuana smoke, 1/10/18: <http://kalw.org/post/secondhand-cannabis-smoke-bad-you#stream/0>
- 2018: Featured in NPR's The California Report (2/20/18) and then NPR's national Morning Edition (3/19/18) about secondhand marijuana smoke:
<https://ww2.kqed.org/stateofhealth/2018/02/20/now-that-pot-is-legal-should-you-worry-about-secondhand-smoke-california-scientist-says-yes/>
<https://www.npr.org/sections/health-shots/2018/03/19/592873218/are-there-risks-from-secondhand-marijuana-smoke-early-science-says-yes>
- 2018: Continued media coverage of secondhand marijuana smoke research. Interviews included live KSRO radio (Santa Rosa) phone interview, and phone interviews for KFBK radio (Sacramento) and the Daily Mail (UK); additional print/web coverage included US News & World Report, Washington Post, Kaiser Health News, and the Drudge Report.
- Representative links:**
- KSRO live phone interview (2/27/18):* <http://www.ksro.com/2018/02/27/interview-the-dangers-of-secondhand-marijuana-smoke/>
- KFBK radio interview (3/20/18) audio clips available at:* <https://cardiolab.ucsf.edu/kfbk3-20-18clips>
- <https://www.usnews.com/news/health-care-news/articles/2018-03-20/study-marijuana-smoke-3-times-worse-for-you-than-tobacco-smoke>
- <http://www.dailymail.co.uk/health/article-5531929/Second-hand-weed-smoke-effect-arteries-cigarettes.html>
- 2018: "NowThis News" video about our secondhand marijuana smoke research, 3/20/18 (>255,000 views in 2 days on Facebook): <https://nowthisnews.com/videos/weed/there-might-be-risks-to-secondhand-weed-smoke>
- 2018: Coverage by American Heart Association News about e-cigarette conference report, 11/5/18: <https://www.heart.org/en/news/2018/11/05/study-ecigarettes-may-damage-the-heart>
- 2018: Featured in Stanford University BioSci Careers Alumni Stories: <http://med.stanford.edu/bioscicareers/connections/alumni-stories/matt-springer-92.html>
- 2018: Quoted in Politifact California article, Capital Public Radio (Sacramento), 12/20/18: <https://www.politifact.com/california/article/2018/dec/20/pot-101-update-what-are-laws-surrounding-second-ha/>
- 2019: Featured in Stanford University BioSci Careers Alumni News, 7/10/19: <https://med.stanford.edu/bioscicareers/connections/career-scope/springer-07-19.html>
- 2019: Interviewed for Seoul Broadcasting System (SBS-TV; South Korea) for 9/15/19 TV news documentary about heat-not-burn tobacco products.
- 2019: Interviewed for an article about vaping in the Wall Street Journal, 10/7/19: <https://www.wsj.com/articles/what-adult-vapers-should-do-now-11570280401>

