

The Neurology Center of Southern California  
6010 Hidden Valley Road, Suite 200, Carlsbad, California 92011  
9850 Genesee Ave, Suite 470, La Jolla, CA, 92037  
1955 Citracado Pkwy, Suite 102, Escondido, CA 92029  
15721 Pomerado Road, Poway, CA 92064

Phone: 760-631-3000  
Fax: 760-631-3016



*Andrew Michael Blumenfeld, M.D.*

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## EDUCATION

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**St. Andrews College, South Africa**  
First class pass and distinction in Mathematics, ■ 1975

**University of the Witwatersrand Faculty of Medicine, Johannesburg, South Africa**  
**Bachelor of Medicine and Surgery (MD equivalent), ■ 1976-1981**

**Johannesburg Hospital, South Africa, ■ 1981-1982**  
**Internship, General Surgery Resident, Internal Medicine Resident**

**No. 1 Military Hospital, South Africa ■ 1983-1984**  
Medical Officer (Full Lieutenant), Department of internal medicine

**Johannesburg Hospital, South Africa ■ 1985-1986**  
Neurology Resident, Department of Neurology

**University of Massachusetts Medical School ■ 1986-1989**  
Neurology Resident, Department of Neurology

**University of Massachusetts Medical School ■ 1989-1990**  
Neurophysiology Fellow: EEG and EMG Fellowship

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## LICENSURE

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California Medical License Number – A47863

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## CERTIFICATIONS

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American Board of Psychiatry and Neurology ■ January 1991

United Council for Neurologic Subspecialties Certification in Headache Medicine ■ October 2008

ECFMG Certification, Number 337-486-5 ■ 1981

Registered - South African Medical and Dental Council, Number 24399 ■ 1983

Registered - British Medical Council, Number 3100769 ■ 1985

FMGEMS certification, Number 337-486-5 ■ 1986

FLEX certification, Number 580421014 ■ 1987

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## AWARDS

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Achievement Award in Mathematics Olympiad (nationwide mathematics competition) ■ 1975  
Academic Honors at St. Andrews College, South Africa ■ 1975  
Dystonia Doctor of Excellence Award ■ 2000  
Margaret Treat Excellence in Ethics Award, Kaiser Permanente ■ 2003  
Race Across America: Completed ■ 2003  
Race Across America: First Place, Corporate Challenge Division ■ 2004  
American Headache Society Member's Choice Award for the Best paper published in Headache in 2014: see reference 45 below.

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## ACADEMIC APPOINTMENTS

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### **Neurology Instructor**

University of Massachusetts, Medical School ■ 1988-1989

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## STAFF APPOINTMENT

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**Partner**, Private Group Practice, North County Neurology Associates, The Neurology Center, San Diego CA ■ 2004 - 2016

**Director**, The Headache Center of Southern California ■ 2004 – Present

**Partner**, The Research Center of Southern California, LLC, Oceanside, California ■ 2007-2016

**Co-Director**, The Sleep Center of Southern California ■ 2009 – 2014

**Staff Neurologist**, Kaiser Permanente, San Diego, California ■ 1990 – 2004

**Partner**, Southern California Permanente Medical Group, San Diego, California ■ May 29, 1992

**Chief of Service**, Kaiser Permanente, Neurology, San Diego, California ■ 1999 – 2004

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## HOSPITAL AFFILIATIONS

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**Scripps Memorial Hospital**, Encinitas, California, Active Privileges ■ 2004 – Present

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## MEMBERSHIPS

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American Academy of Neurology: Fellow

American Society of Headache: Fellow

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## COMMITTEE APPOINTMENTS

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- Member, Bioethics committee, Kaiser Permanente, San Diego
- Chairman, Bioethics committee, Kaiser Permanente, San Diego
- Member, Regional Bioethics committee, Kaiser Permanente, Southern California
- Member, Bioethics committee, Scripps Hospital, Encinitas CA
- Chair, American Headache Society Special Section: Peripheral Nerve Block & Other Interventional Procedures for Headache & Facial Pain. Founding Chair, served two terms.

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## PUBLICATIONS AND PAPERS

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(A) **Refereed Articles:**

1. Blumenfeld AM, Seilling W, Isaacson M. Chloroquine-resistant plasmodium falciparum malaria in South Western Africa. S. Afr. Med J. 1984; 66: 207-208.
2. Blumenfeld AM, Seilling W. Acute autonomic neuropathy with Salmonella typhi infection. S. Afr. Med. J. 1987; 71: 532-533.
3. Fisher M., Blumenfeld AM, Smith TW. The importance of carotid artery plaque disruption and hemorrhage. Arch. Neurol. 1987; 44:1086-1089.
4. Chad DA, Smith TW, Blumenfeld AM, Fairchild PG. HIV-associated myopathy: Immunocytochemical Identification of an HIV antigen (gp 41) in muscle. Ann. Neurol. 1990; 28:579-582.
5. Temlett JA., Ming A, Saling M, Fritz VU, Blumenfeld AM, Bilchik T, Becker AL, Fourie PB, Reef HE. Adjunctive therapy with Bromocriptine in Parkinson's Disease. S. Afr. Med. J. 1990; 78:680-685.
6. Blumenfeld AM, Recht L, Chad DA, Griffin T, Jaeckle KA. Co-existence of Lambert-Eaton Myasthenic Syndrome and Subacute cerebellar degeneration in a patient with neuronal antibodies: differential effects of treatment. Neurology 1991; 41:1682-1685.
7. Blumenfeld AM. Impact of Botulinum Toxin Type A treatment on medication costs and usage in difficult to treat chronic headache. Headache Quarterly, Current Treatment and Research, Volume XIII, 2002.
8. Rammohan KW, Rosenberg JH, Lynn DJ, Blumenfeld AM, Pollak CP, Nagaraja HN. Efficacy and safety of Modafinil (Provigil) for the treatment of fatigue in Multiple Sclerosis: a two centre phase 2 study. J Neurol Neurosurg Psychiatry 2002; 72: 0-4.
9. Blumenfeld AM. Center of Excellence for Headache Care: Group Model at Kaiser Permanente. Headache 2003; 43: 431-450.
10. Blumenfeld AM, Evans RW. Expert Opinion-Botulinum Toxin Injection for Headache. Headache 2003,43:682-685.

