

Curriculum Vitae

March 25, 2023

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

President (2015-16) & General Counsel - Society for Brain Mapping and Therapeutics
Member of the Bar of the United States Supreme Court
Member of the Bar of the Court of Appeal for the Federal Circuit
Member of the Bar of the Court of Federal Claims & all California Courts
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
Lead Inventor of DTI and Neurography: US Patent 5,560,360 licensed to Siemens, GE
Philips, Hitachi, Toshiba and Medtronic
Medical Director-Institute for Nerve Medicine & Neurography Institute Santa Monica, CA
Author: "Diffusion Tensor Imaging" Ch. 14, Youmans & Winn Neurological Surgery,
8th edition (2022)
Pioneer in Medicine Award for Role in Invention of Diffusion Tensor Imaging 2016,
Society for Brain Mapping & Therapeutics
Legal Specialist: Patent infringement by sovereign states
Section Editor for Peripheral Nerve,
Youmans & Winn 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
Medical advisor for: Filler WS - Extracorporeal Shock Wave Lithotripsy Employing
Non-focused Spherical Sector Shock Waves. US Patent #4,890,603 (1990)
Joint Guidelines Committee, American Association of Neurological Surgeons &
Congress of Neurological Surgeons -- AANS & CNS 2015-2020
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 (2014-18 &
2022 to present)
State Bar of California No. 302956, Managing Partner - Tensor Law, P.C.
Medical Director – Texas Brain Institute, 7205 Fannin St., Houston, TX 77030 &
- 405 State Hwy, 121 Bypass, Bldg. A, Ste 150, Lewisville TX 75067

Office Address

Neurography Institute & Institute for Nerve Medicine
900 Wilshire Blvd., Suite 310
Santa Monica, CA 90401
Phone: (310) 314-6410
Fax: (310) 496-0185

E-Mail: afiller@nervemed.com
Web: www.nervemed.com
Web: www.neurography.com

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
- 2015 - 2017 Section Editor - Peripheral Nerve Surgery - Youman's &
Winn, Neurological Surgery, 7th Edition
Elsevier. (2017). Richard Winn, Editor in Chief
- 2019 - 2021 Section Editor - Peripheral Nerve Surgery –
Author – Chapter 11, Diffusion Tensor Imaging
Youman's & Winn Neurological Surgery, 8th Edition
Elsevier (2022). 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 & Neural Injury"

- 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. 2nd 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 1st 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 Malessy 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 10/16

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 – 10/16

Utah State

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

Virginia

Medicine & Surgery License #0101252705
9/6/12 to 10/16

Washington State

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

State of Texas

Medical License - T1062
4/30/21 - present

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

United States District Court,

Central District of California
June 17, 2015

United States District Court

Northern District of Illinois
August 7, 2018

U.S. Court of Appeals for the Federal Circuit

July 7, 2015

U.S. Court of Appeals for the Ninth Circuit

May 18, 2021

U.S. Court of Federal Claims

January 30, 2019

United States Supreme Court
June 1, 2022

Advanced Cardiac Life Support Certification

3/06 - present	Advanced Cardiovascular Life Support (ACLS)
3/06 - present	Basic Life Support (BLS)
2/13 - present	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 – 4/14	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 – present 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

- 7/15 – present Managing Partner
Tensor Law, P.C.
2716 Ocean Park Blvd., #3082
Santa Monica, CA 90405
Phone: 310 450-9689
www.tensorlaw.com
- 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
Phone 310 314-6410
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 myelo-meningocele & 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://ispub.com/IJNS/7/1/12184>

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)

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* EPO 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* EPO 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>

Filler AG, Lever AML. Compositions comprising a tissue glue and therapeutic agent. Divisional of PCT - EP 91/01780 (filed 1/91), WO 92/04916 (1992), *European Patent* EPO 804153B1, issued 10/1/2003. (filed 12/01) *US Patent* #6,919,067 issued 7/19/2005. <http://www.google.com/patents/US6919067>

Filler AG, Lever AML. Hydroxide-free ferrites (Ceramic particles and their preparation). Divisional of PCT - GB 92/01703 (filed 9/92), WO 93/05815 (1993). *European Patent* EPO 640350 B1, issued 4/10/2002.

<https://data.epo.org/publication-server/pdf-document?PN=EP0640350%20EP%200640350&iDocId=5279977&iepatch=.pdf>

Filler AG, Lever AML. Synthetic transfection vectors. Divisional of PCT - GB 92/01703. *US Patent* # 6,153,598 issued 11/28/2000.

<http://www.google.com/patents/US6153598>

Filler AG. Drug Delivery via Axonal Transport. Divisional of PCT - EP 91/01780 (filed 9/91), WO 92/04916 (1992). *US Patent* 6,562,318, issued 5/13/2003.

<http://www.google.com/patents/US6562318>

Filler AG. Joint imaging system utilizing magnetic resonance imaging and associated methods. *US Patent* # 6,560,477 issued 5/6/2003.

<http://www.google.com/patents/US6560477>

Filler AG. Needle Guide. *US Provisional Application* 60/546,664 filed 2/20/04. *US Patent Application Publication* 20050187533A1. Filed 11/20/04. *US* 7,059,368. Issued 6/13/2006.

<http://www.google.com/patents/US7059368>

Patent Applications Pending

Filler AG. Positron systems for energy storage, production and generation. *USPTO Provisional Application* #62/026707 (filed 7/21/2014).

Filler AG and Lever AMLL. Trivalent and Divalent Cations as Administerable Agents for Increased Processivity and Improved Fidelity of Reverse Transcriptase in Telomerase, and in Nucleic Acid Polymerases. *USPTO Provisional Application* #62/739,347 (filed 10/01/2018).

Filler AG and Lever AMLL. Trivalent Cations for High Speed High Accuracy Home Tests For COVID-19 and Other Viruses by Isothermal RNA Genome Reciprocal Amplification and Individual User Portable Lab System. *USPTO Provisional Application* #63/113,988 (filed 11/601/2020)

Academic Book Chapters

Filler AG. Evolution of the sacrum in hominoids. In: *Surgical Disorders of the Sacrum*, JR Doty and SS Rengachary eds. Thieme Medical Publishers, New York pp.13-20 (1994).

Filler AG, Principles of MRI and other imaging techniques for studying peripheral nerve and muscle. . Ch. 37: *Neuromuscular Function and Disease: Basic, Clinical, and Electrodiagnostic Aspects*. Brown W., Bolton C., and Aminoff M., eds. W.B. Saunders, Philadelphia; p. 661-674, 2002.

