



## Michael Leong

- Clinical Professor, Anesthesiology, Perioperative and Pain Medicine
- Clinical Professor (By courtesy), Neurosurgery
- 📄 Curriculum Vitae available Online

### CLINICAL OFFICE (PRIMARY)

- **Pain Management Clinic**

450 Broadway St  
Pavilion A 1st Fl MC 5340  
Redwood City, CA 94063  
**Tel** (650) 723-6238    **Fax** (650) 721-3414

### ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

Alyssa Martinez  
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**Tel** 650-721-7286

### Bio

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#### BIO

Michael S. Leong, MD, is a specialist in pain medicine with clinical foci in radiculopathy; spinal, abdominal, and cancer pain; postherpetic neuralgia; and workers compensation cases. He received his medical degree from Georgetown University in Washington, DC, and completed his residency in anesthesiology at University of California, Davis and at Stanford University, where he also completed his fellowship in pain medicine. He is board certified by the American Board of Anesthesiology. Dr. Leong is currently a Clinical Associate Professor of Anesthesiology and Pain Medicine at Stanford University.

#### CLINICAL FOCUS

- Pain Management
- Radiculopathy
- Spinal Pain
- Neuromodulation
- Spinal Cord Stimulation
- Intrathecal (Intraspinal) Analgesia
- Cancer Pain
- Pain Medicine

#### ACADEMIC APPOINTMENTS

- Clinical Professor, Anesthesiology, Perioperative and Pain Medicine
- Clinical Professor (By courtesy), Neurosurgery

#### ADMINISTRATIVE APPOINTMENTS

- Clinic Chief, Pain Management Center, (2010-2015)

## PROFESSIONAL EDUCATION

- Internship: George Washington University Medical Center Dept of Internal Medicine (1994) DC
- Medical Education: Georgetown University School of Medicine (1993) DC
- Fellowship: Stanford University Pain Management Fellowship (1998) CA
- Residency: Stanford University Anesthesiology Residency (1997) CA
- Residency: UC Davis Anesthesiology Residency (1995) CA
- Board Certification: Pain Medicine, American Board of Anesthesiology (2000)
- Board Certification: Anesthesia, American Board of Anesthesiology (1999)

## LINKS

- Pain Management Center: <http://paincenter.stanford.edu/>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

- Intrathecal / Intraspinal Analgesics
- Ziconotide (Prialt)
- Resiniferatoxin
- Industry-supported clinical trials

## Publications

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### PUBLICATIONS

- **Birds of a Feather Redux: Defining Ways to Stimulate the Peripheral Nervous System.** *Journal of pain research*  
Deer, T., Shah, A., Slavin, K., Vorenkamp, K. E., Shah, S., Leong, M., McRoberts, W. P.  
2023; 16: 1219-1224
- **Spinal Cord Burst Stimulation vs Placebo Stimulation for Patients With Chronic Radicular Pain After Lumbar Spine Surgery.** *JAMA*  
Goel, A., Leong, M., Shanthanna, H.  
2023; 329 (10): 846-847
- **Considerations in Permanent Implantation of Peripheral Nerve Stimulation (PNS) for Chronic Neuropathic Pain: An International Cross Sectional Survey of Implanters.** *Pain practice : the official journal of World Institute of Pain*  
Li, A. H., Gulati, A., Leong, M. S., Aggarwal, A. K., Salmasi, V., Spinner, D., Ottestad, E.  
2022
- **The Neurostimulation Appropriateness Consensus Committee (NACC): Recommendations on Best Practices for Cervical Neurostimulation.** *Neuromodulation : journal of the International Neuromodulation Society*  
Deer, T. R., Russo, M., Grider, J. S., Pope, J., Hagedorn, J. M., Weisbein, J., Abd-Elseyed, A., Benyamin, R., Raso, L. J., Patel, K. V., Provenzano, D., Kim, P. S., Amirdelfan, et al  
1800; 25 (1): 35-52
- **Stanford pragmatic effectiveness comparison (SPEC) protocol: Comparing long-term effectiveness of high-frequency and burst spinal cord stimulation in real-world application.** *Contemporary clinical trials*  
Petrou, P. A., Leong, M. S., Mackey, S. C., Salmasi, V.  
2021: 106324
- **Thoracic epidural analgesia in a lung transplant patient with an activated partial thromboplastin time falsely elevated by C-reactive protein.** *Canadian journal of anaesthesia = Journal canadien d'anesthesie*  
Simon, E. R., Hsu, J., Nwokeabia, D., Leong, M., Keeyapaj, W.  
2021

