

Curriculum Vitae

May 15, 2016

Aaron G. Filler, MD, PhD, FRCS, JD

President (2015-16) & General Counsel - Society for Brain Mapping and Therapeutics
Diplomate, American Board of Neurological Surgery
Fellow of the Royal College of Surgeons of England
Fellow of the Intercollegiate Board in Surgical Neurology of England, Ireland,
Edinburgh & Glasgow
Fellowship in Complex Spinal Surgery - UCLA
Fellowship in Peripheral Nerve Surgery - Louisiana State University, New Orleans, LA
Fellowship in Neuroimaging - University of London
Director, Institute for Nerve Medicine, Santa Monica, CA
Director, Center for Advanced Spinal Neurosurgery, Santa Monica, CA
Medical Director, Neurography Institute, Santa Monica, CA
Section Editor for Peripheral Nerve, Youmans Textbook of Neurological Surgery
Lieutenant Colonel, US Army Reserve, Medical Corps, Retired
Commander, 1466th Med Team, Neurosurgery, United States Army Reserve, Retired
Course founder: Biomechanics & Comparative Primate Anatomy, Harvard University
Joint Guidelines Committee, American Association of Neurological Surgeons &
Congress of Neurological Surgeons – Washington Committee
Guidelines Committee, Disorders of Spine & Peripheral Nerve Section - AANS & CNS
Spinal Fusion Guidelines Reviewer - American Association of Neurological Surgery &
Congress of Neurological Surgery – Washington Committee (2013)
Course Director - Billing and Coding: Medicine and Law
- American Society for Peripheral Nerve 2013-2014
Course Faculty - Peripheral Nerve Surgical Anatomy and Dissection Course for
for Neurosurgery Senior Residents (2014)
Neuroscience Research and Education Fund, AANS, Baltimore, MD
Cedars Sinai Medical Staff, Continuing Education Committee Member (2014 to 2016)
State Bar of California No. 302956, President - Tensor Law, P.C.

Office Address

California:

Institute for Nerve Medicine
2716 Ocean Park Blvd., Suite 3082
Santa Monica, CA 90405
Phone: (310) 314-6410
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E-Mail: afiller@nervemed.com
Web: www.nervemed.com
Web: www.backpain-guide.com

United Kingdom:

Institute for Nerve Medicine
10 Harley Street
London, England, UK W1G 9PF
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People's Republic of China:

磁共振神经咨询公司事务所中国
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嘉泰国际大厦A
北京市朝阳区东四环中路41号
北京, 中华人民共和国

MR Neurography Consulting, China
Tier 10, No. 1011
Jia Tai International Tower A
No. 41, East 4th Ring Road
Chaoyang District, Beijing, PRC

Date of Birth October 21, 1956

Place of Birth Washington, D.C.

Education

High School Walt Whitman H.S., Bethesda, MD (9/71 – 6/74)

BA '77 with honors University of Chicago, Chicago, IL (9/74 – 6/77)
Date of Diploma: June 20, 1977

MA '79 University of Chicago, Chicago, IL (9/77 – 6/79)
Date of Diploma: December 17, 1979

MD '86 University of Chicago, Chicago, IL
(9/77 – 6/79 & 6/84 – 6/86)
Date of Diploma: June 13, 1986

PhD '86 Harvard University, Cambridge, MA (8/79 – 6/86)
Date of Diploma: June 5, 1986

Neurosurgical Residency University of Washington, Seattle, WA (6/86-6/94)

FRCS (SN) '94 Intercollegiate Board in Surgical Neurology
Royal Colleges of Surgeons,
England, Glasgow, Edinburgh, and Ireland

FRCS '07 Fellow of the Royal College of Surgeons of England

JD '14 Concord Law School, Kaplan University (9/10-12/14)
Date of Diploma: January 2, 2015

Post-Graduate Medical Education

6/86 – 6/94 Neurosurgical Residency
Department of Neurological Surgery
University of Washington, Seattle, WA
General Surgery Rotating Internship (6/86-6/87)
Neurosurgical Resident & Chief Resident (7/87-6/94)
Univ. of Washington Hospitals and Clinics
Harborview Medical Center, Seattle, WA
Seattle Veterans Administration Hospital
Children's Hospital Medical Center, Seattle, WA
Atkinson Morley's Hospital, London, U.K. &
St. George's Hospital Med School, London, UK
Including 18 months MRI Basic Science
& Research 12/90 to 5/92

- 6/94 – 6/95 Wellcome Trust Clinical Fellow in Magnetic Resonance Nerve Imaging
CRC Magnetic Resonance Research Group
Div. of Biochemistry, St. George's Hosp. Med. School,
& Departments of Neurosurgery and Neuroradiology
Atkinson Morley's Hospital, London, U.K.
- 7/95 – 6/96 Spine Fellow
Professors Ulrich Batzdorf, J. Patrick Johnson, Duncan McBride
Complex Spine Reconstruction and Syringomyelia
Division of Neurosurgery
University of California Los Angeles
UCLA Medical Center, Los Angeles, CA
- 3/96 – 6/96 Peripheral Nerve Fellow
Professor David Kline
Department of Neurosurgery
Louisiana State University
New Orleans, LA

Legal Education

- 2/2015 California Bar Exam 2/24/15 - 2/26/15
- passed at first opportunity
- 9/7/2010 – 12/2014 JD - Concord Law School (12/12/14)
Los Angeles, California
Date of Diploma 1/3/15
- 10/2011 FYLSE – State Bar of California (October 25, 2011)
First Year Law Students Examination
– passed exam at first opportunity
- 11/2013 MPRE - Multistate Professional Responsibility Exam
- passed exam at first opportunity
- 11/2013 - present Certified Law Student - California State Bar
PTLS - Practical Training of Law Students
California Rules of Court 9.42
Certification #: 34114
- 9/2010 – present California Bar Association
Student File # 403403