- 2019: Quoted in “Great Question!” article, Capital Public Radio (Sacramento), 11/20/19: <http://www.cpradio.org/articles/2019/11/20/with-cannabis-legal-in-california-some-cities-and-health-groups-and-neighbors-are-asking-questions-about-secondhand-smoke/>
- 2020: Coverage of our publication about vascular effects of JUUL exposure. **Representative links:**
- KPIX TV interview (1/6/20):* <https://sanfrancisco.cbslocal.com/2020/01/06/ucsf-juul-nicotine-vs-cigarettes-e-cigs-study/>
- KCBS radio interview (1/6/20):* <https://kcbsradio.radio.com/media/audio-channel/e-cigs-made-by-juul-pack-more-nicotine-per-puff>
- <https://www.rollingstone.com/culture/culture-news/juul-nicotine-levels-cigarettes-study-934583/>
- <https://www.ucsf.edu/news/2020/01/416371/juul-delivers-substantially-more-nicotine-previous-generation-e-cigs-and>
- 2020: Letter to the Editor, San Francisco Chronicle, 2/4/20 (“Exposed to chemicals”) informing readers of imminent IQOS marketing in the US and of its lack of FDA Modified Risk Tobacco Product designation: <https://www.sfchronicle.com/opinion/letterstoeditor/article/Letters-to-the-Editor-Work-together-to-end-15027422.php>
- 2020: Request for information about our research by office of CA Assemblyman Evan Low for potential legislation limiting nicotine levels
- 2020: Updated earthquake preparedness talk recorded webinar-style for online viewing; accessible at <https://earthquake.matthewlspringer.com/EarthquakeVideos/EarthquakeVideos.html>
- 2020: Advocacy to avoid public use of exhaust-valved face masks during COVID-19 pandemic: recommendation incorporated into San Francisco’s face covering directive (ORDER OF THE HEALTH OFFICER No. C19-12; Public Health Emergency Order April 17, 2020) and subject of SF Chronicle article, 4/17/20: <https://www.sfdph.org/dph/alerts/files/OrderNoC19-12-RequiringFaceCovering-04172020.pdf>
- <https://www.sfchronicle.com/bayarea/article/Coronavirus-Bay-Area-officials-warn-some-N95-15208241.php>
- 2020: Interviewed for The Cut (New York Magazine) about cannabis and COVID-19, 4/21/20: <https://www.thecut.com/2020/04/weed-coronavirus.html>
- 2020: Request for information about our research by Washington State Attorney General’s office for fact finding about nicotine delivery from JUUL
- 2021: Interviewed for VICE about potential hazards of herbal cigarettes, 4/19/21: <https://www.vice.com/en/article/4avyx9/tiktok-smoking-flowers-weed-alternative-herbal-cigarettes>
- 2021: Referenced by the New York Times for policy suggestion regarding combating COVID vaccine hesitancy, 5/21/21: <https://www.nytimes.com/2021/05/21/briefing/covid-19-us-pandemic-vaccinations.html?smid=url-share>

- 2021: Presentation and panelist for City of Boulder (CO) Cannabis Licensing and Advisory Board about occupational health concerns for workers in hospitality establishments that allow smoking or vaping of cannabis, 7/6/21
- 2022: Interviewed on KRON4 TV Morning Show about our clinical study of cardiovascular effects of cannabis use, 8/20/22: <https://www.youtube.com/watch?v=U52uMURHAE0>
- 2022: Coverage of our publication about cardiac electrophysiological effects of exposure to tobacco smoke, marijuana smoke, or e-cigarette aerosol. **Representative links:**
KCBS news radio interview (two alternate clips were aired 11/15/22); also aired on KNX news radio in LA: <https://cardiolab.ucsf.edu/kcbsinterview11-15-22clips>
KRON4 TV news interview (11/15/22): <https://www.kron4.com/health/e-cigarettes-marijuana-have-harmful-effects-on-heart-ucsf-study-finds/>
NBC Bay Area TV news interview (aired 11/16/22):
<https://www.nbcbayarea.com/news/local/ucsf-conducts-smoke-and-vape-study/3080677/>
<https://www.msn.com/en-us/health/medical/is-vaping-and-marijuana-as-bad-for-your-heart-as-cigarettes/ar-AA14bpBq>
<https://news.yahoo.com/e-cigarettes-marijuana-impact-heart-115152995.html>
<https://www.ucsf.edu/news/2022/11/424191/marijuana-and-e-cigs-can-harm-heart-traditional-cigarettes>
- 2023: Invited “ATVB Twitter Chat” interview about our papers, 7/28/23:
<https://twitter.com/atvbahajournals/status/1684911835399815168?s=20>
- 2023: Coverage of our American Heart Association conference presentation about impaired vascular function in chronic marijuana smokers and chronic edible THC users:
KRON4 TV news interview (11/21/23): <https://www.kron4.com/news/bay-area/new-study-reveals-thc-smoke-can-have-similar-effects-of-tobacco/>
<https://www.ucsf.edu/news/2023/11/426561/learn-how-long-term-marijuana-smoke-can-damage-your-blood-vessels>

CONSULTING:

- 2000-2003: Consultant, Lockheed Martin Engineering and Sciences Company for research at NASA Ames Research Center, involving development of cell culture research unit for the International Space Station.