- **Guest Editorial: Physician Guidance on the Use of Off-Labelled Drugs in Intrathecal Drug Delivery Systems for Chronic Pain.** *Neuromodulation : journal of the International Neuromodulation Society*  
Deer, T., Kim, P., Pope, J. E., Hayek, S., McDowell, G., Mekhail, N., Diwan, S., Saulino, M., Moeschler, S., Schultz, D., Gritsenko, K., Prager, J., Peterson, et al  
2019
- **International Stakeholder Community of Pain Experts and Leaders Call for an Urgent Action on Forced Opioid Tapering** *PAIN MEDICINE*  
Darnall, B. D., Juurlink, D., Kerns, R. D., Mackey, S., Van Dorsten, B., Humphreys, K., Gonzalez-Sotomayor, J. A., Furlan, A., Gordon, A. J., Gordon, D. B., Hoffman, D. E., Katz, J., Kertesz, et al  
2019; 20 (3): 429–33
- **Conventional vs high frequency neuromodulation in the treatment of Low Back Pain following Spine Surgery.** *PM & R : the journal of injury, function, and rehabilitation*  
Sclafani, J. n., Leong, M. n., Desai, M. J., Mehta, N. n., Sayed, D. n., Singh, J. R.  
2019
- **International Stakeholder Community of Pain Experts and Leaders Call for an Urgent Action on Forced Opioid Tapering.** *Pain medicine (Malden, Mass.)*  
Darnall, B. D., Juurlink, D., Kerns, R. D., Mackey, S., Van Dorsten, B., Humphreys, K., Gonzalez-Sotomayor, J. A., Furlan, A., Gordon, A. J., Gordon, D. B., Hoffman, D. E., Katz, J., Kertesz, et al  
2018
- **Radiofrequency Denervation for Chronic Low Back Pain** *JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*  
Kao, M., Leong, M. S., Mackey, S.  
2017; 318 (22): 2256
- **Radiofrequency Denervation for Chronic Low Back Pain.** *JAMA*  
Kao, M. C., Leong, M. S., Mackey, S.  
2017; 318 (22): 2256
- **The Polyanalgesic Consensus Conference (PACC): Recommendations on Intrathecal Drug Infusion Systems Best Practices and Guidelines (vol 20, pg 96, 2017)** *NEUROMODULATION*  
Deer, T. R., Pope, J. E., Hayek, S. M., Bux, A., Buchser, E., Eldabe, S., De Andres, J. A., Erdek, M., Patin, D., Grider, J. S., Doleys, D. M., Jacobs, M. S., Yaksh, et al  
2017; 20 (4): 405–6
- **The Polyanalgesic Consensus Conference (PACC): Recommendations on Intrathecal Drug Infusion Systems Best Practices and Guidelines.** *Neuromodulation*  
Deer, T. R., Pope, J. E., Hayek, S. M., Bux, A., Buchser, E., Eldabe, S., De Andrés, J. A., Erdek, M., Patin, D., Grider, J. S., Doleys, D. M., Jacobs, M. S., Yaksh, et al  
2017; 20 (2): 96-132
- **Research designs for proof-of-concept chronic pain clinical trials: IMMPACT recommendations.** *Pain*  
Gewandter, J. S., Dworkin, R. H., Turk, D. C., McDermott, M. P., Baron, R., Gastonguay, M. R., Gilron, I., Katz, N. P., Mehta, C., Raja, S. N., Senn, S., Taylor, C., Cowan, et al  
2014; 155 (9): 1683-1695
- **The Appropriate Use of Neurostimulation: Avoidance and Treatment of Complications of Neurostimulation Therapies for the Treatment of Chronic Pain** *NEUROMODULATION*  
Deer, T. R., Mekhail, N., Provenzano, D., Pope, J., Krames, E., Thomson, S., Raso, L., Burton, A., DeAndres, J., Buchser, E., Buvanendran, A., Liem, L., Kumar, et al  
2014; 17 (6): 571-597
- **CT-Guided Percutaneous Infrazygomatic Radiofrequency Neurolysis Through Foramen Rotundum to Treat V2 Trigeminal Neuralgia** *PAIN MEDICINE*  
Huang, B., Yao, M., Feng, Z., Guo, J., Zereshki, A., Leong, M., Qian, X.  
2014; 15 (8): 1418-1428
- **The Appropriate Use of Neurostimulation: New and Evolving Neurostimulation Therapies and Applicable Treatment for Chronic Pain and Selected Disease States** *NEUROMODULATION*  
Deer, T. R., Krames, E., Mekhail, N., Pope, J., Leong, M., Stanton-Hicks, M., Golovac, S., Kapural, L., Alo, K., Anderson, J., Foreman, R. D., Caraway, D., Narouze, et al