Academic and Faculty Positions

- 2008 - 2009 Section Editor - Peripheral Nerve Surgery - Youman's
Textbook of Neurological Surgery, 6th Edition

Elsevier. (in press). Richard Winn, Editor in Chief

- 2005 - 2008
 Director, Peripheral Nerve Surgery Program
 Cedars Sinai Medical Center &
 Neurosurgical Residency Program
 Cedars Sinai Medical Center, Los Angeles, CA
- 2001 - 2005
 Director, Peripheral Nerve Surgery Program
 Century City Hospital, Los Angeles, CA
- 1996 - 2001
 Assistant Professor of Neurosurgery, UCLA
 Co-Director, UCLA Peripheral Nerve Surgery Program
 Co-Director, UCLA Interventional MRI Program
 Director, UCLA Pediatric & Obstetric Brachial Plexus
 Injury Program
 Associate, Comprehensive Spine Program
 Faculty, Neurosurgical Spine Surgery Fellowship Prog.
 Division of Neurosurgery
 UCLA Medical Center
 Los Angeles, CA
- 1995 - 2001
 Clinical Assistant Professor
 Department of Neurological Surgery
 University of Washington, Seattle
- 2000
 Faculty, Review Course for Board Certification
 American Association of Neurological Surgeons
- 1995 - 1996
 Clinical Instructor
 Division of Neurosurgery
 UCLA Medical Center
- 1994 - 1995
 Wellcome Trust Lecturer
 Division of Clinical Neuroscience
 & Division of Biochemistry
 St. George's Hospital Medical School
 University of London, London, U.K.
- 1992 - 1994
 Acting Instructor in Neurological Surgery
 Department of Neurological Surgery
 University of Washington, Seattle
- 1991 - 1992
 Clinical Lecturer - NeuroImaging
 Division of Biochemistry &
 Clinical Neuroscience Unit
 St. George's Hospital Medical School
- 1990 - 1991
 Visiting Research Fellow
 Division of Biochemistry

Department of Cell & Molecular Science
 St. George's Hospital Medical School
 London, U.K.

- 1980 - 1983 Research Advisor for Undergraduates
 Biological Anthropology
 Harvard University
- 1980 - 1982 Special Lecturer
 - Biomechanics & Comparative Primate Anatomy
 - Laboratory Methods Course
 Biological Anthropology
 Harvard University
- 1979 - 1983 Teaching Fellow
 - General Ed., Biology & Biological Anthropology
 Harvard University
 Cambridge, MA
- 1977 - 1978 Research Fellow,
 Department of Anatomy,
 University of Chicago

Research Support

- June '77 - August '77 University of Chicago School of Medicine,
 Medical Student Research Stipend
 Department of Anatomy, University of Chicago
 “Morphometric Analysis of Macropodid Skulls”
- Feb. '81 - Feb. '84 NIH PHS Musculo-Skeletal Training Grant
 Department of Biology, Harvard University
 NIH PHS #5 T32 GM07117-09 0011
 “Evolution of the Mammalian Spine”
- Feb. '88 - Sept. '88 NIH Neurosurgery Training Grant
 Dept. of Neurol. Surg., Univ. of Washington Seattle
 5T32 NS-07144-09
 “Imaging of Axonal Transport”
- Jan. '91 - May '92 Neurosciences Research Foundation
 Atkinson Morley's Hospital,
 Harrison Clinical Lectureship
 Division of Clinical Neuroscience,
 St. George's Hosp. Med. School, Univ. of London
 “MR Imaging of Axonal Transport” (\$80,000)
- Oct. '91 - May '92 Nycomed Imaging, AS, Oslo, Norway

- Academic Investigator Support
 Div. of Biochemistry,
 St. George's Hospital Medical School, University of
 London. Principle Investigator. "Axonal Transport of
 Ferrite MR Contrast Agents" (\$25,000)

May '94 - June '95	Wellcome Trust Clinical Fellowship Division of Clinical Neuroscience & Division of Biochemistry St. George's Hospital Med. School, Univ. of London "MR Imaging of Neural Tracts" (\$75,000)
July '95 - June '96	UCLA Department of Radiological Sciences Pilot Assessment of MR Neurography for Cervical and Lumbar Spinal Imaging
Sept. '97 - Nov. '97	Nycomed Imaging, AS, Oslo, Norway - Black blood contrast agents for enhancement of Neurography - pilot study. (\$10,000)
Jan. '98 - June '99	U.K. Dept of Trade and Industry - SynGenix LTD, Targeted Drug Delivery to the CNS. (\$100,000)
Jan. '99 - Dec. '01	SynGenix LTD Axonal Transport for Drug Delivery (\$1.3 million)
Sept. '01 - Sept. '03	SynGenix LTD Axonal Transport for Drug Delivery (\$8 million)

Academic Meeting Session Chairman

3/20/2010	Filler AG. MRI Imaging. 2 nd Chongqing International Clinical Neuroscience Forum & International NeuroDrug Conference, Chongqing, People's Republic of China, 2010重庆国际神经病学论坛
6/25/2010	Filler AG. MRI Imaging. NeuroTalk BIT 1 st Annual Congress, Singapore. June 25, 2010.
3/15/2012	Filler AG. Neuroscience Imaging. International Neuroscience Conference – Omori Medical Center, Toho University, Tokyo, Japan, 東邦大学医療センター大森病院

- 5/14/2013 Filler AG. Multi-modality Imaging. Society for Brain Mapping & Therapeutics, 10th Annual World Congress. Baltimore Convention Center, Baltimore, MD
- 1/11/2014 Filler AG and Malesy MJ. General Scientific Session. American Society for Peripheral Nerve, Maui, Hawaii
- 1/12/2014 Filler AG. Medical and Legal Aspects of Coding and Billing for Peripheral Nerve Surgery. American Society for Peripheral Nerve, Maui, Hawaii
- 3/7/2015 Filler AG. Peripheral Nerve Session I Society for Brain Mapping and Therapeutics, Los Angeles Convention Center, Los Angeles, California
- 4/8/2016 Filler AG. Policy, Ethics and the Law in Neuroscience: Society for Brain Mapping and Therapeutics, Miami Florida.