- Filler AG. Applications of MRI and other imaging techniques to the study of peripheral nerve and muscle diseases. Ch. 38: *Neuromuscular Function and Disease: Basic, Clinical, and Electrodiagnostic Aspects*. Brown W., Bolton C., and Aminoff M., eds. W.B. Saunders, Philadelphia; p.675-692, 2002.
- Filler AG. Imaging of peripheral nerve. In: *Neuromuscular Disorders in Clinical Practice*, Katirji B, Kaminski H, Preston D, Ruff R, and Shapiro B eds. Butterworth Heinemann, Woburn MA, p266-282, 2002.
- Filler AG. MR Neurography and Brachial Plexus Neurolysis in the Management of Thoracic Outlet Syndromes. *Advances in Vascular Surgery*. JST Yao & WH Pearce Eds., Precept Press, Chicago, IL p499-523, 2002.
- Filler AG, Kline DG. General Principles in Evaluating and Treating Peripheral Nerve Pathology, Injuries, and Entrapments and Their Historical Context. Ch. 229, In: *Youmans Neurological Surgery*, 6th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2361-2367, 2011.
- Campbell W, Filler AG. Peripheral Neuropathies Ch. 233, In: *Youmans Neurological Surgery*, 6th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2398-2409, 2011.
- Filler AG. Imaging for peripheral nerve disorders. Ch. 235, In: *Youmans Neurological Surgery*, 6th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2413-2426, 2011.
- Filler AG, Gilmer-Hill H. Piriformis syndrome, obturator internus syndrome, pudendal nerve entrapment and other pelvic entrapments. Ch. 238, In: *Youmans Neurological Surgery*, 6th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2447-2455, 2011.
- Tiel R, Filler AG. Nerve Injuries of the Lower Extremity Ch. 243, In: *Youmans Neurological Surgery*, 6th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2504-2517, 2011.
- Filler AG. Imaging of the Peripheral Nerve Disorders. Ch. 196, In: *Schmidek & Sweet's Operative Neurosurgery*, 6th Edition, Elsevier, 2012.
- Filler AG. Non-Extremity Nerve Entrapment Syndromes. In: *Sunderland's Nerves and Nerve Injuries*, Elsevier, 3rd Edition, Ed. Shane Tubbs, Elsevier, (2015).
- Filler AG, Belzberg AJ, Malessy Martijn JA, Chen L. Overview and Controversies Evaluating and Treating Peripheral Nerve Pathology, Injuries, and Entrapments and Their Historical Context., In: *Youmans & Winn Neurological Surgery*, 7th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p1961-1965, 2017.
- Filler AG. Imaging for peripheral nerve disorders. Ch. 248, In: *Youmans & Winn Neurological Surgery*, 7th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2004-2018, 2017.

- Filler AG. Thoracic Outlet Syndrome and Entrapments of the Brachial Plexus. Ch. 250 , In: *Youmans & Winn Neurological Surgery*, 7th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2032-2040, 2017.
- Filler AG, Gilmer-Hill H. Piriformis syndrome, obturator internus syndrome, pudendal nerve entrapment and other pelvic entrapments. Ch. 251 , In: *Youmans & Winn Neurological Surgery*, 7th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2041-2050, 2017.
- Filler AG, Maniker AH & Russell SM. Pain, Complications, and Iatrogenic Injury in Nerve Surgery. Ch. 259 , In: *Youmans & Winn Neurological Surgery*, 7th edition. Winn HR editor, Elsevier, Philadelphia, PA; Vol. 3, p2117-2123, 2017.
- Filler AG. Piriformis Syndrome and Related Nerve Entrapments of the Posterior Pelvis. *Neurosurgery Case Series – Peripheral Nerve*, Oxford University Press (2018).
- Filler AG. Imaging of the Peripheral Nerve Disorders. Ch. 184, In. *Schmidek & Sweet's Operative Neurosurgery*, Karim ReFaey & Alfredo Quiñones-Hinojosa Eds, 7th Edition, Elsevier, 2021.
- Filler AG. Diffusion Tensor Imaging. Chapter 14, in: *Youmans & Winn Neurological Surgery*, 8th edition. Winn HR editor, Elsevier, Philadelphia, PA; (2022).
- Filler AG, Belzberg AJ, Malessy Martijn JA, Chen L. Overview and Controversies Evaluating and Treating Peripheral Nerve Pathology, Injuries, and Entrapments and Their Historical Context., In: *Youmans & Winn Neurological Surgery*, 8th edition. Winn HR editor, Elsevier, Philadelphia, PA; 2022.
- Filler AG. Imaging for peripheral nerve disorders. Ch. 248, In: *Youmans & Winn Neurological Surgery*, 8th edition. Winn HR editor, Elsevier, Philadelphia, PA; 2022.
- Filler AG. Thoracic Outlet Syndrome and Entrapments of the Brachial Plexus. Ch. 250 , In: *Youmans & Winn Neurological Surgery*, 8th edition. Winn HR editor, Elsevier, Philadelphia, PA; 2022.
- Filler AG, Gilmer-Hill H. Piriformis syndrome, obturator internus syndrome, pudendal nerve entrapment and other pelvic entrapments. Ch. 251 , In: *Youmans & Winn Neurological Surgery*, 8th edition. Winn HR editor, Elsevier, Philadelphia, PA; 2022.
- Filler AG, Maniker AH & Russell SM. Pain, Complications, and Iatrogenic Injury in Nerve Surgery. Ch. 259 , In: *Youmans & Winn Neurological Surgery*, 8th edition. Winn HR editor, Elsevier, Philadelphia, PA; 2022.

Academic/Professional Meeting Presentation Abstracts

- Filler AG. Anatomical evidence for the "hylobatian" model of hominoid evolution. Amer. Assoc. Phys. Anthro, 49th Annual Mtg., Niagra Falls, NY; April 17, 1980 *Am. J. Phys. Anthro.* 52:226 (1980).
- Filler AG. Anatomical specializations in the hominoid lumbar region. Amer. Assoc. Phys. Anthro, 50th Annual Mtg., Detroit, MI; April 24, 1981, *Am. J. Phys. Anthro.* 54:218 (1981).
- Kramer M, Deacon T, Sokoloff A, Filler A. Organization of motoneurons innervating epaxial and hypaxial musculature in the frog, rat, and monkey. *Soc. Neurosci. Abs.* 13:526 (1987).
- Filler AG, Britton JA, Uttley D, Marsh HT. Acute paraplegia as an extreme presentation of adult tethered cord syndrome in a post-myelomeningocele patient. Presented 4/91, Society for British Neurological Surgeons. *J. Neurol. Neurosurg. Psych.* 55:81 (1992).
- Filler AG, Winn HR, Howe FA, Griffith JR, Bell BA, Deacon TW. Axonal transport of superparamagnetic metal oxide particles: Potential for magnetic resonance assessments of axoplasmic flow in clinical neuroscience. Published (Aug. 10, 1991). In: Proceedings, Society of Magnetic Resonance in Medicine, 10th Annual Meeting, San Francisco, *Book of Abstracts*, 10:985 (1991).
- Filler AG, Bell BA, Howe FA, Griffiths JR, Flowers M, Sharma H, Winn HR, Deacon TW. Imaging of Axonal Transport: Is the Axoplasmic Flow Clinically Relevant. Presented Sept. 19, 1991, Joint meeting of New England Neurosurgical Society and Society for British Neurological Surgeons. Queens Square National Neurological Hospital. *J. Neurol. Neurosurg. Psych.* 55:515-516 (1992).
- Filler AG, Winn HR, Westrum LE, Sirrotta P, Krohn K, Deacon TW. Intramuscular injection of WGA yields systemic distribution adequate for imaging of axonal transport in intact animals. Presented November 15, 1991 *Soc. Neurosci. Abs.* 17:1480 (1991).
- Howe FA, Filler AG, Bell BA, Griffiths JR. Magnetic resonance neurography: optimizing imaging techniques for peripheral nerve identification. In: Proceedings, Society of Magnetic Resonance in Medicine, 11th Annual Meeting, Berlin, *Book of Abstracts*, 11: 1701 (1992).
- Filler AG, Howe FA, Bell BA, Winn HR, Griffiths JR. Image neurography on standard gradient MR imagers, RSNA. *Radiology* 185(P): Suppl.:152 (1992).
- Filler AG, Howe FA, Winn HR, Bell BA, Griffiths JR. Design considerations for axonal transport of intraneural MR contrast agents. Joint Section for Peripheral Nerve and Spine, AANS/CNS, 2/93, Tucson, Arizona, (1993).