11. Blumenfeld AM, Binder W, Silberstein S, Blitzer A. Procedures for Administering Botulinum Toxin Type A for Migraine and Tension Headache. Headache 2003, 43:884-891.
12. Blumenfeld AM. Botulinum Toxin Type A as an Effective Prophylactic Treatment in Primary Headache Disorders. Headache 2003, 43:853-860.
13. Silberstein S, Blumenfeld AM, Dodick D. Botulinum Neurotoxin for the Treatment of Migraine and other Primary Headache Disorders. Clinics in Dermatology 2004, 22:167-175.
14. Blumenfeld AM, Binder WJ., Blitzer A, Katz H. The Emerging Role of Botulinum Toxin Type A in Headache Prevention. Operative Techniques in Otolaryngology – Head and Neck Surgery, 2004, 15:90-96.
15. Blumenfeld AM, Welch KMA. Controversies in Headache Botulinum Toxin Type A for the treatment of Headache. Headache 2004, 44:825-830.
16. Maizels M, Blumenfeld AM., Burchette R. A Combination of Riboflavin, Magnesium and Fever Few for Migraine Prophylaxis: A randomized trial. Headache 2004, 44:885-890.
17. Blumenfeld AM. Clinical Approaches to Migraine Prophylaxis. The American Journal of Managed Care, Supplement 2005, 11: S55 – S61.
18. Harpole L H, Samsa G P, Matchar D B, Silberstein S D, Blumenfeld A, Jurgelski A E. Burden of illness and satisfaction with care among patients with headache seen in a primary care setting. Headache, 2005; 45:1048-1055.
19. Elkind AH, O'Carroll P, Blumenfeld A, DeGryse R, Dimitrova R. BoNTA-024-026-036 Study Group. A series of three sequential, randomized, controlled studies of repeated treatments with botulinum toxin type A for migraine prophylaxis. J Pain. 2006;10: 688-96.
20. Blumenfeld AM., Chippendale TJ., Schim JD. Botulinum toxin type A versus divalproex sodium for prophylactic migraine treatment: a randomized, evaluator-masked trial. Headache Care, 2006; 3(4): 119-127.
21. Blumenfeld AM., Schim JD., Chippendale TJ. Botulinum Toxin Type A and Diavalproex Sodium for Prophylactic Treatment of Episodic or Chronic Migraine. Headache, 2008; 48: 210-220.
22. Matchar DB, Harpole L, Samsa GP, Jurgelski A, Lipton RB, Silberstein S, Young W, Kori S, Blumenfeld A. The Headache Management Trial: A Randomized Study of Coordinated Care. Headache, 2008; 48:1294-1310.
23. Blumenfeld A, et al. Patterns of use of Peripheral Nerve Blocks and Trigger Points Injections among Headache Practitioners in the USA: Results of the American Headache Society Interventional Procedure Survey. Headache, 2010; 50: 937-942.
24. Ashkenazi A, Blumenfeld A, et al. Review Article: Peripheral Nerve Blocks and Trigger Point Injections in Headache Management – A Systematic Review and Suggestions for future Research. Headache, 2010; 50: 943- 952.

25. Blumenfeld A, Ashkenazi A. Editorial: Nerve Blocks, Trigger Point Injections and Headache. Headache, 2010; 50: 953-954.
26. Blumenfeld A, Silberstein SD, Dodick DW, Aurora SK, Turkel CC, Binder WJ. Method of Injection of OnabotulinumtoxinA for Chronic Migraine: A Safe, Well-Tolerated Paradigm Based on the PREEMPT Clinical Program. Headache 2010; 50:1406-1418.
27. Cady RK, Schreiber CP, Porter JA, Blumenfeld AM, Farmer KU. A multi-center double-blind pilot comparison of onabotulinumtoxinA and topiramate for the prophylactic treatment of chronic migraine. Headache 2011;51(1):21-32.
28. Blumenfeld A, Schim J, Brower J. Pure Tension-type Headache Versus Tension-type Headache in the Migraineur. Volume 14, Issue 6 Current Pain and Headache Reports.
29. Blumenfeld AM. Injection Procedure Record for OnabotulinumtoxinA (BOTOX<sup>®</sup>, Allergan, Inc., Irvine, CA, USA) treatment. Headache, 2011;51:189
30. Blumenfeld A, Varon S, Wilcox TK, Buse D, Kawata AK, Manack A, Goadsby PJ, Lipton RB. Disability, HRQoL and resource use among chronic and episodic migraineurs: Results from the International Burden of Migraine Study (IBMS). Cephalalgia. 2011;31(3): 301-315.
31. Payne KA, Varon SF, Kawata AK, Yeomans K, Wilcox TK, Manack A, Buse DC, Lipton RB, Goadsby PJ, Blumenfeld AB. The International Burden of Migraine Study (IBMS): Study design, methodology, and baseline cohort characteristics. Cephalalgia. 2011; 31(10): 1116-1130.
32. Stokes ME, Becker WJ, Lipton RB, Sullivan SD, Wilcox TK, Wells L, Manack A, Proskorovsky I, Gladstone J, Buse DC, Varon S, Goadsby PJ, Blumenfeld AB. Cost of health care among patients with chronic and episodic migraine in Canada and the USA: Results from the International Burden of Migraine Study (IBMS). Headache 2011;51(7):1058-1077.
33. Blumenfeld A, Evans R. OnabotulinumtoxinA for Chronic migraine. Headache 2012;52(1):140-148.
34. Blumenfeld A, Gennings C, Cady R. Pharmacological Synergy: The Next Frontier on Therapeutic Advancement for Migraine. Headache 2012; 52(4):636-647.
35. Bloudek LM, Stokes M, Buse DC, Wilcox TK, Lipton RB, Goadsby PJ, Varon SF, Blumenfeld AM, Katsarava Z, Pascual J, Lanteri-Minet M, Cortelli P, Martelletti P. Cost of healthcare for patients with migraine in five European countries: results from the International Burden of Migraine Study (IBMS). J Headache Pain. 2012 Jul;13(5):361-378.
36. LM Bloudek, M Stokes, DC Buse, TK Wilcox, RB Lipton, PJ Goadsby, SF Varon, AM Blumenfeld, Z Katsarava, J Pascual, M Lanteri-Minet, P Cortelli, P Martelletti. Cost of healthcare for patients with migraine in five European countries: results from the International Burden of migraine Study (IBMS). Headache May 2012; 13(5): 361-78.
37. Blumenfeld AM, Bloudek LM, Becker WJ, Buse DC, Varon SF, Maglinte GA, Wilcox TK, Kawata AK, Lipton RB. Patterns of Use and Reasons for Discontinuation of Prophylactic Medications for Episodic Migraine and Chronic Migraine: Results From the Second International Burden of Migraine Study (IBMS-II). Headache 2013 Apr;53(4):644-55.

38. Blumenfeld A, et al. Expert Consensus Recommendations for the Performance of Peripheral Nerve Blocks for Headaches – A Narrative Review. Headache 2013; Mar;53(3):437-46.
39. Silberstein S, Blumenfeld A, Saper J, Newman L, Rhodes B, Young W. Dihydroergotamine in Migraine: Past Experience and Future Directions. Neurology Supplement Submitted.
40. Sanderson JC, Devine EB, Lipton RB, Bloudek LM, Varon SF, Blumenfeld AM, Goadsby PJ, Buse DC, Sullivan SD. Headache-related health resource utilisation in chronic and episodic migraine across six countries. *J Neurol Neurosurg Psychiatr*. 2013;84(12):1309-1317.
41. Silberstein SD, Blumenfeld AM, Cady RK, Turner IM, Lipton RB, Diener H-C, Aurora SK, Sirimanne M, DeGryse RE, Turkel CC, Dodick DW. OnabotulinumtoxinA for treatment of chronic migraine: PREEMPT 24-week pooled subgroup analysis of patients who had acute headache medication overuse at baseline. *J Neurol Sci*. 2013;331(1):48-56.
42. Blumenfeld AM, Aurora SK, Laranjo K, Papapetropoulos S. Unmet Clinical Needs in Chronic Migraine: Rationale for Study and Design of COMPEL, an Open-Label, Multicenter Study of the Long-Term Efficacy, Safety, and Tolerability of OnabotulinumtoxinA for Headache Prophylaxis in Adults With Chronic Migraine. BMJ Neurology. 2015;15(100):1-9.
43. Blumenfeld AM, Nikolskaya G. Glossopharyngeal Neuralgia. Current Pain and Headache Reports. 2013 Jul;17(7):343.
44. Ashkenazi A, Blumenfeld A. OnabotulinumtoxinA for the Treatment of Headache. Headache 2013; Sept;53(S2):54-61.
45. Robbins MS, Kuruvilla D, Blumenfeld A, et al. Trigger Point Injections for Headache Disorders: Expert Consensus Methodology and Narrative Review. Headache The Journal of Head and Face Pain. 09/2014; 54(9). DOI: 10.1111/head.12442
46. Lipton R, Serrano D, Blumenfeld A, Dodick D, Aurora S, Becker W, Diener HC, Wang SJ, Vincent M, Buse D, Sanderson J, Gillard P, Varon S, Reed M. Developing and validating the ID-Chronic Migraine (ID-CM) screening tool. *Journal of Pain*. 2014;15(4):S24.
47. Blumenfeld AM, Ashkenazi A, Evans R. Expert opinion: Occipital and Trigeminal Nerve Blocks for Migraine. Headache The Journal of Head and Face Pain. 04/2015; DOI: 10.1111/head.12579
48. Lipton RB, Serrano D, Buse DC, Pavlovic JM, Blumenfeld AM, Dodick DW, Aurora SK, Becker WJ, Diener H-C, Wang S-J, Vincent MB, Hindiyeh NA, Starling AJ, Gillard PJ, Varon SF, Reed ML. Development and Validation of the Identify Chronic Migraine (ID-CM) Screening Tool. *Cephalalgia*. 2015;36(3):203-215.
49. Messali A, Sanderson JC, Blumenfeld AM, Goadsby PJ, Buse DC, Varon SF, Stokes M, Lipton RB. Direct and Indirect Costs of Chronic and Episodic Migraine in the United States: A Web-based Survey . *Headache*. 2016;56(2):306-322.
50. Blumenfeld A, Silberstein S, Dodick D, Aurora S, Brin M, Binder W. Insights into the Functional Anatomy behind the PREEMPT Injection Paradigm: Guidance on Achieving Optimal Outcomes. Headache. 2017;57(5):766-777.