Medical & Board Certifications

- 1987 Diplomate
National Board of Medical Examiners of U.S.A.
NBME # 214994
- 1994 Diplomate
American Board of Neurological Surgeons,
Primary Exam for Board Eligibility
- 1994 Diplomate
Neurological Surgery Residency Training
Department of Neurological Surgery
University of Washington, Seattle, WA
- 1994 Diplomate
Intercollegiate Board in Surgical Neurology
of the Royal Colleges of Surgeons of
Edinburgh, Glasgow, England, and Ireland.
(equivalent to FRCS {SN})
- 1999 Diplomate
American Board of Neurological Surgeons,
Oral Exam for Board Certification
ABNS Cert. #99073, 11/17/99 to 12/31/2009
Recertification #17043, expiration 12/31/2019

Medical Licensure

California State
Physician & Surgeon G81778
7/1995 - current

California State
Fluoroscopy Supervisor and Operator: RHC 145535
11/1998 - current

Florida
Medical License #: ME 118548
1/17/14 - current

Indiana
License #: 01070287A
9/29/2011 to current

Massachusetts
License #: 245500
4/4/2012 to current

Michigan
Medical Doctor #: 4301104352
12/3/2013 to current

New York State
License # - 254556
8/19/2009 to current

Nebraska
License # 26935
8/24/2012 to current

Ohio
License #: 35098599
2/5/2012 to current

Pennsylvania State
Medical Physician & Surgeon MD423086
10/03 – current

Utah State
Medical License 5267292-1205
1/27/2004 to 1/31/2006

Virginia
Medicine & Surgery License #0101252705
9/6/12 to current

Washington State
Physician and Surgeon License #MD00025619
6/30/88 - 10/21/06

U.K. General Medical Council
Medical Practitioner Limited Registration: 89/1233
12/89 - 5/95

U.K. General Medical Council
Medical Practitioner Full Registration: 4439398
7/97 - current

DEA: BF0683777
6/88 - current

Bar Admissions

State Bar of California
Bar Membership # 302956
May 18, 2015

Advanced Cardiac Life Support Certification

3/06 - 2/16	Advanced Cardiovascular Life Support (ACLS)
3/06 - 2/16	Basic Life Support (BLS)
2/13 - 3/15	Pediatric Advanced Life Support (PALS)

Medical Staff Privileges

6/94 – 6/96	University of Washington Medical Center, Seattle, WA
6/94 – 6/96	Harborview Medical Center, Seattle, WA
6/96 – 6/97	Madigan Army Medical Center, Seattle, WA
6/96 – 6/97	Olive View-UCLA Medical Center, Los Angeles, CA
7/96 – 7/09	UCLA Medical Center, Los Angeles, CA
5/01 – 7/05	Century City Hospital, Los Angeles, CA
1/04 – present	Midway/Olympia Hospital Med Center, Los Angeles, CA
7/01 - present	Cedars Sinai Medical Center, Beverly Hills, CA

10/03 – present

St. John's Health Center, Santa Monica, CA

Membership in Professional Societies

Society for Brain Mapping & Therapeutics

International Society for Magnetic Resonance in Medicine

Society for Neuroscience

Los Angeles County Medical Association

California Medical Association

American Medical Association

American Association for the Advancement of Science

North American Spine Society

American Association of Neurological Surgeons

Congress of Neurological Surgeons

Joint Section for Peripheral Nerve & Spine of the
AANS and CNS

Society of British Neurological Surgeons

Visiting Professorships

University of London

Atkinson Morley's Hospital

St. George's Hospital Medical School

Department of Neurosurgery

London, England, U.K. 10/21/97

Harvard University

Beth Israel/Deaconess Hospital

Harvard Medical School

Department of Anesthesia

Cambridge, Massachusetts 11/2/99 –11/3/99

Academic Honors and Awards

Pioneer in Medicine Award (2016) for invention of
Diffusion Tensor Imaging (DTI)
Society for Brain Mapping & Therapeutics

SMART Award. UK Department of Trade and Industry
Highly competitive national award in UK for
technology in SynGenix LTD (1997)

Wellcome Trust Clinical Fellowship
(5/94) Division of Clinical Neuroscience
& Division of Biochemistry
St. George's Hospital Medical School
University of London

Harrison Clinical Lecturer in Neuroscience
(1/91-5/92) Division of Clinical Neuroscience
St. George's Hospital Medical School
University of London

NIH PHS Musculo-Skeletal Training Grant
(2/81-2/84) Department of Biology,
Harvard University

Faculty Search Committee,
Department of Anthropology,
Harvard University (9/82-9/83)

Bachelors Degree with Honors, (1977)
University of Chicago

Howell Murray Award, (1977)
University of Chicago

Technical Course Certifications

Midas Rex Bone Dissection 4/93 - current

Oratec Intradiscal Electrothermal Therapy 12/98 - current

Academic Symposia

11/98 Fifth Workshop on Obstetric Brachial Plexus Lesions
Atrium MC, Heerlen, Netherlands