- Filler AG, Howe FA, Golden RN, Tsuruda JS, Winn HR. Magnetic resonance neurography for diagnosis of nerve compression. American Association of Neurological Surgeons 1993 Annual Meeting, 4/93. *J. Neurosurg.* 78:368A (1993).
- Filler AG, Kliot M, Hayes CE, Tsuruda J, Howe FA. MR Neurography of peripheral nerve abnormalities. American Society for Neuroradiology, Proceedings of 31st Annual Meeting, 5/93, Vancouver, B.C., Canada; (1993).
- Filler AG, Hayes CE, Howe FA, Tsuruda JS, Kliot M. MR Neurography for improved characterization of peripheral nerve pathology. In: Proceedings, Society of Magnetic Resonance in Medicine, 12th Annual Meeting, New York, *Book of Abstracts*, 12: 101 (1993).
- Filler AG, Golden RN, Howe FA, Tsuruda JS, Richards TL. High resolution diffusion gradient imaging for neurography in human subjects. In: Proceedings, Society of Magnetic Resonance in Medicine, 12th Annual Meeting, New York, *Book of Abstracts*, 12: 602 (1993).
- Howe FA, Saunders DE, McLean MA, Filler AG, Moddares H, Brown MM, Griffiths JR. Neurography of the median nerve. In: Proceedings, Society of Magnetic Resonance in Medicine, 12th Annual Meeting, New York, *Book of Abstracts*, 12: 102 (1993).
- Kliot M, Filler A, Hayes CE, Howe FA, Goodkin R, Tsuruda JS. MRI of nerve and muscle in the evaluation and treatment of peripheral nerve problems. Congress of Neurological Surgeons, Vancouver, B.C. 10/93 Meeting (1993).
- Filler AG, Tsuruda JS, Hayes CE, Kliot M. Magnetic resonance neurography reveals spin-spin relaxation rate (T2) changes correlated with onset and recovery from symptoms in traumatic & compressive neuropathy. *Soc. Neurosci. Abs.* 19:1486 (611.7) (1993).
- Tsuruda JS, Filler AG, Hayes CE, Kliot M. Phased array neurography of peripheral nerve pathology. *Radiology* ;189(P)Suppl.328 (1993).
- Peters RJ, Tsuruda JS, Hayes CE, Yuan C, Filler AG, M Kliot, Terry V, Echelard D. MR Neurography: A technologists perspective to nerve imaging. Society of Magnetic Resonance. 4/94
- Blake LC, Tsuruda JS, Filler AG, Kliot M. Phased array MRI Neurography of the sacral plexus, the sciatic nerve, and its major branches. American Society for Neuroradiology, Proceedings of 32nd Annual Meeting, 5/94, Nashville, Tennessee; (1994).
- Filler AG, Howe FA, Hayes CE, Griffiths JR, Bell BA, Tsuruda JS. MR Neurography of cervical roots and brachial plexus. 125th Meeting of the Society of British Neurological Surgeons, 9/94, Dundee, Scotland, U.K., *J. Neurol. Neurosurg. Psych.* 58:123, (1995).

- Howe FA, Saunders DE, Filler AG, McLean MA, Heron C, Brown MM, Griffiths JR. An evaluation of fat-suppressed fast spin echo imaging of the median nerve in carpal tunnel syndrome. *British Institute of Radiology: Progress in Magnetic Resonance*. London, 10/94 (1994).
- Kliot M, Filler A, Geil G, Schultz RA, Tsuruda J. Three-dimensional holographic representation of MR neurograms. *Congress of Neurological Surgeons*. Chicago, IL. 10/94 (1994).
- Filler AG, Bell BA, Britton JA, Tsuruda JS, Kliot M, Hayes CE, Howe FA, Heron C, Foote S, Savy L, Griffiths JR, Clifton A. MR Neurography at 0.5 Tesla and 1.5 Tesla for imaging of cervical roots and brachial plexus. *Ninth European Congress of Radiology*. Vienna, 3/95. *European Radiology* 5(S):227, (1995).
- Kliot M, Dailey A, Goodkin R, Filler A, McKhann G, Hayes C, Tsuruda J. MR Neurography for cervical radiculopathy: correlation with clinical and electrodiagnostic findings. *Amer. Assoc. Neurol. Surgeons*, 4/95, Orlando, Florida (1995).
- Dailey AT, Filler AG, Hayes CE, Goodkin R, Tsuruda J, Kliot M. MR Neurography of degenerating, regenerating and grafted peripheral nerve. *Amer. Assoc. Neurol. Surgeons*, 4/95, Orlando, Florida (1995).
- Kliot M, Filler A, Dailey A, Kuntz C, Goodkin R, McKhann G, Tsuruda J. Magnetic resonance neurography in evaluating and treating peripheral nerve problems. *Amer. Assoc. Neurol. Surgeons*, 4/95, Orlando, Florida (1995).
- Howe FA, Saunders DE, Filler AG, McLean MA, Nussey SJ, Griffiths JR. Fat-suppressed fast spin echo imaging in carpal tunnel syndrome: a comparison of diabetic and non-diabetic patients. *Society for Magnetic Resonance*, 8/95, Nice, France (1995).
- Grant GA, Britz GW, Slimp J, Goodkin R, Haynor DR, Robertson B, Kuntz C, Filler AG, Kliot M. Use of Magnetic Resonance Neurography (MRN) with preoperative and intraoperative electrophysiological monitoring in evaluating peripheral nerve lesions. *Congress of Neurological Surgeons, 45th Annual Meeting*, San Francisco 10/95 (1995).
- Filler AG, Farahani K, Harris Y, Lufkin RB, Johnson JP. Turbo spin echo for MR neurography. *American Roentgen Ray Society, 1996 Annual Meeting*, May 5-10, San Diego, CA (1996).
- Farahani K, Filler A, Atkinson D, Johnson JP, Lufkin R. MR Neurography of the lumbar spine: application of 3D turbo spin echo imaging. *International Society for Magnetic Resonance in Medicine, 4th Annual Meeting*, April 27- May 3, 1996, New York, NY (1996).