2014; 17 (6): 599-615

- **The Appropriate Use of Neurostimulation of the Spinal Cord and Peripheral Nervous System for the Treatment of Chronic Pain and Ischemic Diseases: The Neuromodulation Appropriateness Consensus Committee** *NEUROMODULATION*  
Deer, T. R., Mekhail, N., Provenzano, D., Pope, J., Krames, E., Leong, M., Levy, R. M., Abejon, D., Buchser, E., Burton, A., Buvanendran, A., Candido, K., Caraway, et al  
2014; 17 (6): 515-550
- **Acute Cardiovascular Toxicity of Low-Dose Intrathecal Ziconotide.** *Pain medicine (Malden, Mass.)*  
Heifets, B. D., Smith, S. M., Leong, M. S.  
2013
- **Polyanalgesic Consensus Conference-2012: Recommendations on Trialing for Intrathecal (Intraspinal) Drug Delivery: Report of an Interdisciplinary Expert Panel** *NEUROMODULATION*  
Deer, T. R., Prager, J., Levy, R., Burton, A., Buchser, E., Caraway, D., Cousins, M., De Andres, J., Diwan, S., Erdek, M., Grigsby, E., Huntoon, M., Jacobs, et al  
2012; 15 (5): 420-435
- **Polyanalgesic Consensus Conference-2012: Consensus on Diagnosis, Detection, and Treatment of Catheter-Tip Granulomas (Inflammatory Masses)** *NEUROMODULATION*  
Deer, T. R., Prager, J., Levy, R., Rathmell, J., Buchser, E., Burton, A., Caraway, D., Cousins, M., De Andres, J., Diwan, S., Erdek, M., Grigsby, E., Huntoon, et al  
2012; 15 (5): 483-496
- **Polyanalgesic Consensus Conference 2012: Recommendations for the Management of Pain by Intrathecal (Intraspinal) Drug Delivery: Report of an Interdisciplinary Expert Panel** *NEUROMODULATION*  
Deer, T. R., Prager, J., Levy, R., Rathmell, J., Buchser, E., Burton, A., Caraway, D., Cousins, M., De Andres, J., Diwan, S., Erdek, M., Grigsby, E., Huntoon, et al  
2012; 15 (5): 436-466
- **Polyanalgesic Consensus Conference-2012: Recommendations to Reduce Morbidity and Mortality in Intrathecal Drug Delivery in the Treatment of Chronic Pain** *NEUROMODULATION*  
Deer, T. R., Levy, R., Prager, J., Buchser, E., Burton, A., Caraway, D., Cousins, M., De Andres, J., Diwan, S., Erdek, M., Grigsby, E., Huntoon, M., Jacobs, et al  
2012; 15 (5): 467-482
- **Intrathecal Ziconotide for Complex Regional Pain Syndrome: Seven Case Reports** *PAIN PRACTICE*  
Kapural, L., Lokey, K., Leong, M. S., Fiekowsky, S., Stanton-Hicks, M., Sapienza-Crawford, A. J., Webster, L. R.  
2009; 9 (4): 296-303
- **Phase II, open-label, multicenter study of combined intrathecal morphine and ziconotide: Addition of ziconotide in patients receiving intrathecal morphine for severe chronic pain** *PAIN MEDICINE*  
Wallace, M. S., Kosek, P. S., Staats, P., Fisher, R., Schultz, D. M., Leong, M.  
2008; 9 (3): 271-281
- **A novel needle-free powder lidocaine delivery system for rapid local analgesia** *JOURNAL OF PEDIATRICS*  
Zempsky, W. T., Robbins, B., Richards, P. T., Leong, M. S., Schechter, N. L.  
2008; 152 (3): 405-411
- **Dose-finding, safety, and tolerability study of botulinum toxin type B for the treatment of hyperfunctional glabellar lines** *DERMATOLOGIC SURGERY*  
Carruthers, A., Carruthers, J., Flynn, T. C., Leong, M. S.  
2007; 33: S60-S68
- **A randomized, double-blind, placebo-controlled study of intrathecal ziconotide in adults with severe chronic pain** *JOURNAL OF PAIN AND SYMPTOM MANAGEMENT*  
Rauck, R. L., Wallace, M. S., Leong, M. S., Minehart, M., Webster, L. R., Charapata, S. G., Abraham, J. E., Buffington, D. E., Ellis, D., Kartzinel, R.  
2006; 31 (5): 393-406
- **Pump battery assessment: Cold, old, or dead!** *NEUROMODULATION*  
Leong, M. S., Carpentier, B. W.  
2001; 4 (3): 117-119