Editorial Appointments

7/08 – present
Youmans Neurological Surgery
Section Editor – Peripheral Nerve

Peer Scientist Reviewer for Academic Journals

3/95 - present
JMRI, (Journal of Magnetic Resonance Imaging)

9/04 – present
Journal of Human Evolution, Harvard University

10/06 - present
Neuroradiology

4/07 – present
Journal of Neuroimaging

6/09 – preset
NeuroImage

7/09 - present
Clinical Anatomy

4/10 – present
PLOS One

9/10 - present
Journal of Neurological Sciences

11/10 - present
Neurosurgery

University Committees

9/82 - 9/83
Faculty Search Committee,
Department of Anthropology,
Harvard University

2004
Examiner for Doctoral Thesis
School of Medicine
University of London

Consultant Appointments

11/97 – 11/98
General Electric Medical Systems
IntraOperative MRI Medical Advisory Board

Business Positions

11/93 – 3/04
Co-Chief Scientific Officer, Director,
& Co-Founder
SynGenix Ltd. (English Reg. # 2740120)
Babraham Hall
Babraham

Cambridge, CB2 4AT, UK
Phone: (011 44 1223) 496-093
Fax: (011 44 1223) 496-018

1/04 – present

CEO and Co-Founder, Director
Molecular Synthetics Inc.
2716 Ocean Park Blvd., Suite 3082
Santa Monica, CA 90405
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Fax: 310 314-2414
Babraham, Cambridge, UK Office
Phone: (011 44 1223) 496-121
www.molecularsynthetic.com

12/98 - present

CEO and Co-Founder, Director
NeuroGrafix, Inc.
2716 Ocean Park Blvd., Ste. 3035
Santa Monica, CA 90405
Phone: (310) 664-3944
Fax: (310) 664-3949
www.neurography.com

4/2008 – 10/2008

Host – The Pain Free Hour – CBS Radio/KLSX
with Kerri Kasem and Shirlee Jackson

Event Management

9/75 - 6/78

Chairman and Founder: Major Activities Board
University of Chicago
Booking, marketing and staging for concerts

9/77 - 4/78

Chairman: Festival of the Arts
University of Chicago
Booking, marketing, scheduling, advertising

9/73 - 9/74

International Vice President
United Synagogue Youth
Convention Planning, Budget Planning

9/73 - 4/74

Chairman: Conference on American Civilization
National Association of Student Councils
Booking, scheduling, supervision of committee staffs

Non-Technical Writing

9/75 - 6/77

Chicago Maroon (University of Chicago)
General reporting

6/77 - 10/79 *Chicago Reader*
Freelance feature writer

Technical Theater Experience

3/74 - 5/74 Stage Manager
Walt Whitman High School Talent Show

6/75 - 9/75 Technical Lighting and Construction Assistant
Court Theatre, Chicago

9/75 - 6/78 Technical Manager, Stage Manager, Director
University Theatre, University of Chicago

1/75 - 6/78 Technical Manager, Stage Manager, Director
Blackfriars, University of Chicago

Athletic Leadership

9/73 - 6/74 Co-Team Captain
Walt Whitman High School Track and Field Team

9/73 - 6/74 Varsity Letterman
Cross Country Team, Walt Whitman High School
Track and Field Team, Walt Whitman High School

11/10 - 6/11 Referee Coordinator
AYSO Pacific Palisades All Stars Soccer

Military Service

7/94 - 2/97 Commander
1466th Med. Detachment, Neurosurgery
and Major, Medical Corps
United States Army Reserve
Fort Lawton, Bldg. S-544
Seattle, WA 98199
Phone: 206 281-3081, Fax: 206 281-3499

3/97 - 08/01 Major, United States Army Reserve, Medical Corps
Independent Ready Reserve

08/01 – 10/02 Lieutenant Colonel, United States Army Reserve, Medical
Corps Independent Ready Reserve

10/02 – present

Lieutenant Colonel, United States Army Reserve, Medical
Corps, Retired.

Publications

Published Articles

- Filler AG, Bell BA. Axonal transport and nerve compression. *Brit. J. Neurosurg.* 6:(4) 293-295 (1992).
(PMID: 1382450)
- Howe FA, Filler AG, Bell BA, Griffiths JR. Magnetic resonance neurography. *Magn. Reson. Med.* 28: 328-338 (1992).
(PMID: 1461131)
- Filler AG, Howe FA, Hayes CE, Kliot M, Winn HR, Bell BA, Griffiths JR, Tsuruda JS. Magnetic resonance neurography. *Lancet* 341:659-661 (1993).
(PMID: 8095572)
- Filler AG. Reverse transcriptase microassay. *Matrix Application Notes, Packard Instrument Company.* PAN0035/MAN-016:1-8 (1993).
- Filler AG. Axonal transport and MRI: prospects for contrast agent development. *JMRI* 4:259-267 (1994).
(PMID: 7520308)
- Howe FA, Saunders D, Filler AG, McLean MA, Heron C, Brown MM, Griffiths JR. Magnetic resonance neurography of the median nerve. *Brit. J. Radiol.* 67:1169-1172 (1994).
(PMID: 7874414)
- Filler AG, Britton JA, Uttley D, Marsh HT. Adult post-repair myelomeningocele & tethered cord syndrome: Good surgical outcome after abrupt neurological decline. *Brit. J. Neurosurg.* 9:659-666 (1995).
(PMID: 8561939)
- Britz GW, Dailey AT, West GA, Kuntz C, Grant GA, Filler AG, Tsuruda JS, Goodkin R, Haynor DR, Maravilla K, Kliot M. Magnetic resonance imaging in the evaluation and treatment of peripheral nerve problems. *Perspectives in Neurosurgery* 6:53-66 (1995).
- Dailey AT, Tsuruda JS, Goodkin R, Haynor DR, Filler AG, Hayes CE, Kliot M. Magnetic resonance neurography for cervical radiculopathy: a preliminary report. *Neurosurgery* 38:488-492 (1996).
(PMID: 8837800)
- Filler AG, Kliot M, Hayes CE, Howe FA, Saunders DE, Bell BA, Winn HR, Griffiths JR, Tsuruda JS. Application of magnetic resonance neurography in the evaluation of patients with peripheral nerve pathology. *Journal of Neurosurgery* 85:299-309 (1996).
(PMID: 8755760)