51. Hareendran A, Mannix S, Skalicky A, Bayliss M, Blumenfeld A, Buse DC, Desai PR, Ortmeier BG, Sapiro S. Development and exploration of the content validity of a patient-reported outcome measure to evaluate the impact of migraine- the migraine physical function impact diary (MPFID). Health and Quality of Life Outcomes 2017; 15:224.
52. Blumenfeld AM, Stark RJ, Freeman MC, Orejudos A, Manack Adams A. Long-term study of the efficacy and safety of onabotulinumtoxinA for the prevention of chronic migraine: COMPEL study. *J Headache Pain*. 2018. DOI: 10.1186/s10194-018-0840-8.
53. Blumenfeld A, Siavoshi S. The Challenges of Cervicogenic Headache. *Current Pain and Headache Reports*. <https://doi.org/10.1007/s11916-018-0699-z>.
54. Blumenfeld A, Stark R, Freeman M, Orejudos A, Manack Adams A . Long-Term Study of the Efficacy and Safety of OnabotulinumtoxinA for the Prevention of Chronic Migraine: COMPEL Study. *J Headache Pain*. 2018;19(13):

(B) **Letters:**

1. Fisher M, Blumenfeld AM, Smith TW. Carotid Plaque Disruption. Arch. Neurol. 1989; 46:605.
2. Fisher M, Lingley JF, Blumenfeld AM, Felice K. Anterior choroidal artery territory infarction and small vessel disease. Stroke 1989; 20:1591-1592.
3. Blumenfeld A. Does single-file Botox injection really work for primary headache? Headache, 2004; 8: 838-9.
4. Blumenfeld A, Bender SD, Glassman B, Malizia D. Bruxism, temporomandibular dysfunction, tension type headache, and migraine: a comment. Headache 2011; Nov-Dec; 51(10):1549-50.
5. Blumenfeld A, et al. Pharmacological Synergy: The Next Frontier on Therapeutic Advancement for Migraine. Headache 2012; 52(10): 1600-1601.

(C) **Chapters and Reviews:**

1. Phillips C, Blumenfeld AM. Status Epilepticus. Intensive Care Medicine, Second Edition, 1991, 1565-1569.
2. Blumenfeld AM. Botulinum Toxin in Primary Headache Disorders. Medlink 2003 - present.

(D) **Guidelines:**

1. Blumenfeld AM, Blalock E, Kazimiroff P, Van Petten C, Ratcliffe J. Headache Guidelines. Clinical Practice Guidelines, Kaiser Permanente 1996.
2. Blumenfeld AM. Headache Guidelines. Clinical Practices Guidelines, Kaiser Permanente 2003.

(E) **Books:**

(F) **Posters:**

1. Blumenfeld A. Chronic daily headache treated non-pharmacologically with Nociceptive Trigeminal Inhibition Dental Splint. Presented at the International Headache Society, London September 2008. Aurora S, Schim J, Cutrer FM, Ward TN, Blumenfeld AB, Lay C, Patel S, Lei X, Turkel CC. Botulinum neurotoxin type A for treatment of chronic migraine: PREEMPT 1 trial double-blind phase. Presented at the 14th International Headache Congress (IHC), September 10-13, 2009, Philadelphia, Pennsylvania; PO45.
2. Buse D, Lipton RB, Kawata AK, Varon SF, Manack A, Wilcox TK, Goadsby PJ, Blumenfeld A. Global impact of chronic migraine (CM) compared to episodic migraine (EM) on health-related quality of life (HRQoL), depression and anxiety. Presented at the 14th International Headache Congress (IHC), September 10-13, 2009, Philadelphia, Pennsylvania.
3. Blumenfeld A, Tarzemany R, Neshandar M, Jalalian E, Beladimoghaddam N. Combination therapy: Valproic Acid with an NTI clenching reduction dental splint for prophylactic treatment of primary Headache: a pilot study for efficacy assessment. Presented at the 14th International Headache Congress (IHC), September 10-13, 2009, Philadelphia, Pennsylvania.
4. Payne KA, Wilcox TK, Yeomans K, Kawata AK, Varon SF, Burk CT, Lipton RB, Blumenfeld A. Clinical history, resource utilization, and other patient-reported outcomes (PROs) in migraineurs: An adaptable web-based methodology for the design, implementation and conduct of a multinational survey of patients. Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 14th Annual International Meeting, May 16-20, 2009, Orlando, Florida.
5. Payne KA, Wilcox TK, Yeomans K, Kawata AK, Varon SF, Burk CT, Lipton RB, Blumenfeld A. Clinical history, resource utilization, and other patient-reported outcomes (PROs) in migraineurs: An adaptable web-based methodology for the design, implementation and conduct of a multinational survey of patients. Presented at the 12th European International Society for Pharmacoeconomics and Outcomes Research Congress (ISPOR EU), October 24-27, 2009, Paris, France.
6. Silberstein SD, Blumenfeld AM, Cady RK, Turner IM, Sirimanne M, DeGryse R, Turkel CC. OnabotulinumtoxinA for treatment of chronic migraine: Analysis of the PREEMPT chronic migraine subgroup who were overusing acute headache medications at baseline. Presented at the 14th International Headache Congress (IHC), September 10-13, 2009, Philadelphia, Pennsylvania; PO49.
7. Varon SF, Blumenfeld A, Lipton RB, Manack A, Buse D, Wilcox TK, Goadsby PJ, Kawata AK. Health care resource utilization patterns among individuals with chronic migraine (CM) and episodic migraine (EM). Presented at the 14th International Headache Congress (IHC), September 10-13, 2009, Philadelphia, Pennsylvania, PO126.
8. Varon SF, Burk CT, Buse DC, Kawata AK, Payne KA, Blumenfeld A, Lipton RB. Impact of chronic (CM) and episodic migraine (EM) on work presenteeism in 9 countries. Presented at the 12th European International Society for Pharmacoeconomics and Outcomes Research Congress (ISPOR EU), October 24-27, 2009, Paris, France.