- Filler AG, Howe FA, Farahani K, Johnson JP, Griffiths JR, Kennedy A, Lufkin RB, Haynor DR, Maravilla K, Goodkin R, Hayes CE, Tsuruda JS, Kliot M. Diagnosis of brachial plexus pathology by MR Neurography. American Society for Neuroradiology, 34th Annual Meeting, June 21-27, 1996, Seattle, WA (1996).
- Kliot M, Grant G, Kuntz C, Blake L, Hayes C, Goodkin R, Filler A, Tsuruda J, Maravilla K. Magnetic Resonance Neurography in the evaluation and surgical treatment of peripheral nerve tumors. American Society for Neuroradiology, 34th Annual Meeting, June 21-27, 1996, Seattle, WA (1996).
- Filler AG, Johnson JP, Farahani K, Lufkin RB. Neurography of the lumbar and sacral spinal nerves: three dimensional turbo spin echo imaging with phased array coils. North American Spine Society, 11th Annual Meeting, October 23-26, 1996, Vancouver, BC (1996).
- Filler AG, Jabour B, Kliot M, Lufkin RB, Johnson JP. MR Neurography: Imaging Characteristics of the Sciatic Nerve at the Level of the Piriformis Muscle in Patients with Leg Pain. Joint Section on Disorders of the Spine and Peripheral Nerves, AANS/CNS, February 19-22, 1997, Newport Beach, CA, *J. Neurosurg.* 86:416A (1997).
- Dailey AT, Tsuruda JS, Filler AG, Maravilla KR, Goodkin R, Kliot M. Magnetic Resonance Neurography of peripheral nerve degeneration and regeneration: A clinical case presentation. Joint Section on Disorders of the Spine and Peripheral Nerves, AANS/CNS, February 19-22, 1997, Newport Beach, CA, *J. Neurosurg.* 86:416A (1997).
- Johnson JP, Filler AG, Pare LS, McBride DQ, Batzdorf U. Anterior cervical foraminotomy. Joint Section on Disorders of the Spine and Peripheral Nerves, AANS/CNS, February 19-22, 1997, Newport Beach, CA, *J. Neurosurg.* 86:417A (1997).
- Johnson JP, Tabor EN, Filler AG, McBride DQ, Becker DP. Craniovertebral junction stabilization after transoral odontoidectomy. Annual Meeting of the American Association of Neurological Surgeons, April 12-17, 1997 Denver, CO (1997).
- Filler AG, Johnson JP, Machleder H, Jabour BA, Trent J, Kioumeh F, Villablanca P, Lufkin RB, Tsuruda JS, Hayes CE, Maravilla K, Kliot M. Image Findings With MR Neurography in Diagnosis of Thoracic Outlet Syndrome. International Society for Magnetic Resonance in Medicine, 5th Annual Meeting, April 12- 18, Vancouver, B.C. (1997).
- Filler AG, Johnson JP, Machleder H, Trent J, Villablanca P, Lufkin RB, Tsuruda JS, Hayes CE, Maravilla K, Kliot M. MR Neurography in diagnosis of thoracic outlet syndrome. American Neurological Association, 122nd Annual Meeting, September 28 - October 1, San Diego, CA (1997).

- Filler AG, Johnson JP, Machleder H, Villablanca P, Lufkin RB, Hayes CE, Maravilla K, Farahani K, Kliot M. MR Neurographic findings in diagnosis of thoracic outlet syndrome. Congress of Neurological Surgeons Annual Meeting, September 27 - October 2, New Orleans, LA. *Neurosurgery* 41:724 (1997).
- Choi WW, Johnson JP, Filler AG, McBride DQ, Sandhu HS. Simultaneous versus staged anterior and posterior spinal reconstruction: a comparative study. Congress of Neurological Surgeons Annual Meeting, September 27 - October 2, New Orleans, LA. *Neurosurgery* 41:724 (1997).
- Filler AG, Lufkin RB, Villablanca P, Farahani K, Prager J, Johnson JP. MR Neurography & interventional MRI in diagnosis and treatment of sciatica from piriformis syndrome. 2nd Interventional MRI Symposium. European Society for Magnetic Resonance in Medicine and Biology, October 17-18, Düsseldorf, Germany. *European Radiology* 7:1159-60 (1997).
- Filler AG, Villablanca P, Lufkin RB, Prager J, Johnson JP. MR Neurography and open MRI in management of piriformis syndrome. 12th Annual Meeting, North American Spine Society. October 22-25, New York, NY. (1997).
- Villablanca P, Filler AG, Haynes JA, Tarlo KS. Black blood contrast agents for improved neural selectivity in MR Neurography. American Society for Neuroradiology, 36th Annual Meeting. May 17-21. Philadelphia, PA. (1998).
- Johnson JP, Ahn S, Choi W, Masciopinto J, Kim K, Filler A, DeSalles A. Thoracoscopic sympathectomy: techniques and outcomes. Congress of Neurological Surgeons 48th Annual Meeting. October 3-8. Seattle, WA. (1998).
- Masciopinto JE, Kim K, Johnson JP, Filler A, Pare L, McBride D, Batzdorf U. Anterior cervical foraminotomy. Congress of Neurological Surgeons 48th Annual Meeting. October 3-8. Seattle, WA. (1998).
- Masciopinto JE, Kim KD, Johnson JP, Choi WW, Filler AG, Sandhu HS, McBride DQ, Gelabert H. Simultaneous versus staged anterior and posterior spinal reconstruction: A comparative study. North American Spine Society, 13th Annual Meeting. October 28-31. San Francisco, CA. (1998).
- Johnson JP, Ahn SS, Kim KD, Filler AG, DeSalles AAF. Techniques and outcomes of thoracoscopic sympathectomy. American Association of Neurological Surgeons. April 1999.
- Johnson JP, Ahn SS, Choi WW, Masciopinto JE, Kim KD, Filler AG, DeSalles AAF. Techniques and outcomes of thoracoscopic sympathectomy. Joint Section for Spine and Peripheral Nerve AANS/CNS. Orlando, Florida, February 1999.

- Villablanca JP, Gupta R, Filler A. Experimental neurography in rats at 1.5T – compressive nerve injury model. American Association for Hand Surgery & International Society for Reconstructive and Microsurgery. Los Angeles, California, June 1999.
- Johnson JP, Hahn MS, Obasi C, Choi W, Filler A, Sandhu V, McBride DQ, Gelabert H. Simultaneous versus staged anterior and posterior spinal reconstruction: a comparative study. Congress of Neurological Surgeons 43rd Annual Meeting, Boston, MA, November 1999.
- Johnson JP, Hahn MS, Obasi C, Choi W, Filler AG, McBride DQ, Batzdorf U. Anterior cervical foraminotomy for unilateral radicular disease. Congress of Neurological Surgeons 43rd Annual Meeting, Boston, MA, November 1999.
- Obasi C, Johnson JP, Filler A, Park J. Failure of Screw-Plate Fixation in Patients with Osteoporosis and 3-Column Instability. Danek: Spine, Science, Management, New Orleans, LA, November 19, 1999.
- Filler AG, Tarlo KS, Haynes JA, Villablanca JP. Iron oxide black blood contrast agent improves nerve image selectivity in MR Neurography. Int. Society for Magnetic Resonance in Medicine, Annual Meeting, Denver, CO, April 2000.
- Whiteside G, Bacon M, Filler AG, Frederickson M, Abell C, Munglani R, Lever AML. Treatment of neuropathic pain by axonal transport. Society for Neuroscience Annual Meeting, New Orleans, LA, November 7, 2000.
- Filler AG, Haynes J, Villablanca JP, Prager J, McBride D, Batzdorf U, Johnson JP. Sciatica of Non-Disk Origin: Diagnosis by MR Neurography and Interventional MRI with Outcome Study of Resulting Treatment. Congress of Neurological Surgeons, San Diego, CA, October 2, 2001.
- Filler AG, Haynes J. Brachial plexus neurolysis with adhesiolytic agents for neurogenic thoracic outlet syndrome patients diagnosed by MR Neurography: Outcome study results. American Society for Peripheral Nerve. Cancun, Mexico, January 13, 2002.
- Filler AG, Haynes J, Villablanca P, Prager J, McBride D, Farahani, K, Batzdorf U, Johnson, JP. Sciatica of Non-Disk Origin: Diagnosis by MR Neurography and Interventional MRI with Outcome Study of Resulting Treatment. American Society for Peripheral Nerve. Cancun, Mexico, January 13, 2002.
- Filler AG, Whiteside G, Bacon M, Frederickson M, Abell C, Munglani R, & Lever AML. Treatment of neuropathic pain by axonal transport. Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS. Orlando, Florida, March 3, 2002.