- Kuntz C, Blake L, Britz G, Filler A, Goodkin R, Tsuruda J, Hayes C, Maravilla K, Kliot M. Magnetic resonance neurography of peripheral nerve lesions in the lower extremity. *Neurosurgery* 39:750-757 (1996).
(PMID: 8880769)
- Filler AG, Lever AML. Effects of cation substitution on reverse transcriptase and on human immunodeficiency virus production. *AIDS Research and Human Retroviruses* 13:291-299 (1997).
(PMID: 9071428)
- Hayes CE, Tsuruda JS, Mathis CM, Maravilla KR, Kliot M, and Filler AG. Brachial plexus: MR imaging with a dedicated phased array surface coils. *Radiology* 203:286-289 (1997).
(PMID: 9122409)
- Dailey A, Tsuruda JS, Filler AG, Maravilla K, Goodkin R, Kliot M. Magnetic resonance neurography of peripheral nerve degeneration and regeneration. *Lancet* 350: 1221-1222 (1997).
(PMID: 9652565)
- Johnson, JP, Ahn SS, Choi WC, Masciopinto JE, Kim KD, Filler AG, DeSalles AAF. Thoracoscopic sympathectomy: techniques and outcomes. *Neurosurgical Focus* 4 (2): Article4 (1998).
(PMID: 17206769)
- Johnson JP, Filler AG, McBride DC, Batzdorf U. Anterior cervical foraminotomy for unilateral radicular disease. *Spine* 25 (8): 905-909 (2000).
(PMID: 10767800)
- Johnson JP, Filler AG, McBride DC. Endoscopic thoracic discectomy. *Neurosurg. Focus* 9(4): Article 11 (2000).
(PMID: 16833241)
- Filler AG, Maravilla KR, Tsuruda JS. MR Neurography and muscle MR imaging for image diagnosis of disorders affecting the peripheral nerves and musculature. *Neurologic Clinics* 22(3):643-682, (2004).
(PMID: 15207879)
- Filler AG, Haynes J, Jordan S, Prager J, Villablanca JP, Farahani K, McBride DQ, Tsuruda JS, Morisoli B, Batzdorf U, Johnson JP. Sciatica of Non-Disk Origin & Piriformis Syndrome: Diagnosis by MR Neurography and Interventional MRI with Outcome Study of Resulting Treatment. *Journal of Neurosurgery – Spine* 2:99-115 (2005).
(PMID: 15739520)
- Filler AG. The emergence and optimization of upright posture among hominiform hominoids and the evolutionary pathophysiology of back pain. *Neurosurgical Focus* 23(1):E4 (2007).
(PMID: 17961059)

- Filler AG. The first recorded neurosurgical operation – An historical hypothesis: Isis, Osiris, Thoth & the origin of the djed cross spinal symbol. *Neurosurgical Focus* 23(1):E6 (2007).
(PMID: 17961051)
- Filler AG. Homeotic evolution in the Mammalia: Diversification of Therian axial seriation and the morphogenetic basis of human origins. *PLOS ONE* 2(10): e1019, (2007).
(PMID: 17925867)
- Filler AG. Diagnosis and management of pudendal nerve entrapment syndromes: Impact of MR Neurography and open MR-guided injections. *Neurosurgery Quarterly* 18:1-6 (2008).
- Filler AG. Piriformis and related entrapment syndromes: Diagnosis and management. *Neurosurgery Clinics of North America*. 19:609-622, (2008).
(DOI: 10.1016/j.nec.200907.029) (PMID: 19010285)
- Filler AG. Diagnosis and treatment of pudendal nerve entrapment syndrome subtypes: imaging, injections, and minimal access surgery. *Neurosurg Focus* 26 (2) E9: (2009).
(PMID: 19323602)
- Filler AG. Minimal access nerve surgery and interventional MRI. *Neurosurgery* 65: (4 Suppl), pA212-A221 (2009).
(DOI: 10.1227/01.NEU.0000346253.89837.6C) (PMID: 19927071)
- Filler AG. MR Neurography and Diffusion Tensor Imaging: Origins, history, & clinical impact of the first 50,000 cases with an assessment of efficacy and utility in a prospective 5,000 patient study group. *Neurosurgery* 65: (4 Suppl), pA29-A43 (2009).
(DOI: 10.1227/01.NEU.0000351279.78110.00) (PMID: 19927075)
- Filler AG. The history, development and impact of computed imaging in neurological diagnosis and neurosurgery: CT, MRI, DTI. *Internet Journal of Neurosurgery*, 7:(1) (2010)
<http://print.ispub.com/api/0/ispub-article/12184>
- Filler AG, Lever AML, Bacon M, Munglani R, Abell C, Frederickson M, and Whiteside G. Tri-partite complex for axonal transport drug delivery achieves pharmacological effect. *BMC Neuroscience* 11:8 (2010).
(DOI: 10.1186/1471-2202-11-8) (PMID: 20085661)

Articles Currently Submitted, Under Review

Filler AG, Lever AML. Molecular and environmental trigger for mass evolutionary acceleration in the Cambrian Explosion. (in review).