9. Varon SF, Burk CT, Buse DC, Kawata AK, Payne KA, Blumenfeld A, Lipton RB. Impact of chronic (CM) and episodic migraine (EM) on work presenteeism in 9 countries. Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 14th Annual International Meeting, May 16-20, 2009, Orlando, Florida.
10. Aurora SK, Dodick DW, Blumenfeld AM, DeGryse RE, Turkel CC. OnabotulinumtoxinA for Chronic Migraine: Safety and Tolerability of the Effective Treatment Paradigm in the PREEMPT Clinical Program. Presented at the 52nd Annual Scientific Meeting of the American Headache Society (AHS), June 24-27, 2010, Los Angeles, California; PO-27.
11. Blumenfeld AM, Silberstein SD, Dodick DW, Aurora SK, Turkel CC, Binder WJ. OnabotulinumtoxinA for chronic migraine: PREEMPT clinical program establishes a safe and effective dose and injection paradigm. Presented at the 62nd Annual Meeting of the American Academy of Neurology (AAN), April 10-17, 2010, Toronto, ON, Canada.
12. Blumenfeld AM, Silberstein SD, Dodick DW, Aurora SK, Turkel CC, Binder WJ. OnabotulinumtoxinA for chronic migraine: PREEMPT trials establish a safe and effective dose and injection paradigm. Presented at the 2nd European Headache and Migraine Trust International Congress (EHMTIC 2010), October 28-31, 2010, Nice, France.
13. Becker WJ, Kawata AK, Yeomans K, Varon SF, Lipton RB, Wells L, Blumenfeld AM. Headache severity, comorbidities, and healthcare resource utilization (RU) among chronic migraine (CM) and episodic migraine (EM) in Canada. Presented at the Canadian Neurological Sciences Federation (CNSF) 45th Annual Congress, June 8-11, 2010, Quebec City, Canada.
14. Becker WJ, Wilcox TK, Wells L, Blumenfeld AM, Kawata AK, Varon SF, Lipton RB. Migraine-related disability, work impact, and quality of life (QOL) among Canadians with chronic migraine (CM) and episodic migraine (EM). Presented at the Canadian Neurological Sciences Federation (CNSF) 45th Annual Congress, June 8-11, 2010, Quebec City, Canada.
15. Blumenfeld AM, Kawata TK, Goadsby PJ, Buse DC, Wilcox TK, Varon SF, Lipton RB. Preventive medication use among Americans with chronic and episodic migraine. Presented at the American Managed Care Pharmacy (AMCP) 2010 Educational Conference, October 13-15, 2010, St. Louis, Missouri.
16. Blumenfeld AM, Lipton RB, Buse DC, Kawata AK, Wilcox TK, Varon SF, Goadsby PJ. Impact on chronic and episodic migraine on work patterns in five European countries. Presented at the 2nd European Headache and Migraine Trust International Congress (EHMTIC 2010), October 28-31, 2010, Nice, France.
17. Cortelli P, Martelletti P, Stokes M, Varon SF, Sullivan SD, Blumenfeld AM, Buse DC, Lipton RB, Wilcox TK, Goadsby PJ. Healthcare resource use and costs among chronic and episodic migraine in Italy. Presented at the XLI Congresso Societa Italiana di Neurologia (SIN), 2010.
18. Cortelli P, Martelletti P, Lipton RB, Blumenfeld A, Kawata AK, Varon SF, Renoldi M, Goadsby PJ. Impact of chronic versus episodic migraine on disability, health-related quality of life in Italy. Presented at the Italian Internal Medicine Congress (SIMI), 2010.
19. Cortelli P, Martelletti P, Lipton RB, Blumenfeld A, Kawata AK, Varon SF, Renoldi M, Goadsby PJ. Impact of chronic versus episodic migraine on disability and health-related quality of life in Italy (Impatto dell'emigraina cronica rispetto all'emigraina episodica

- sulla disabilit  di vita in Italia. Presented at the IV Congresso Nazionale Association Neurologica Italiana per la Ricerca sulle Cefalee (ANIRCEF), June 2, 2010, Genoa, Italy.
20. Cortelli P, Martelletti P, Lipton RB, Blumenfeld A, Kawata AK, Varon SF, Renoldi M, Goadsby PJ. Impact of chronic versus episodic migraine on disability, health-related quality of life in Italy. Presented at the XLI Congresso Societa Italiana di Neurologia (SIN), 2010.
  21. Cortelli P, Martelletti P, Stokes M, Varon SF, Sullivan S, Blumenfeld A, Buse DC, Lipton RB, Wilcox TK, Goadsby PJ. Healthcare resource use and costs among chronic and episodic migraine in Italy. Presented at the Italian Internal Medicine Congress (SIMI), 2010.
  22. Goadsby PJ, Lipton RB, Varon SF, Buse DC, Kawata AK, Wilcox TK, Blumenfeld A, Girod I. Impact of chronic versus episodic migraine on disability, health-related quality of life (HRQoL) and resource utilization in the UK. Presented at the Association of British Neurologists (ABN) Annual Meeting, May 11-14, 2010, Bournemouth, UK; POH02.
  23. Katsarava Z, Blumenfeld A, Wilcox TK, Voelkel H, Varon SF, Buse DC, Lipton RB, Goadsby PJ. Der Einfluss chronischer im Vergleich zu episodischer Migr ne auf Behinderung, Gesundheits-bezogene Lebensqualit t (HRQoL) und Inanspruchnahme von Gesundheitsleistungen in Deutschland. Presented at the Deutscher Schmerzkongress, 2010.
  24. Kawata AK, Maglante GA, Doan QV, Lipton RB, Wilcox TK, Blumenfeld AM, Goadsby PJ. Comparing EuroQoL-5 Dimensions (EQ-5D) index scores between subjects with Chronic Migraine (CM) and Episodic Migraine (EM) in five European countries and with other chronic diseases. Presented at the 14th Congress of the European Federation of Neurological Societies (EFNS), September 25-28, 2010, Geneva, Switzerland.
  25. Kawata AK, Varon SF, Blumenfeld AM, Lipton RB, Wilcox TK, Goadsby PJ. Health-related quality of life among subjects with chronic migraine and episodic migraine in five European countries. Presented at the 14th Congress of the European Federation of Neurological Societies (EFNS), September 25-28, 2010, Geneva, Switzerland.
  26. Lipton RB, Blumenfeld A, Ishak KJ, Varon SF, Kawata AK, Manack A, Buse DC, Goadsby PJ. Determinants of migraine-related disability. Presented at the 62nd Annual Meeting of the American Academy of Neurology (AAN), April 10-17, 2010, Toronto, ON, Canada.
  27. Lipton RB, Varon SF, Goadsby PJ, Buse DC, Kawata AK, Wilcox TK, Blumenfeld AM. Acute medication use among Americans with chronic and episodic migraine. Presented at the American Managed Care Pharmacy (AMCP) 2010 Educational Conference, October 13-15, 2010, St. Louis, Missouri.
  28. Martelletti P, Cortelli P, Lipton RB, Blumenfeld AM, Kawata AK, Varon SF, Renoldi M, Goadsby PJ. Healthcare resource use and costs among chronic and episodic migraine in Italy. Presented at the XXIV Congresso Nazionale Societa Scientifica Multidisciplinare Dedicata alla Cefalee (SISC), 2010.
  29. Martelletti P, Cortelli P, Lipton RB, Blumenfeld AM, Kawata AK, Varon SF, Renoldi M, Goadsby PJ. Impact of chronic versus episodic migraine on disability and health-related quality of life in Italy. Presented at the XXIV Congresso Nazionale Societa Scientifica Multidisciplinare Dedicata alla Cefalee (SISC), 2010.