Filler AG. Brachial Plexus Neurolysis with Adhesiolytic Agents for Neurogenic Thoracic Outlet Syndrome Diagnosed by MR Neurography: Outcome Study Results. Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS. Orlando, Florida, March 2002.

Filler AG. Minimally Invasive Surgical Approach for Decompression of the Sciatic Nerve at the Piriformis Muscle. Congress of Neurological Surgeons, 52nd Annual Meeting, Philadelphia, Pennsylvania, September 21-25, 2002.

Filler AG. MRI Demonstration of reinnervation of muscle by sprouting from a severed nerve in a human subject. 32nd Annual Meeting, Society for Neuroscience, Orlando, FL, November 4-7, 2002.

Tsuruda JS, Filler AG: MR Neurography findings of the bipartite piriformis muscle in the evaluation of sciatica. ASNR 2004.

Filler AG: The utility of MR Neurography in brachial plexus imaging. Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS, 22nd Annual Meeting, Orlando, Florida, March 15, 2006

Filler AG. MR Neurography of the brachial plexus for identification of surgically responsive neurogenic thoracic outlet syndrome. Congress of Neurological Surgeons, 56th Annual Meeting, Chicago, IL October 7, 2006.

Filler AG. Real time optical guidance integrated with real time Open MRI for spine and nerve interventions. Congress of Neurological Surgeons, 56th Annual Meeting, Chicago, IL October 7, 2006.

Filler AG. Open MRI for diagnosis and therapeutic interventional procedures in nerve and spine related pain. Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS, 23rd Annual Meeting, Phoenix, Arizona March 8, 2007.

Filler AG. Diagnosis and management of pudendal neuralgia. American Association of Neurological Surgeons. 75th Annual Meeting. Washington, DC; April 17, 2007.

Filler AG, Lever AML. Molecular evidence for environmental trigger of mass evolutionary acceleration: An experimental model for the Cambrian explosion. American Association for the Advancement of Science, 88th Annual, Pacific Regional Meeting, Boise, Idaho. June 19, 2007.

Filler AG. A Humanian Model of Human Evolution: Evidence that habitual upright bipedality is a synapomorphy that defines a hominiform clade of hominoids including humans and all extant apes. American Association of Physical Anthropology, 77th Annual Meeting, Columbus, Ohio April 10, 2008. AJPA 135 (S46): p.96

- Filler AG. Impact of Cycle Time in Minimal Access Nerve Surgery and Interventional MRI. International Brain Mapping & Intraoperative Surgical Planning Society – World Congress. 5th Annual Meeting. Los Angeles. August 26, 2008.
- Filler AG. The anti-symmetric dyadic tensor model, the arctangent tractographic function and their role in the past & intra-operative future of diffusion tensor imaging. International Brain Mapping & Intraoperative Surgical Planning Society – World Congress. 6th Annual Meeting. Harvard Medical School, Boston, MA. August 29, 2009.
- Filler AG. Fractional anisotropy and DTI tractography enhance nerve identification in MR Neurography of the lumbo-sacral plexus. Joint Section for Disorders of Spine and Peripheral Nerve, AANS/CNS, 26th Annual Meeting, Orlando, FL, February 18, 2010.
- Filler AG. Fractional anisotropy and DTI tractography enhance nerve identification in MR Neurography of the brachial plexus. 2010 Annual Meeting, American Association of Neurological Surgeons, Philadelphia, PA, May 1-5, 2010.
- Filler AG. Integration of High Field DTI Data with Real Time Intraoperative Low Field MRI for Millimeter Scale Guidance – When is High Field DTI Guidance Contra-Indicated? International Brain Mapping & Intraoperative Surgical Planning Society – World Congress. 7th Annual Meeting. Uniformed Services University of the Health Sciences, Bethesda, MD. May 24, 2010.
- Filler AG. High Field DTI Data in the Setting of Real Time Intraoperative Low Field MRI for Millimeter Scale Guidance – Effects of Mechanical Tissue Distortion by Surgical Instruments. 8th International Interventional MRI Symposium. Leipzig, Germany, Sept. 24-25, 2010.
- Filler AG. Interventional MRI Percutaneous Procedures for Extended Relief and Cure of Thoracic Outlet Syndrome. International Brain Mapping & Intraoperative Surgical Planning Society – World Congress. 8th Annual Meeting. UCSF, San Francisco, CA. June 8-10, 2011.
- Filler AG. Interventional MRI Percutaneous Procedures for Extended Relief and Cure of Thoracic Outlet Syndrome. Congress of Neurological Surgeons, Washington Convention Center, Washington, DC October 1-6, 2011.
- Filler AG. Real time Open MRI Guidance for Percutaneous Nerve Decompression. Society for Brain Mapping & Therapeutics, 10th Annual World Congress. Baltimore Convention Center, Baltimore, MD. May 12-14, 2013.

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. Mathematical analysis of multiple diffusion gradients for neuronal tract tracing. Resident Research Rounds, Harborview Medical Center, Dept. of Neurol. Surg., University of Washington, Seattle, WA, 8/7/91

Filler AG. Sir Richard Owen, Sir Arthur Keith, and the lost styloid process: Serial homology and the evolution of the human spine. Section of Neurology, Royal Society of Medicine, Registrar's Meeting, London, February 6th, (1992)

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.

Filler AG. Diffusion Anisotropy in Magnetic Resonance: Neurography and In Vivo Neural Tract Imaging. Neuroscience Seminar, Department of Neurological Surgery, University of Washington, Seattle, 12/30/92.

Filler AG. Axonal Transport of MR Contrast Agents. Nycomed Imaging, Oslo, Norway, 4/10/93.

Filler AG. MR Neurography in Clinical Medicine. Department of Neurology and Neurosurgery, Columbia University Neurologic Institute, New York, New York, 8/12/93

Filler AG. Evolution of the Axial Skeleton in the Hominoid Apes and Man. Department of Orthopedics, Harborview Medical Center, Seattle, WA, 10/16/93

Filler AG. MR Neurography for Peripheral Nerve Diagnosis. Department of Orthopedics, Harborview Medical Center, Seattle, WA, 1/19/94

Filler AG. Diffusion Anisotropy and Axonal Transport in MR Imaging of Neural Structures. Neurology Study Unit, Seattle, WA, 2/8/94

Filler AG. Diffusion Anisotropy and MR Neurography. Department of Radiology, Addenbrooke's Hospital, Cambridge University, Cambridge, U.K., 11/17/94.