Articles in Preparation

Filler AG, Multivariate and Factor Analytic Studies of Skull and Brain Shape in Macropodids (in prep)

Filler AG, Howe FA, Kliot M, Bell BA, Kennedy A, Griffiths JR, Maravilla K, Hayes CE, Tsuruda JS. MR Neurography for the assessment of post-irradiation brachial plexus neuropathy. (in prep).

Howe FA, Nussey SJ, Saunders DE, Filler AG, Griffiths JR. MR Neurography of the carpal tunnel in carpal tunnel syndrome: Fat-suppressed fast spin echo imaging. (submitted)

Villablanca P, Haynes J, and Filler AG. Black blood contrast agents for improved nerve selectivity in MR neurography. (in prep)

Granted Patents

Filler AG, Tsuruda JS, Richards TL, Howe FA. Image neurography and diffusion anisotropy imaging. PCT - US 93/02036 (filed 3/93), WO 93/18415 (1993). , *European Patent* EP0 630481 B1 issued 6/30/99. Japanese Patent #3457310 issued 8/1/03. *US Patent* #5,560,360 issued 10/1/96. <http://www.google.com/patents/US5560360>

Filler AG, Lever AML. Nucleic acid amplification using scandium and lanthanum ions. Application: PCT - GB 92/01599 (filed 9/92), WO 93/05714 (1993). *European Patent* EPO 601010 B1 issued 6/14/2000. *US Patent* #5,554,498 issued 9/10/96. <http://www.google.com/patents/US5554498>

Filler AG, Lever AML. Particulates for antiviral therapy. Application PCT-EP92/00021 (filed 1/4/92), WO 92/11846, priority date 1/91. *European Patent* EP0 566590 B1 issued 3/19/97. *US Patent* #5,614,652 issued 3/25/97. <http://www.google.com/patents/US5614652>

Filler AG, Howe FA. Focal neurographic MRI system. PCT - US 94/06337 (filed 6/94). *European Patent* EPO 737 319 B1, issued 4/22/98. *US Patent* #5,706,813 issued 1/13/98.

<http://www.google.com/patents/US5706813>

Filler AG. Therapeutic pharmaceuticals for delivery by axonal transport. PCT - EP 91/01780 (filed 9/91), WO 92/04916 (1992). *European Patent* EPO 548157 B1 issued 5/20/1998. *US Patent* #5,948,384 issued 9/7/99.

<http://www.google.com/patents/US5948384>

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Presentations and Invited Lectures

Filler AG. Axial Function in Terrestrial Amniotes. The Amniote Seminar. Museum of Comparative Zoology, Romer Library, Harvard University, 10/7/80.

Filler AG. Bipedal Apes Before the Dawn of Man. Presented at the Darwin Festival (on Darwin's Birthday), Dept. of Biology, The Biology Society, Salem State College, Salem, Mass. 2/12/82.

Filler AG. Evolutionary origins of the human upright spine. Presented at 5th annual meeting, Joint Section for Peripheral Nerve and Spine, AANS/CNS, 2/12/89.

Filler AG. Imaging of Axonal Transport. Grand Rounds. Department of Neurological Surgery, University of Washington Medical Center, Seattle, WA, 12/15/89.

Filler AG. Progress in the design of axonally transported intraneural contrast agents for peripheral nerve imaging with MRI. Royal Post-Graduate Medical School, NMR Unit, Hammersmith Hospital, London, UK. 9/24/90.

Filler AG. Sir Richard Owen, Sir Arthur Keith, and the lost styloid process: Serial homology and evolution of the human spine. Presented to the Royal Society of Medicine, London, 2/6/92.

Filler AG. Spinel Ferrites and Superparamagnetism in MR Imaging. Division of Biochemistry, Department of Cell & Molecular Biology, St. George's Hospital Medical School, London, 3/15/92.

- Magnetism, Spinels, and the Design of Tracers for In Vivo Imaging of Axoplasmic Flow. Neuroscience Seminar, Department of Neurological Surgery, University of Washington, Seattle, 7/25/92.
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- Filler AG. Axonal Transport of MR Contrast Agents. Nycomed Imaging, Oslo, Norway, 4/10/93.
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- Filler AG. MR Neurography for the Evaluation of Nerve Tumors and the Effects of Cancer on Nerves. UCLA Advances in Neurosurgery. 11/15/97.
- Filler AG. Progress in the Use of MRI for Management of Peripheral Nerve Disorders. Department of Radiology, UCLA Medical Center. 5/1/98.
- Filler AG. Magnetic Resonance Neurography: Application to the Study of Peripheral Nerve Pathology. American Association of Electrodiagnostic Medicine. Orlando, FL. 10/14/98.
- Filler AG. MR Neurography and interventional MRI in the diagnosis of sciatica. Department of Surgery Grand Rounds, UCLA Medical Center, 11/18/98.
- Filler AG. Imaging of peripheral nerve tumors. Symposium on Peripheral Nerve Tumors. 15th Annual Meeting. Joint Section on Disorders of the Spine and Peripheral Nerves of the AANS/CNS. Orlando, FL 2/11/99.
- Filler AG. Open MRI in the management of spine and peripheral nerve pathology. UCLA iMR Program Presentation. Los Angeles, CA 2/17/99.
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- Filler AG. Magnetic Resonance Neurography for improved preoperative evaluation of brachial plexus disorders. Brachial Plexus Symposium, Obstetrical and Adult. American Association of Hand Surgery & International Society for Reconstructive Microsurgery. Los Angeles, CA 6/22/99.

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Filler AG. Diffusion Anisotropy, CNS Tract Tracing and MR Neurography. Research Meeting of Professor John Mazziotta's Brain Mapping Group, December 8, 1999.