30. Stokes M, Varon SF, Blumenfeld AM, Buse DC, Lipton RB, Wilcox TK, Goadsby PJ. Health resources uses and costs among chronic and episodic migraine in five european countries. Presented at the 2nd European Headache and Migraine Trust International Congress (EHMTIC 2010), October 28-31, 2010, Nice, France.
31. Blumenfeld A. Adverse events related to the NTI splint: report from the Headache Hope study. Presented at the 2nd European Headache and Migraine Trust International Congress (EHMTIC 2010), October 28-31, 2010, Nice, France.
32. Stokes M, Varon SF, Sullivan SD, Blumenfeld AM, Lipton RB, Goadsby PJ, Wilcox TK. Healthcare resource use and costs among chronic and episodic migraine in the United States. Presented at the American Managed Care Pharmacy (AMCP) 2010 Educational Conference, October 13-15, 2010, St. Louis, Missouri.
33. Wilcox TK, Blumenfeld A, Varon S, Payne K, Manack A, Buse D, Goadsby P, Lipton R. Relationship between headache frequency and migraine-related disability in the International Burden of Migraine Study (IBMS). Presented at the 62nd Annual Meeting of the American Academy of Neurology (AAN), April 10-17, 2010, Toronto, ON, Canada.
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  99. Winner P, Blumenfeld A, Eross E, Orejudos A, Manack Adams A, Brin M. Long-Term Safety and Tolerability of OnabotulinumtoxinA Treatment in Chronic Migraine Patients: COMPEL Analysis by Treatment Cycle. American Headache Society - 60th Annual Scientific Meeting. 2018; San Francisco, CA.
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## (G) **Presentations**

1. Blumenfeld A, Patel A, Zhao X, Manack Adams A, Rothrock J. A Multicenter, Prospective, Randomized, Open-Label Study to Compare the OnabotulinumtoxinA and Topiramate for Headache Prevention in Adults with Chronic Migraine: Patient Reported Outcomes From The FORWARD Study. American Headache Society - 60th Annual Scientific Meeting. 2018; San Francisco, CA.
2. Pascual J, Blumenfeld A, Tepper S, Robbins L, Orejudos A, Manack Adams A, Buse D, Silberstein S. Effect of OnabotulinumtoxinA in Depression and Anxiety Associated With Chronic Migraine. Sociedad Espanola de Neurologia - LXX Reunion Anual. 2018; Seville, Spain.
3. Rothrock J, Lipton R, Silberstein S, Jo E, Zhao X, Manack Adams A, Blumenfeld A. A Multicenter, Prospective, Randomized, Open-Label Study to Compare the Efficacy, Safety, and Tolerability of OnabotulinumtoxinA and Topiramate for Headache Prevention in Adults with Chronic Migraine: The FORWARD Study. European Academy of Neurology - 4th Congress. 2018; Lisbon, Portugal.
4. Rothrock J, Tepper S, Wilson M, Orejudos A, Manack Adams A, Blumenfeld A. The Long-Term Efficacy and Safety of OnabotulinumtoxinA for the Prevention of Chronic Migraine in Patients with Medication Overuse: Results of the COMPEL Study. European Academy of Neurology - 4th Congress. 2018; Lisbon, Portugal.

## (H) **Abstracts**

1. Blumenfeld A, Patel A, Manack Adams A, Rothrock J. A Multicenter, Prospective, Randomized, Open-Label Study To Compare OnabotulinumtoxinA and Topiramate for Headache Prevention in Adults with Chronic Migraine: Patient-Reported Outcomes From The FORWARD Study. Headache Update 2018.
2. Blumenfeld A, Patel A, Zhao X, Manack Adams A, Rothrock J. A Multicenter, Prospective, Randomized, Open-Label Study to Compare the OnabotulinumtoxinA and Topiramate for Headache Prevention in Adults with Chronic Migraine: Patient Reported Outcomes From The FORWARD Study. American Headache Society - 60th Annual Scientific Meeting. 2018; San Francisco, CA.
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6. Blumenfeld A, Tepper S, Robbins L, Orejudos A, Manack Adams A, Buse D, Silberstein S. Effect of OnabotulinumtoxinA Prevention on Comorbidities of Depression and Anxiety in Chronic Migraine: Analysis in Headache Day Frequency Responders vs Headache Day Frequency Non-Responders. Headache Update 2018. 2018.

7. Paul Winner, DO, FAAN, FAHS, Andrew M. Blumenfeld, MD, Eric J. Eross, DO, Amelia Orejudos, MSc, Aubrey Manack Adams, PhD, Mitchell F. Brin, MD, FAAN. Long-Term Safety and Tolerability of OnabotulinumtoxinA Treatment in Chronic Migraine Patients: COMPEL Analysis by Treatment Cycle. Practicing Physician's Approach to the Difficult Headache Patient - 31st Annual. 2018.
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12. Tepper S, Wilson M, Orejudos A, Manack Adams A, Blumenfeld A. The Long-Term Efficacy and Safety of OnabotulinumtoxinA for the Prevention of Chronic Migraine in Patients with Medication Overuse: Results of the COMPEL Study. European Academy of Neurology - 4th Congress. 2018; Lisbon, Portugal.
13. Tepper S, Wilson M, Orejudos A, Manack Adams A, Blumenfeld A. The Long-Term Efficacy and Safety of OnabotulinumtoxinA for the Prevention of Chronic Migraine in Patients With Medication Overuse: Results of the COMPEL Study. Headache Update 2018. 2018.
14. Tepper S, Wilson M, Rothrock J, Orejudos A, Manack Adams A, Blumenfeld A. Effect of OnabotulinumtoxinA Prevention on Comorbidities of Depression and Anxiety in Chronic Migraine: Analysis in Headache Day Frequency Responders vs Headache Day Frequency Nonresponders. European Headache Federation - 12th European Headache Federation Congress. 2018; Florence, Italy.
15. Winner P, Blumenfeld A, Eross E, Orejudos A, Manack Adams A, Brin M. Long-Term Safety and Tolerability of OnabotulinumtoxinA Treatment in Chronic Migraine Patients: COMPEL Analysis by Treatment Cycle. American Headache Society - 60th Annual Scientific Meeting. 2018; San Francisco, CA.

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**MEDICAL JOURNAL REVIEWER**

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- Headache Journal
- Cephalalgia Journal
- Neurology Journal

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## CONSULTANT POSITIONS

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- Allergan: this involves development of marketing materials related to Chronic Migraine, intellectual property development related to Botox use, training injectors, and advice on future directions.