Filler AG. MR Neurography: Clinical Prospects. Presented at meeting of the South of England Neurosciences Association, London, 5/19/95.

Filler AG. Diffusion Anisotropy, Axonal Transport and Endoneurial Fluid in Clinical Magnetic Resonance Neurography. Section of Neurosurgery, Yale University, New Haven, CT, 12/20/95.

Filler AG. New Techniques in MR Imaging: MR Neurography. The role of MRI neurography in imaging of the brachial plexus. Medical Imaging Center of Southern California, Santa Monica, CA, 7/1/96.

Filler AG. Interpretation of MR Neurograms. Long Beach Memorial MRI Center. 11/11/96.

Filler AG. Diffusion Imaging and T2 Neurography in MR Diagnosis of Peripheral Nerve Pathology. UCLA Department of Neurology Outpatient Conference. 11/20/96.

Filler AG, Johnson JP, Farahani K, Lufkin RB. Neurography of the lumbar and sacral spinal nerves. Federation of Spine Associations, American Academy of Orthopaedic Surgeons, February 16, 1997, San Francisco, CA (1997).

Filler AG. Case Presentation: MR Neurography in the Diagnosis of Thoracic Outlet Syndrome in a Patient with Bilateral Hand Pain. Chairman's conference, UCLA Department of Neurology, 3/97.

Filler AG. The Role of Black Blood Contrast Agents and Intraneural Contrast Agents in Magnetic Resonance Neurography. Nycomed Torsten Almen Research Center (TARC), Wayne PA., 6/24/97.

Filler AG. Black Blood Contrast Agents and Intraneural Contrast Agents in Magnetic Resonance Neurography. Nycomed Imaging, Oslo, Norway. 10/14/97.

Filler AG. MR Neurography and Open MRI in the Diagnosis and Management of Extremity Pain. Atkinson Morley's Hospital, London, England, U.K. 10/21/97.

Filler AG. MR Neurography and Interventional MRI in the Diagnosis and Management of Spine and Peripheral Nerve Disorders. General Electric Medical Systems, IntraOperative MRI Medical Advisory Board. Chicago, IL 11/10/97.

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.
- Filler AG. Imaging of brachial plexus lesions. XIIth Symposium on Brachial Plexus Surgery (A. Narakas Club). Barcelona, Spain 3/14/99.
- 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.
- Filler AG. MR Neurography and open MRI in the management of spine and extremity pain. Grand Rounds, Department of Orthopedics, UCLA Medical Center, Los Angeles, CA 10/9/99.
- Filler AG. MR Neurography and Open MRI in the Management of Spine and Extremity Pain. Visiting Professor, Department of Anesthesia, Beth Israel/Deaconess Hospital, Boston, MA 11/3/99.
- 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.

Filler AG. Advances in the diagnosis and treatment of nerve disorders. Medical Center Grand Rounds, Daniel Freeman Memorial Hospital, Los Angeles, CA 6/4/01.

Filler AG. Advances in the diagnosis and treatment of nerve disorders. UCLA Department of Surgery Third Year Medical Student Lecture Series, UCLA Medical Center, Los Angeles, CA 6/8/01.

Filler AG. MR Neurography for diagnosis of spine and peripheral nerve disorders. Institute for Spinal Disorders, Cedars Sinai Medical Center, Los Angeles, CA 8/16/01.

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.

Filler AG. Failed lumbar spine surgery & sciatica of non-disk origin: Diagnosis, treatment & outcomes. Grand Rounds, Los Robles Regional Medical Center, Thousand Oaks, CA, June 21, 2002.

Filler AG. Image diagnosis and neuroplasty for neurogenic thoracic outlet syndrome. Dept. of Vascular Surgery Grand Rounds, Cedars Sinai Medical Center, Los Angeles, CA July, 2002.

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. Intra-neural 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.

Filler AG. Open MR Guided Injections in Spine, Nerve and Neuromuscular Disorders. American Society for Spine Radiology, Isla Verdes, Puerto Rico February 24, 2005.

Filler AG. MR Neurography and Open MRI Guided Procedures for Diagnosis and Treatment of Nerve Disorders. AANS Section on Peripheral Nerve, Special Symposium, New Orleans, LA 4-19-05 (2005).

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).
- Filler AG. Tri-partite complex for axonal transport drug delivery – Development & demonstration of clinical efficacy. 2nd Chongqing International Clinical Neuroscience Forum & International NeuroDrug Conference, Chongqing, People’s Republic of China, 3-20-10, (2010).
- Filler AG. Diffusion tensor imaging (DTI) & Magnetic Resonance Neurography (MRN): Origins, History & Clinical Impact. 2nd Chongqing International Clinical Neuroscience Forum & International NeuroDrug Conference, Chongqing, People’s Republic of China, 3-20-10, (2010).
- Filler AG. Diffusion Tensor Imaging (DTI) & Magnetic Resonance Neurography (MRN): Origins, History, Physical Basis & Clinical Impact. NeuroTalk BIT 1st Annual Congress, Singapore. June 25, 2010.
- 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

Filler AG. Diffusion Tensor Imaging, MR Neurography and High Resolution Axonal MRI Techniques for Mapping the Human Connectome & Peripheral Nervous System. 周围神经 - 核磁共振成像 - 扩散张量成像技术 International Neuroscience Conference – 2012 Shanghai International Forum on Neuroscience. 8th People's Hospital, Shanghai, Peoples' Republic of China, May 2012

Filler AG. Diffusion Tensor Imaging, MR Neurography and High Resolution Axonal MRI Techniques for Mapping the Human Connectome & Peripheral Nervous System. 周围神经 - 核磁共振成像 - 扩散张量成像技术 International Neuroscience Conference – 3rd Annual World Congress of NeuroTalk, Beijing, People's Republic of China, May 2012

Filler AG. Advances in Diffusion Anisotropy Imaging – New Mathematical Models: The Anti-symmetric Dyadic Tensor Model. Society for Brain Mapping & Therapeutics, 10th Annual World Congress. Baltimore Convention Center, Baltimore, MD. May 12-14, 2013.

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.

Filler AG. Tutorial on Magnetic Resonance Imaging and Diffusion Tensor Imaging Technology as to U.S. Patent 5,560,360 in Support of Plaintiff’s Claim Construction Brief. NeuroGrafix Multi-District Litigation (MDL) United States District Court of Massachusetts, Hon. Richard G. Stearns, Presiding. August 18, 2016.

Filler AG. Role of the Society for Brain Mapping in the Future of Clinical Neuroscience – Invention & Innovation –通过N20 推进神经科学创新 - N20 Joint Meeting with Chongqing International Neuroscience Forum. Chongqing, People’s Republic of China, September 3, 2016.

Filler AG. Diffusion Tensor Imaging & MR Neurography & High Resolution Axonal MRI Techniques for the Evaluation of Peripheral Nerve Entrapments. American Society for Peripheral Nerve, 2017 Annual Meeting, Kona Hawaii, January 13, 2017.

Filler AG. Methodology for Analysis of DTI Images in the Setting of Brain Injury with Memory Loss. Society for Brain Mapping and Therapeutics, 14th Annual Meeting, Los Angeles, CA; April 20, 2017

Filler AG. Surgical Treatment of Peripheral Pain: Lower Extremity Nerve Entrapments. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL; March 14, 2018.