Filler AG. Nerve imaging. AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves, Annual Meeting, Indian Wells, CA 2/24/00.

Filler AG. Evolution of the human spine. UCLA Comprehensive Spine Program, Joint Spine Conference, Los Angeles, CA 3/00.

Filler AG. MR Neurography & Open MRI for diagnosis and treatment of spine and peripheral nerve pathology. American Association of Neurological Surgeons, Annual Meeting, San Francisco, CA, 4/12/00.

Filler AG. Neurography for peripheral nerve diagnosis. Department of Neurology Grand Rounds, West Los Angeles Veterans Administration Medical Center. Los Angeles, CA 4/21/00.

Filler AG. MR Neurography, open MRI, and axonally delivered therapy. Millenium Sir Wylie McKissock Neuroscience Lecture. Atkinson Morley's Hospital, Wimbledon, UK. 11/24/2000.

Filler AG. Outcome study of diagnosis and treatment for sciatic of non-disk origin. UCLA Comprehensive Spine Center, UCLA, Los Angeles, CA 3/5/01.

Filler AG. Advances in the diagnosis and treatment of nerve disorders. Department of Surgery Grand Rounds, UCLA, Los Angeles, CA. 4/4/01.

Filler AG. MR Neurography in the diagnosis and treatment of thoracic outlet syndromes. Medical staff grand rounds, Los Robles Regional Medical Center, Thousand Oaks, CA, 5/4/01.

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Filler AG. MR Neurography, Open MRI and Axonal Transport in Advanced Diagnosis and Treatment of Nerve Disorders. Grand Rounds, Department of Neurosurgery, Massachusetts General Hospital, Harvard University, Boston, MA, November 1, 2001.

Filler AG. Image diagnosis and surgical neurolysis for neurogenic thoracic outlet syndrome. Symposium on Advances in Vascular Surgery, Chicago, IL, December, 2001.

Filler AG. MR Neurography for the diagnosis of peripheral nerve disorders. Panel Discussion: Innovations in Peripheral Nerve Surgery, American Society for Peripheral Nerve, Cancun, Mexico, January 2002.

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Filler AG. Chaos and the evolutionary emergence of the human spinal design. Systems Biology Seminar, Santa Monica, CA August, 2002.

Filler AG. MSD Review of Potential for Neurography in Surgical Image Guidance. Philadelphia, PA, September 24, 2002.

Filler AG. MR Neurography and Open MRI in the Diagnosis and Treatment of Disorders Affecting the Spine and Nerves. Grand Rounds, Department of Neurosurgery, University of California Irvine, Orange, CA, April 22, 2003.

Filler AG. Intraneural Drug Delivery via Axonally Transported Molecular Carriers:
Novel Pharmaceutical Designs for Intractable Pain Problems. Discovery Research Seminar. Purdue Pharma, Cranbury, New Jersey, September 12, 2003.

Filler AG. MR Neurography and Open MRI for Diagnosis and Treatment of Spine and Nerve Disorders. CME Spine Conference, Institute for Spinal Disorders, Cedars Sinai Medical Center, Los Angeles, CA, December 3, 2003.

Filler AG. Thoracic Outlet Syndrome Does Exist. Controversies in Peripheral Nerve. Joint Section on Spine and Peripheral Nerve AANS/CNS, San Diego, CA, March 20, 2004.

- Filler AG. MR Neurography and Open MRI Guided Procedures for Diagnosis and Treatment of Nerve Disorders. Grand Rounds, University of California at San Diego, San Diego, CA, January 13, 2005.
- Filler AG. New Developments in Nerve Imaging. Course 202. American Society for Peripheral Nerve, 14th Annual Meeting, Fajardo, Puerto Rico. January 16, 2005.
- Filler AG. Diagnosis and Treatment of Sciatica from Piriformis Syndrome: The Impact of New Methods on 'Spine-Related' Peripheral Nerve Symptoms. Current Concepts in Spinal Disorders: Clinical Symposia Series, Cedars Sinai Institute for Spinal Disorders, February 9, 2005.
- Filler AG. MR Neurography and Open MRI Guided Procedures for Diagnosis and Treatment of Nerve Disorders. San Diego Neurological Society, San Diego, CA, February 17, 2005.
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- Filler AG. MR Neurography and Open MRI Guided Procedures for Diagnosis and Treatment of Nerve Disorders. San Diego Academy of Neurological Surgery, San Diego, CA 5-25-05. (2005)
- Filler AG. Evolution and Comparative Anatomy of Vertebrae in Reptiles and Mammals and the Emergence of Upright Posture in the Apes and Early Ancestors of Humans. Visiting Professor. Cedars Sinai Medical Center, Los Angeles, CA 6-1-05 (2005)
- Filler AG. MR Neurography, Open MR Injections & Minimal Access Surgery in the Management of Thoracic Outlet Syndrome. Department of Neurosurgery Grand Rounds, University of California at Irvine, Orange, CA 8-3-05 (2005)
- Filler AG. Nerve Imaging Techniques. American Society for Peripheral Nerve, Tucson, Arizona, 1-16-06 (2006)
- Filler AG. New Advanced Imaging Techniques In the Diagnosis of Pain Syndromes – Update Session 402: Sciatica of Non-Disc Origin and Piriformis Syndrome. American Academy of Pain Medicine – Annual Meeting, San Diego, CA 2-25-06 (2006)
- Filler AG. How to read an MR Neurography Image. Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS, 22nd Annual Meeting, Orlando, Florida, 3-17-06 (2006)