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## US AND EUROPEAN PATENTS

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1. 8,617,572 Botulinum toxin treatments of depression
2. 8,617,571 Suture line administration technique using botulinum toxin
3. 8,609,113 Botulinum toxin treatments of depression
4. 8,609,112 Botulinum toxin treatments of depression
5. 8,603,983 Targeted delivery of botulinum toxin for the treatment and prevention of trigeminal autonomic cephalgias, migraine and vascular conditions
6. 8,530,425 Targeted delivery of botulinum toxin to the sphenopalatine ganglion
7. 8,388,952 Botulinum toxin compositions and methods
8. 8,383,103 Botulinum toxin compositions and methods
9. 8,241,641 Targeted delivery of botulinum toxin for the treatment and prevention of trigeminal autonomic cephalgias, migraine and vascular conditions
10. 7,981,433 Targeted delivery of botulinum toxin to the sphenopalatine ganglion
11. 7,749,515 Targeted delivery of botulinum toxin to the sphenopalatine ganglion
12. 7,655,244 Targeted delivery of botulinum toxin for the treatment and prevention of trigeminal autonomic cephalgias, migraine and vascular conditions.
13. Use of Botulinum toxins in the treatment of neuro-psychiatric conditions. Granted in: AU, CH, CN, DE, DK, ES, FR, UK, IE, IT, MX, NL, SE. EP 1677823

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## RESEARCH ACTIVITIES

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| 1996 – 1999 | Sub-Investigator: Berlex Protocol BL01-3112. Phase III Double-masked, Placebo-controlled Study to evaluate the safety and efficacy of two doses of Betaseron in Patients with Secondary Progressive Multiple Sclerosis. |
| 1996 - 1998 | Principal Investigator: Genentech Protocol A027 g. Thrombolytic Therapy in Acute Ischemic Stroke.   |
| 1997        | Principal Investigator: Genentech Protocol A0734n Stroke Presentation Survey.   |
| 1997-1998   | Principal Investigator: Genentech Protocol A0728n. A phase IV Study of Activase in Acute Ischemic Stroke.   |

- 1997- 1999 Sub-Investigator: Biogen Protocol C95-812.  
A Randomized Double-Blind, Placebo-Controlled Study of AVONEX in the Treatment of Subjects at High Risk for Development of Multiple Sclerosis Following the First Onset of an Isolated Demyelization Event (CHAMPS).
- 1998 Principal Investigator: Bayer Protocol D97-019.Metrifonate Investigational Nationwide Trial (MINT).
- 1998- 2000 Principal Investigator: Astra Protocol SA-CMZ-0009.  
The Clomethiazole Acute Stroke Study in Ischemic Stroke (CLASS-I): A Double-Blind, Parallel Group, Multinational, Multicenter Study of the Efficacy and Safety of IV Clomethiazole Compared to Placebo in Patients with Acute Ischemic Stroke.
- 1999- 2000 Sub- Investigator: Cephalon C 153a/402/AP/US. A Four Week, Double-Blind, Placebo-Controlled, Multicenter, Randomized, Parallel-Group Study of the effect of Provigil on Excessive Daytime Sleepiness and Vigilance in Obstructive Sleep Apnea Patients treated with Nasal Continuous Positive Airway Pressure.
- 1999- 2000 Sub- Investigator: Cephalon: A Multicenter, Double-Blind, Clinical Trial to Assess Safety and Efficacy of the treatment of Fatigue in Multiple Sclerosis with Provigil.
- 2000 Principal Investigator: Allergan Protocol 191622-024-00.  
A Multicenter, Double-Blind, Randomized, Placebo-Controlled, Parallel Group study of the Safety and Efficacy of three doses of Botulinum Toxin Type A purified neurotoxin complex for the treatment of migraine headaches.
- 1999-2000 Principal Investigator: Allergan Protocol 191622-026-00.  
A Multicenter, Double-Blind, Randomized, Parallel Group Study of the Safety and Efficacy of Botulinum Toxin, Type A Purified Neurotoxin Complex for the Prophylactic Treatment of Migraine Headaches.
- 1999-2001 Principal Investigator: Allergan Protocol 191622-027.  
A Multicenter, Double-Blind, Randomized, Placebo-Controlled, Parallel Study to Assess the Safety and Efficacy of Botulinum Toxin Type A Purified Neurotoxin Complex Injected into Bilateral Pericranial Muscles for the Prophylactic Treatment of Chronic Tension Type Headaches.
- 1999-2002 Co-Investigator: Serono Protocol Number 21125. An Open-Label, Randomized, Multicenter, Comparative, Parallel Group Study of Rebif 44 mcg Administered Three Times Per Week by Subcutaneous Injection, Compared with Avonex 30 mcg Administered Once per Week by Intramuscular Injection in the Treatment of Relapsing-Remitting Multiple Sclerosis.
- 1999- 2001 Principal Investigator: Glaxo: Headache Management in an HMO setting.
- 2000-2001 Principal Investigator: Allergan Protocol 191622-036-00.  
A Multicenter, Double-Blind, Randomized, Placebo-Controlled, Parallel Group Study of the Continuation of Benefit of Two Dosages of Botulinum

Toxin Type A Purified Neurotoxin Complex for the Prophylactic Treatment of Migraine Headaches.

2000-2002 Co-Investigator: A Double-Blind Trial of Magnesium with Riboflavin and Feverfew for the Prevention of Migraine Headaches.

2000 Principal Investigator: Dementia Management and Guideline Implementation in an HMO Setting.

2000-2001 Principal Investigator: Duke: An Assessment of the Burden of Headache in Primary Care Practices.

2001 Co-Investigator: Merck & Co.: The Use of an Internet-Based Headache Assessment Tool to Assist in the Management of an Emergency Department Headache Population.

2001-2002 Principal Investigator: Allergan: Pharmacoeconomics Retrospective Analysis of Fifty Headache Patients Treated with Botulinum Toxin A.

2001 Principal Investigator: Duke: A Randomized Trial of Headache Management Programs.

2001- 2003 Co- Investigator: UCSD: Impact of Ethics Consultation in the Intensive Care Unit.

2001-2003 Principal Investigator: Serono: A randomized, multi-center, parallel group, open labeled study comparing the tolerability of Rebif injections with and without the use of Rebiject Mini in relapsing remitting Multiple Sclerosis patients.

2002 Principal Investigator: Allergan: A Multicenter, Double-Blind, Randomized, Placebo-Controlled, Parallel Group Study of Multiple Treatments of Botox (Botulinum Toxin Type A) Purified Neurotoxin Complex for the Prophylactic Treatment of Headaches in the Chronic Headache Population. 191622-038

2002 Principal Investigator: Allergan: A Multicenter, Double-Blind, Randomized, Placebo-Controlled, Parallel Group Study of Multiple Treatments of BOTOX (Botulinum Toxin Type A) Purified Neurotoxin Complex for the Prophylactic Treatment of Migraine Headache in the Episodic Migraine Population. 191622-037

2002 Principal Investigator: Pfizer: A Multicenter, Double-blind, Randomized, Placebo-controlled Study of Eletriptan (20 and 40mg) Versus Placebo in Early Treatment of Migraine.

2002- 2003 Co-Investigator: Serono: A phase II, multi-center, randomized, double-blind, placebo controlled, dose-finding study of subcutaneous administration of Interferon (beta-1a) for Maintenance of remission in patients with Crohn's disease.

2002- 2003 Co-Investigator: Serono: A multi-center, open label, long-term, safety study of subcutaneous administered Interferon (Beta-1a) in patients who completed or discontinued from a previous Serono sponsored study for maintenance of remission of Crohn's Disease.

2002-2003 Principal Investigator: Immunex: Registry to evaluate Novantrone effects in worsening Multiple Sclerosis (RENEW) Prospective, open label, tolerability and safety monitoring study of Novantrone in a selected cohort of Multiple Sclerosis patients.