Filler AG. Diffusion Tensor Imaging & MR Neurography & High Resolution Axonal MRI Techniques versus Ultrasound for the Evaluation of Peripheral Nerve Entrapments. American Association of Neurological Surgeons, 2018 Annual Meeting, New Orleans, Louisiana; May 1, 2018.

Filler AG. Methodology for Analysis of DTI Images in the Setting of Brain Injury with Photophobia or Vertigo. Society for Brain Mapping and Therapeutics, 15th Annual Meeting, Los Angeles, CA; April 14, 2018.

Filler AG. The Invention of DTI (Diffusion Tensor Imaging) Lessons from a Twenty Year Process of Technology Adoption. Brain & Spine Initiative at California State Legislature, Sacramento, CA, August 7, 2018.

Filler AG. Diffusion Tensor Imaging and Tractography in the Imaging of Hypoxic Brain Injury and in Parkinsonian Disorders. Society for Brain Mapping and Therapeutics (SBMT) 2019 Annual Meeting, Los Angeles, CA, March 16, 2019.

Filler AG. Brain Mapping Initiative in the Future of Clinical Neuroscience – Invention and Innovation. Office of Science and Technology Policy (OSTP), The White House, Washington, D.C./Executive Office Building, May 10, 2019.

Filler AG. Diffusion Tensor Imaging and Tractography in the Imaging of Hypoxic Brain Injury and in Parkinsonian Disorders. Society for Brain Mapping and Therapeutics (SBMT) 2019 N20 Meeting, 大阪大学 Osaka, Japan, June 26, 2019.

Filler AG, Kim C, Straus AR. Tutorial as to Impact of Split Pulse Technology on Claim Step 36(a) of US 5,560,360 NeuroGrafix v. BrainLAB, United States District Court – Northern District of Illinois, Hon. Matthew F. Kennelly, Presiding, September 9, 2020.

Filler AG and Lever AML. RGRAS – RNA Genome Reciprocal Amplification System: High Speed – High Accuracy Home Testing System for COVID-19 and Other Pathogens. United States Department of Health and Human Services, BARDA – Biological Advanced Research and Development Agency, TechWatch Program – Washington, D.C., (WebEx), November 16, 2020.

Filler AG, Diffusion Tensor Imaging. Online Lecture Presentation. Link from Youmans & Winn Neurological Surgery, 8th Edition, uploaded May 24, 2021.

Filler AG. DTI Tractography for Targeted TMS Treatment of TBI Symptoms. Society for Brain Mapping and Therapeutics, 20th Annual Meeting, Los Angeles, CA, March 12, 2022.

Filler AG. DTI MRI for Medical Proof of Injuries in the Brain. United States District Court, Western District of Washington at Tacoma, in *Torjusen v. Amtrak*, Tacoma, Washington, Hon. Benjamin H. Settle, Presiding, March 21, 2022.

Filler AG, Petersen J, Velgos S. The Role of DTI Guided TMS in the Management of Symptoms of Mild Traumatic Brain Injury. Society for Brain Mapping and Therapeutics, 20th Annual Meeting, Los Angeles, CA; February 18, 2023.

Filler AG. Piriformis Syndrome – Differential Diagnosis & Management: a Peripheral Nerve Perspective: Scientific Session 5: Beyond the Foramen: Peripheral Nerve Perplexities; Spine Summit – Joint Section – Disorders of Spine and Peripheral Nerves; American Association of Neurological Surgeons/Congress of Neurological Surgeons, Fountainbleau Hotel, Miami, Florida; March 18, 2023.

Books

Filler AG. *Apple Thesaurus* (technical text on Apple II microelectronics, lab interfaces, and machine level programming). Datamost, Chatsworth, California. pp. 893. (1984). For information on the book:

<http://www.amazon.com/Apple-Thesaurus-Aaron-Filler/dp/0881903469>

Filler AG. *Do You Really Need Back Surgery: A Surgeon's Guide to Neck and Back Pain and How to Choose Your Treatment*. Oxford University Press. pp 352.(2004).

<http://www.amazon.com/You-Really-Need-Back-Surgery/dp/019532708X>

Hardcover 1st Edition May 2004

Paperback Edition May 2007

Paperback 2nd Edition January 2013

Filler AG. *The Upright Ape: A New Origin of the Species*. New Page Books, New Jersey, July 2007.

<http://www.amazon.com/Upright-Ape-New-Origin-Species/dp/1564149331>

Filler AG. *Axial Character Seriation in Mammals: An Historical and Morphological Exploration of the Origin, Development, Use, and Current Collapse of the Homology Paradigm*. Brown Walker Press, Boca Raton, FL, April 2007.

<http://www.amazon.com/Axial-Character-Seriation-Mammals-Morphological/dp/1599424177>

Filler AG. Smart Guide to Patents – SmartGuide Publications (September 2012)

<http://www.amazon.com/Smart-Guide-Patents-Aaron-Filler/dp/098344210X>

Filler AG. Guide to Back Pain, Neck Pain and Nerve Disorders – Smart Guide Series (in prep)

Filler AG. Guide to Medical Imaging for Patients – Smart Guide Series (in prep)

Theses

Filler, AG. *Brain Size and Social Behavior in East African Bovids: Application of Multivariate Statistics, Eigenvectors and Factor Analysis to Relate Behavioral and Morphometric Data*. (BA, University of Chicago) (1977) (Human Behavior & Institutions)

Filler, AG. *Factor analysis and multivariate statistics for the evaluation of cranial morphometrics in Macropodids*. (Medical Student research project (1978) University of Chicago.

Filler AG. *Functional and Evolutionary Perspectives on Axial Anatomy in Hominoids*. (MA, University of Chicago) (1979).

Filler AG. *Axial Character Seriation in Mammals: An Historical and Morphological Exploration of the Origin, Development, Use, and Current Collapse of the Homology Paradigm*. (PhD, Harvard University) (1986).

Blog Posts

- 1/29/2007 *Oxford University Press Blog*
Is there an ethical crisis in spinal surgery?
http://blog.oup.com/2007/01/is_there_an_eth/
- 12/15/2007 *Anthropology.net*
A human ancestor for the apes? – Morotopithecus & Homo sapiens vertebrae
<http://anthropology.net/2007/12/15/a-human-ancestor-for-the-apes/morotopithecus-homo-sapiens-vertebrae/>
- 12/24/2007 *Oxford University Press Blog*
Redefining the word “Human” – Do some apes have human ancestors?
<http://blog.oup.com/2007/12/human/>
- 8/17/2009 *Research Blogging*
Diagonal postures & The descent from human to ape
<http://www.researchblogging.org/blogger/home/id/1142>

Major Media Coverage of Academic Work

Print

- 3/16/93 *New York Times* - Magnetic Resonance Gives Better Images of Nerves in the Body. Warren Leary.
- 3/12/93 *LA Times* - Nerve Imaging Could Revolutionize Treatment of Pain. Thomas Maugh.
- 3/12/93 *London Times* - 3D images improve cancer treatment. Nigel Hawkes.
- 3/21/93 *Die Welt* - NMR-Tomographie spürt Nervenstränge auf. Werner Schulz.
- 3/12/93 *Associated Press* - New method lets doctors see nerves more clearly.
- 3/20/93 *Science News* - Seeing the nerves within us
- 9/28/96 *Science News* - Imaging method really shows some nerve
- 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