MISCELLANEOUS:

Journal covers and textbook covers using Springer photomicrographs:

- 1989: *Genes Dev.* vol. 3, no. 4
 1990: *BioEssays* vol. 12, no. 2
 1992: *Dev. Biol.* vol. 152, no. 2

- 1993: *BioEssays* vol. 15, no. 6
 1998: *Mol. Cell* vol. 2, no. 5
 1998: *Fungal Gen. Biol.* vol. 25, no. 3
 2000: *Neurospora, Contributions of a Model Organism*, by R. Davis
 2000: *The Neurospora Compendium: Chromosomal Loci*, by D.D. Perkins *et al.*

Textbooks, news articles, reviews, and exhibits using Springer photomicrographs (partial list):

- 1990: N.L. Glass and C. Staben, *Sem. Dev. Biol.* 1:177-184, Fig. 2
 1992: *Development: The Molecular Genetic Approach*, V.E.A. Russo *et al.* eds., pp 91-93
 1994: *Biology: Concepts and Connections*, by N. Campbell *et al.*, p 333 (also Spanish, Italian translations)
 1996: *The World of the Cell*, 3rd edition, by W. Becker *et al.*, p 752
 1999: R. Maheshwari, *Fungal Gen. Biol.* 26:1-18, Fig. 6
 2000: *Neurospora, Contributions of a Model Organism*, by R. Davis, various pages
 2000: *The Neurospora Compendium: Chromosomal Loci*, by D.D. Perkins *et al.*, various pages
 2000: *Nature* 404:805 News Feature
 2000: The Oregonian (newspaper), Nov. 22, pp 1M-2M
 2001: Johnson Space Center, Houston, TX, educational CD-ROM
 2002: R.H. Davis and D.D. Perkins, *Nature Reviews Genetics*, 3:7-13
 2004: *Chronobiology: Biological Timekeeping*, J.C. Dunlap *et al.* eds., plate 2
 2004: *Genomics & Proteomics*, June online issue <http://www.genpromag.com>
 2004: *Biology*, 7th Edition, by N. Campbell and J. Reece, p 616 (also French translation)
 2004: *Arti VMBO-Praktijkboek Handenarbeid 2* (“Arts & Crafts Workbook”; The Netherlands), by C. van Sabben, p 19
 2005: *Circadian Physiology*, 2nd Edition, by R. Refinetti, p 230
 2005: *Genetik* (Germany), by W. Janning and E. Knust, p 102
 2005: *Introduction to Microbiology* (Online textbook) by T. Paustian and G. Roberts, Fig. 1.2
 2005: *Concepts of Genetics*, 8th Edition, by W.S. Klug *et al.*, p 12
 2005: *Storia Della Scienza* (“History of Science”; Italy), Vol. IX, Parisi *et al.*, eds., p 122
 2006: *Microbiology*, 2nd Edition, by R.W. Bauman, p 359
 2006: R. Allshire and E. Selker, in Chapter 6, *Epigenetics*, C.D. Allis *et al.*, eds., p 114
 2007: *Biologia*, 7th Edition (Argentina), by H. Curtis *et al.*, p 192
 2008: *Principles of Modern Microbiology*, by M. Wheelis, p 349
 2008: *Biology – Concepts & Investigations*, by M. Hoefnagels, p 437
 2008: Nikon Small World microscopy competition 4th prize: February in Nikon 2009 calendar plus online coverage in New York Times, National Geographic, Scientific American, New Scientist, MSNBC
 2009: *DNATrium* interactive exhibit of genetics and genomics, Broad Institute, Cambridge, MA
 2009: N. Raju, *J. Biosci.* 34:139-159, Fig. 3B
 2010: D. Ebbole, in *Cellular and Molecular Biology of Filamentous Fungi*, K. Borkovich and D. Ebbole, eds.
 2011: *Biologie heute SII, Gesamtband* (Germany), by J. Braun *et al.*, p 130
 2011: *Concepts of Genetics*, 10th Edition, by W.S. Klug *et al.*, figure as in 8th Edition above plus additional figure
 2011: *Fungi: Experimental Methods in Biology*, 2nd Edition, by R. Maheshwari
 2012: *Molecular Biology: Principles and Practice*, 1st Edition, by M. Cox *et al.* page A-11
 2013: *Fundamentals of Biochemistry: Life at the Molecular Level*, 4th Edition, by D. Voet *et al.*

- 2013: E. Selker, in *Brenner's Online Encyclopedia of Genetics*, S. Maloy and K. Hughes, eds.
- 2015: *Livets Koder* ("Codes of Life"; Denmark), by P.H. Jakobsen, p 60
- 2016: Freeman's *Biological Science*, 6th Edition, by L. Allison *et al.*
- 2022 (*planned*): *Biologie heute BG SB 2022* (ISBN 978-3-427-40420-0), Westermann Gruppe, Germany, by Hans-Peter Konopka, p 124