2002 Principal Investigator: Merck: Evaluation of Knowledge, Motivation and Patient-Provider Communication in a Headache Class, a Component of a Headache Management Program.

2002 Principal Investigator: Allergan: A Prospective Database to Assess Botox Treatment Results.

2002 Principal Investigator: Thomas Jefferson University: Program to Assess Treatment Strategies: A Botox Observational Program. (PATS)

2004 Sub-Investigator: MT400-303 “An Open-label, Repeat Dose Study of the Safety of Combo Formulation in the Treatment of Multiple Episodes of Acute Migraine over 12 Months”

2004 Sub-Investigator: 065-00- (Maxalt) “A Multicenter, Double-Blind, Randomized, Parallel, Placebo-Controlled Study to Examine the Efficacy of Rizatriptan 10-mg Tablet Administered Early During a Migraine Attack While the Pain is Mild”

2004 Sub-Investigator: MT400-301 (POZEN) “A Double-Blind, Multicenter, Randomized, Placebo-Controlled Single Dose Study To Evaluate The Safety And Efficacy Of Trexima In The Acute Treatment Of Migraine Headaches”

2004 Sub-Investigator: 9006- (TEVA) “A Multi-Center, Randomized, Double-Blind, Parallel Group Study to Evaluate the Efficacy, Tolerability, and Safety of 40mg of Copaxone in the Treatment of Relapsing-Remitting Multiple Sclerosis Patients”

2004 Sub-Investigator: 1198.100 “A 14-week placebo-controlled dose-response efficacy and safety study of NS 2330 in Early Parkinson’s Disease patients (Study of the Concept of treating Early Parkinson’s Disease with a Triple Reuptake inhibitor, NS 2330) [SCEPTRE]”

2004 Sub-investigator: Ptcl-01213 entitled: “A Randomized, Double-blind, Placebo-controlled, Multicenter, Parallel study to evaluate the effects of DP-b99 on Neurologic Function and Disability in subjects with Acute Ischemic Hemispheric Stroke”

2004 Sub-Investigator: 001 – “A Randomized, Evaluator-Masked Trial to Evaluate the Efficacy of Botox Compared with Depakote in Migraine Prevention”

2004 Sub-Investigator: 9.159 PRoFESS- Prevention Regimen for Effectively avoiding Second Strokes: A double-blind, active and placebo controlled study of Aggrenox® vs. clopidogrel, with and without Micardis®.

2004 Sub-Investigator: SA-NXY-0007: “A Double-Blind, Randomized, Placebo Controlled, Parallel Group, Multicenter, Phase IIb/III Study to Assess the Efficacy and Safety of Intravenous NXY-059 in Acute Ischemic Stroke”.

- 2005 Sub-Investigator: TVP1012-A001-201- A 1-Year, double-blind, randomized, placebo-controlled study of Rasagiline 1 mg and 2 mg added to Aricept 10 mg daily in patients with mild to moderate dementia of the Alzheimer's type.
- 2005 Sub-Investigator: VML251-3MRM/02 "A double-blind, placebo-controlled, parallel group study, with an open-label extension phase, to assess the efficacy, tolerability and safety of oral frovatriptan in the prevention of menstrually related migraine (MRM) headaches in a "difficult to treat" population.
- 2005 Sub-Investigator: E2007-A001-210- A Randomized, Double-Blind, Placebo-Controlled, Multi-Center, Parallel-Group Study to Evaluate the Efficacy and Safety of E2007 in Migraine Prophylaxis.
- 2005 Principal-Investigator: A Single-Center, Double-Blind Comparison of BOTOX® (Botulinum Toxin Type A) and DEPAKOTE® for the Prophylactic Treatment of Migraine Headaches- Pilot Study.
- 2005 Sub-Investigator: F71CH-1641 A Randomized, Double-Blind, Placebo Controlled, Multi-Centre, Parallel Groups Confirmatory Efficacy and Safety Trial of Activated Recombinant Factor VII (NovoSeven®/Niasase® in Acute Intracerebral Hemorrhage).
- 2005 Sub-Investigator: 101468/205: A 12-Week, Double-Blind, Placebo Controlled, Parallel Group Study to Assess the Efficacy and Safety of Ropinirole XR (Extended Release) in Patients with Restless Legs Syndrome.
- 2005 Sub-Investigator: E2020-A001-412: A One Year, Multicenter, Randomized, Double-Blind, Placebo-Controlled Evaluation of the Efficacy and Safety of Donepezil Hydrochloride (E2020) in Subjects with Mild Cognitive Impairment.
- 2005 Principal Investigator: 1602 "A Multi-Center, Randomized, Single-Blind, Study to Obtain Preliminary Safety and Efficacy Data for ONS Treatment of Chronic Migraine Headache".
- 2005 Principal Investigator: "A Single-Center, Double-Blind Comparison of Botox and Topiramate for the Prophylactic Treatment of Chronic Migraine Headache".
- 2006 Sub-Investigator 191622-079/080 "A Multicenter Study Evaluating the Efficacy and Safety of Botox Purified Neurotoxin complex as Headache Prophylaxis In Migraine Patients with 15 or More headache Days per 4-Week Period in a 24 week, Double-Blind, Randomized, Placebo Controlled, Parallel-Group Phase Followed by a 32 Week Open-Label Phase".
- 2006 Sub-Investigator: VP-AD-301 "A Double-Blind Placebo-Controlled Study of VP4896 for the Treatment of Mild to Moderate Alzheimer's Disease".
- 2006 Sub-Investigator: NTI-ASP-0502 "A Randomized, Double-Blind, Placebo Controlled Study of Ancrod (Viprinex) in Subjects Beginning Treatment within 6 Hours of the Onset of Acute Ischemic Stroke".



- 2006 Sub-Investigator: CD-0125 “Safety and Efficacy of NeuroFlo Technology in Ischemic Stroke”.
- 2006 Sub-Investigator: PRX-03140 “A Randomized, Double-Blind, Placebo Controlled, Phase IIa Study to Assess the Short-Term Effects of PRX-03140 Alone and in Combination with Donepezil in Subjects with Mild Alzheimer’s Disease”.
- 2006 Sub-Investigator: E2080-A001-301 “A Double-Blind, Placebo-Controlled, Parallel-Group Study of Rufinamide Given as Adjunctive Therapy in Patients with Refractory Partial Seizures”.
- 2006 Sub-Investigator: TRX103632/635 “A Randomized, Double-Blind, Multi-Center, Placebo Controlled, Cross-Over Study to Determine the Consistency of Response for Trexima<sup>®</sup> (Sumatriptan 85mg/Naproxen Sodium 500mg) in the Acute Treatment of Multiple Migraine Attacks”.
- 2006 Sub-Investigator: TRX106573 “A Randomized, Double-Blind, Multi-Center, Placebo-Controlled, Cross-Over Study of Trexima<sup>®</sup> in Migraine Subjects Who Report Poor Response or Intolerance to Relpax<sup>®</sup>”.
- 2006 Sub-Investigator: A 24-month double-blind, randomized, multicenter, placebo-controlled, parallel-group study comparing the efficacy and safety of 0.5 mg and 1.25 mg fingolimod (FTY720) administered orally once daily versus placebo in patients with relapsing-remitting multiple sclerosis with optional extension phase Protocol No.: CFTY720D2309 Extension to CFTY720D2309 (A 24-month double-blind, randomized, multicenter, placebo-controlled, parallel-group study comparing the efficacy and safety of 0.5mg and 1.25mg fingolimod (FTY720) administered orally once daily versus placebo in patients with relapsing-remitting multiple sclerosis
- 2006 Sub-Investigator: S308-3-003 “A Multi-Center, Randomized, Double-Blind, Parallel-Group, Placebo and Pramipexole Controlled Study to Assess Efficacy and Safety of SLV308 Monotherapy in the Treatment of Patients with Early Stage Parkinson’s Disease”.
- 2006 Sub-Investigator: NTS-INT06-007 “A Double-Blind, Randomized, Controlled, Parallel Group, Multi-Center, Pivotal Study to Assess the Safety and Effectiveness of the Treatment of Acute Ischemic Stroke with the NeuroThera<sup>®</sup> Laser System within 24 Hours from Stroke Onset”.
- 2006 Principal Investigator: “The Effect of BOTOX<sup>®</sup> (Botulinum Toxin A) for the Treatment of Episodic Migraine Headaches in Patients who Demonstrate Poor Response to Triptans”
- 2007 Sub-Investigator: A 12-month double-blind, randomized, multicenter, active-controlled, parallel-group study comparing the efficacy and safety of 0.5 mg and 1.25 mg fingolimod (FTY720) administered orally once daily versus interferon  $\beta$ -1a (Avonex<sup>®</sup>) administered i.m. once weekly in patients with relapsing-remitting multiple sclerosis with optional Extension Phase
- 2007 Sub-Investigator: NL-2006-001 “A Phase III, Randomized, Double-Blind, Parallel Group, Sham-Controlled Study Evaluating the Efficacy and