Internet

- 4/18/1997 *CNN.com*
Enhanced MRI reveals nerves that cause pain
<http://cnn.com/HEALTH/9704/18/nfm/pain/index.html>
- 11/8/2000 *BBC News*
A Step Forward in Killing Pain
http://news.bbc.co.uk/1/hi/english/health/newsid_1011000/1011780.stm
- 11/8/2000 *Web MD*
New Techniques Get at Pain Where It Hurts: Nerves Carry Pain Medication Directly To Its Target
<http://my.webmd.com/content/article/1728.63588>
- 11/8/2000 *CBS Healthwatch*
New Drug Delivery Method May Target Pain Directly
<http://cbshealthwatch.medscape.com/medscape/p/gcommunity/HNews/hnews.asp?RecID=226860&Channel=0>
- 11/8/2000 *Reuters Health*
Axonal Transport System Targets Drug to Site of Neuropathic Pain in Rat Model
<http://www.reutershealth.com/archive/2000/11/08/professional/links/20001108scie002.html>
- 11/8/2000 *New Scientist:*
Magic Bullet
<http://www.newscientist.com/dailynews/news.jsp?id=ns9999156>
- 11/8/2000 *Associated Press*
<http://wire.ap.org/APnews/?SITE=JRC&FRONTID=HOME>
- 11/8/2000 *Wired News*
Pain Relief's New Delivery System
<http://www.wirednews.com/news/technology/0,1282,40125,00.html>
- 1/31/2005 *Forbes.com*
New Clues for Sciatica Pain Relief
<http://news.healingwell.com/index.php?p=news1&id=523726>

- 7/15/2007 *Reuters*
Blame that bad back on your ancestors
<http://uk.reuters.com/article/idUKN1427159120070715>
- 10/10/2007 *MSNBC*
Human ancestors walked upright, study claims
<http://www.msnbc.msn.com/id/21223189/wid/11915829/>
- 5/20/2011 *Reuters Legal News*
Revenge of the Patent Holders
<http://newsandinsight.thomsonreuters.com/Legal/NY/News/ViewNews.aspx?id=16798&terms=%40ReutersTopicCodes+CONTAINS+>
- 10/7/2019 *Bloomberg Law*
Federal Circuit Reinstates Brainlab MRI Patent Dispute
<https://news.bloomberglaw.com/health-law-and-business/fed-cir-reinstates-brainlab-mri-software-patent-dispute>
- 10/7/2019 *Law 360*
Federal Circuit Reverses Brainlab MRI Patent Win
<https://www.law360.com/articles/1206835/fed-cir-reverses-brainlab-mri-patent-win>
- 10/24/2019 *Patent Docs*
NeuroGrafix v. Brainlab, Inc (Fed. Cir. 2019)
<https://www.patentdocs.org/2019/10/neurografix-v-brainlab-inc-fed-cir-2019.html>
- 11/26/2019 *Lexology*
No Brainer: Summary Judgment Based on Non-Asserted Grounds Procedurally Improper
<https://www.lexology.com/library/detail.aspx?g=0c98741c-f586-43e8-a65f-99bdfbfa0589>
- 10/24/2019 *Patent Docs*
NeuroGrafix v. Brainlab, Inc (Fed. Cir. 2019)
<https://www.patentdocs.org/2019/10/neurografix-v-brainlab-inc-fed-cir-2019.html>

Television

- 3/12/93 *CNN* Headline News
- 11/8/96 *ABC* World News Tonight with Peter Jennings
http://www.aaronfiller.com/Video/AGF_Movie.html
- 4/18/97 *CNN* Headline News
http://www.aaronfiller.com/Video/AGF_Movie.html
- 3/1/05 *Fox 11* News

- 7/31/05 Ivanhoe Science Productions
<http://www.ivanhoe.com/science/story/2005/07/31a.html>
- 11/3/2017 *Megyn Kelly - NBC*
 Is Harvey Weinstein About to Be Arrested
<https://www.today.com/video/is-harvey-weinstein-about-to-be-arrested-1091195971711>
- 11/7/2017 *Tucker Carlson - Fox News*
 Will Weinstein Case Go to a Grand Jury
<https://www.youtube.com/watch?v=AB9-xAwOUT4>
 (at 33:20 of 44:14)

Legal Successes in Intellectual Property Litigation

- 6/30/2009 *NeuroGrafix v. Oak Tree Medical* – Dismissal Upon Settlement
 Action for Patent Infringement of US 5,560,360
- 5/17/2011 *NeuroGrafix v. State of California* – State of California, appearing in Los Angeles Superior Court, waives Constitutional 11th Amendment Sovereign Immunity to appear in United States District Court –Central District of California to answer to Claim of Patent Infringement as to US 5,560,360
- 11/22/2011 *NeuroGrafix v. Siemens AG* – Dismissal Upon Settlement
 Action for Patent Infringement of US 5,560,360
- 12/17/2012 *NeuroGrafix v. State of California* – Dismissal Upon Settlement
 Action for Patent Infringement of US 5,560,360
- 2/10/2013 *NeuroGrafix v. General Electric* – Dismissal Upon Settlement
 Action for Patent Infringement of US 5,560,360
- 2/26/2013 *NeuroGrafix v. Medtronic* – Dismissal Upon Settlement
 Action for Patent Infringement of US 5,560,360
- 5/31/2013 Patent Trials & Appeals Board – All substantive claims in US 5,560,360 sustained as patentable in defense of Ex Parte Re-Exam
 (Defense written and argued by Aaron G. Filler)
- 7/31/2014 Patent Trials & Appeals Board – All substantive claims in US 5,560,360 sustained as patentable in defense of Ex Parte Re-Exam on PTAB Appeal
 (Appeal written and argued by Aaron G. Filler)
- 11/6/2014 *NeuroGrafix v. Philips* – Dismissal Upon Settlement
 Action for Patent Infringement of US 5,560,360

- 2/8/2016 Aaron G. Filler v. Solicitor, United States Patent & Trademark Office - all substantive claims in US 5,560,360 sustained as patentable in defense of Ex Parte Re-Exam on Appeal to Court of Appeals for the Federal Circuit
(Appeal written and argued by Aaron G. Filler, Esq.)
- 8/11/2016 *NeuroGrafix v. Hitachi* – Dismissal Upon Settlement
Action for Patent Infringement of US 5,560,360
- 5/17/2017 *NeuroGrafix v. Toshiba* – Dismissal Upon Settlement
Action for Patent Infringement of US 5,560,360
- 10/7/2019 *NeuroGrafix v. Brainlab*, 787 Fed.Appx. 710 (Fed.Cir., 2019)
Reversal & Remand, overturning grant of Motion for Summary of Judgment of No Infringement on Appeal to Court of Appeals for the Federal Circuit
(Appeal written and argued by Aaron G. Filler, Esq.)
- 11/1/2020 *NeuroGrafix v. Brainlab*, Dismissal with Prejudice of Counterclaim and Defenses of Invalidity as to US 5,560,360;
(Lead Counsel for NeuroGrafix – Aaron G. Filler, Esq.)
- 4/27/2021 *NeuroGrafix v. Brainlab* – Dismissal Upon Settlement
Action for Patent Infringement of US 5,560,360