- Filler AG. Diagnosis and treatment of sciatica of non-disc origin and piriformis syndrome. In: *Controversies in Peripheral Nerve Surgery: Piriformis syndrome – Is it real?* American Association for Neurological Surgery, Annual Meeting, San Francisco, CA, 4-26-06, (2006)
- Filler AG. MR Neurography, Open MR intervention, minimal access operations and physical exam for brachial and lumbo-sacral plexus disorders. Cedars Sinai Medical Center Neurosurgery Residents Lecture. Cedars Sinai Medical Center, Los Angeles, CA 1-26-07 (2007)
- Filler AG. Advances in MR Neurography. ABCs of Peripheral Nerve Course, Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS, 23rd Annual Meeting, Phoenix, Arizona 3-9-07, (2007)
- Filler AG. MR Neurography – Assessment of the first 5,000 cases. The Kline Festschrift – an International Symposium on Nerve. LSU Health Sciences Center, New Orleans, Louisiana. 10-19-07. (2007)
- Filler AG. Minimal access surgery for pelvic nerve entrapments and thoracic outlet syndrome. The Kline Festschrift – an International Symposium on Nerve. LSU Health Sciences Center, New Orleans, Louisiana. 10-20-07 (2007)
- Filler AG. Diagnostic distinction – lumbo-sacral radiculopathy vs sciatica of non-disc origin: When to consider piriformis syndrome. Cedars Sinai Medical Center, Institute for Spinal Disorders, Clinical Symposium, Los Angeles, CA 2-13-08 (2008)
- Filler AG. Piriformis Syndrome: Real or Not – David Cahill Memorial Controversies Session, Joint Section for Spine and Peripheral Nerve of AANS and CNS. Orlando, FL 3-1-08 (2008).
- Filler AG. The Humanian Theory of Human Evolution. Evidence fore early homeotic origin of an upright bipedal hominiform lineage. Los Angeles, MENSA Society. Woodland Hills, CA 2-13-09 (2009).
- Filler AG. MR Neurography, open MR guided injections, and minimal access surgery in the management of peripheral nerve disorders. Grand Rounds – University of California at Irvine, Department of Neurosurgery. Irvine, CA 10-14-09 (2009)
- Filler AG. The Role of MRI in Diagnosis of Traumatic Lesions and Entrapment Syndromes. American Society for Peripheral Nerve. 2010 Annual Meeting, Boca Raton, FL 1-10-10 (2010).
- Filler AG. A historical hypothesis: The first recorded neurosurgical operation: Isis, Osiris, Thoth & the Origin of the Djed Cross. 2nd Chongqing International

Clinical Neuroscience Forum & International NeuroDrug Conference, Chongqing, People's Republic of China, 3-20-10, (2010).

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Filler AG. MRI Neurography, Open MRI Surgery in the Peripheral Nerve Setting & Minimal Access Proximal Plexus Surgery. Association of Extremity Nerve Surgeons. Annual Meeting 2011, Las Vegas Nevada, November 2011

Filler AG. Neuroimaging – MR Neurography, Diffusion Tensor Imaging, and Open MRI for Nerve and Neural Tract Imaging. American Society for Peripheral Nerve – Annual Meeting 2012, Las Vegas, Nevada, January 2012

Filler AG. Diffusion Tensor Imaging, MR Neurography and High Resolution Axonal MRI Techniques for Mapping the Human Connectome & Peripheral Nervous System. International Neuroscience Conference – Omori Medical Center, Toho University, Tokyo, Japan, March 2012

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- Filler AG. Medical and Legal Aspects of Coding and Billing for Peripheral Nerve Surgery. American Society for Peripheral Nerve, Maui, Hawaii, January 12, 2014
- Filler AG. Ultrasound and MRI in Nerve Injury. American Society for Peripheral Nerve, Paradise Island, Bahamas, January 24, 2015.
- Filler AG. Open MRI Guided Percutaneous Nerve Treatments. Society for Brain Mapping and Therapeutics, Los Angeles Convention Center, Los Angeles, California, March 7, 2015.
- Filler AG. Role of the G20+/N20+ Brain Mapping Initiative in the Future of Clinical Neuroscience – Invention and Innovation. Joint Session, Australian Parliament, Canberra, Australia, October 10, 2015
- Filler AG. Welcoming Address Society of Brain Mapping 13th Annual Meeting – The Role of Technological Advance and Multi-Disciplinary Collaboration in the Future of Neuroscience. Miami, Florida, April 8, 2016.
- Filler AG. Policy, Ethics and the Law: The Role of Daubert/Frye and Markman Type Evidentiary Hearings in the Application Neuroscience in the Courtroom. Society of Brain Mapping & Therapeutics, Miami, Florida, April 8, 2016.
- Filler AG. From the Laboratory to the Technology Start-Up: Invention, Patents, and Entrepreneurship. Society of Brain Mapping & Therapeutics, Miami, Florida, April 9, 2016.
- Filler AG. Role of the G20+/N20+ Brain Mapping Initiative in the Future of Clinical Neuroscience – Invention and Innovation. United States Congress, Brain Mapping Day, April 20, 2016.
- Filler AG. Response to Michel Kliot – Diffusion Tensor Methods and Neurography for Imaging in Peripheral Nerve Management. American Association of Neurological Surgeons, Chicago, IL, May 3, 2016.

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- 3/12/93 *LA Times* - Nerve Imaging Could Revolutionize Treatment of Pain. Thomas Maugh.
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- 7/31/96 *LA Times* - Report touts new nerve imaging technique. Thomas Maugh.

- 9/7/96 *Lancet News* - MRI simplifies diagnosis of peripheral nerve lesions.
- 3/2001 *Discover* - Pulling pain up by the roots. Paul D. Thacker page 11.
- 3/24/01 *The Economist* - Magic bullet for pain-killers. Technology Quarterly, page 20

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