Safety of Non-Invasive, Non-Repetitive Transcranial TMS Stimulation (TMS) for the Acute Preemptive Treatment of the Aura Phase of Migraine Headache”.

- 2007 Sub-Investigator: TON/03/001 “A Multi-Centre, Parallel Group, Double-Blind, Placebo Controlled, Dose Ranging Study of the Efficacy and Tolerability of Tonabersat in the Prophylaxis of Migraine Headache and Open Label Extension”
- 2007 Sub-Investigator: MPB8298-SP-03 “A Double-Blind, Placebo Controlled Multi-Centre Study to Evaluate the Efficacy and Safety of MBP8298 in subjects with Secondary Progressive Multiple Sclerosis.”
- 2007 Sub-Investigator: S308.3.008 “An extension of SLV308, A multicenter, randomized, double-blind, parallel group, Placebo and Pramipexole controlled study to assess efficacy and safety of monotherapy in the treatment of patients with early stage Parkinson’s disease.”
- 2007 Sub-Investigator: NTS-INT06-007 “ A Double-Blind, Randomized, Controlled, Parallel Group, Multi-Center, Pivotal Study to Assess the Safety and Effectiveness of the Treatment of Acute Ischemic Stroke with the NeuroThera<sup>®</sup> Laser System within 24 Hours from Stroke Onset”.
- 2007 A Multicenter, Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety and Efficacy of SCH530348 in Addition to Standard of Care in Subjects With a History of Atherosclerotic Disease: Thrombin Receptor Antagonist in Secondary Prevention of Atherothrombotic Ischemic Events (TRA 2°P - TIMI 50) P04737-3694
- 2008 Sub-Investigator: ELN115727-301 & 302 ”A Phase III, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel Group, Efficacy and Safety Trail of Bapineuzumab (AAB-001,ELN115727 in Patients with Mild to Moderate Alzheimer’s Disease who are Apolipoprotein E ε4 Non-Carriers (301) or Carriers (302)”
- 2008 Sub-Investigator: P04737 “A multicenter, Randomized, Double-Blind, Placebo Controlled Study to Evaluate the Safety and Efficacy of SCH 530348 in Addition to Standard of Care in Subjects with a history of Atherosclerotic Disease: Thrombin Receptor Antagonist in Secondary Prevention of Atherothrombotic Ischemic Events”
- 2008 Sub-Investigator: ACT 10573 “A Double Blind, Placebo-Controlled, Randomized Crossover, Activity Study of Single Doses of 50 mg and 400 mg Nerispidine on Visual Function in Patients with Multiple Sclerosis.”
- 2008-2011 ELN115727-301 & 302 ”A Phase III, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel Group, Efficacy and Safety Trail of Bapineuzumab (AAB-001, ELN115727 in Patients with Mild to Moderate Alzheimer’s Disease who are Apolipoprotein E ε4 Non- Carriers (301) or Carriers (302)”, 2008
- 2009 Principal Investigator: NXN-188-203 “A phase 2 study of the safety and Effectiveness of a single oral dose of NXN-188 for the treatment of Moderate to Severe Migraine Headache with Aura”

- 2009 Principal Investigator: NXN-188-204 “ A Phase 2 Study of the Safety and Effectiveness of a Single Oral Dose of NXN 188 for the Treatment of Moderate to Severe Migraine Headache without Aura
- 2009 Sub-Investigator: 28821: ORACLE MS Trial: “ A phase III, randomized, Double-blind, placebo-controlled, multi-center clinical trial of oral Cladribine in subjects with a first clinical event at high risk of converting to MS”
- 2009 Principle Investigator BTX0805: A randomized double-blind placebo controlled multi-center study to evaluate the safety and efficacy of Botulinum Neurotoxin Type A in the treatment of Forward Head Posture with associated Chronic Tension type Headache using novel fixed site injection paradigm.
- 2009 Sub-Investigator: DRI10566: “A 14-Week, Randomized, Double-Blind, Placebo-Controlled, Parallel Group Study to Evaluate the Efficacy, Safety, and Tolerability of Nerispiridine 50 mg, 100 mg, and 200 mg in Patients with Multiple Sclerosis”.
- 2009 Sub-Investigator: 29652: “A 12-Week, Phase IIIb, Open-Label, Single-Arm, Multicenter Trial to Evaluate Ease of use of an Electronic Auto-injector (RebiSmart™) for Self-Injection in Subjects with Relapsing Multiple Sclerosis (RMS) treated with Rebif® 44mcg Subcutaneously three times a week.”
- 2009 Sub-Investigator: ELN 115727-351 “A Phase 3 Extension, Multicenter, Double-Blind, Long Term Safety and Tolerability Treatment Trial of Bapineuzumab (AAB-001, ELN115727) in Subjects with Alzheimer’s Disease who Participated in Study ELN115727-301 or in Study ELN115727-302.”
- 2009 CENA: A 24 week, prospective, randomized, parallel-group, double-blind, multi-center study comparing the effects of rivastigmine patch 15cm<sup>2</sup> vs. rivastigmine patch 5cm<sup>2</sup> on activities of daily living and cognition in patients with severe dementia of the Alzheimers type
- 2009- 2012 ELN115727-351 “A Phase 3 Extension, Multicenter, Double-Blind, Long Term Safety and Tolerability Treatment Trial of Bapineuzumab (AAB-001, ELN115727) in Subjects with Alzheimer’s Disease who Participated in Study ELN115727-301 or in Study ELN115727-302” – 2009
- 2009 Sub-Investigator: H9B-MC-BCDJ (a) –Multiple Subcutaneous Doses of LY2127399, an Anti-BAFF Human Antibody, in Subjects with Relapsing-Remitting Multiple Sclerosis
- 2010 A 6-month, Randomized, Active Comparator, Open-label, Multi- Center Study to Evaluate Patient OutComes, Safety and Tolerability of Fingolimod 0.5 mg/day in Patients with Relapsing Forms of Multiple Sclerosis who are candidates for MS therapy change from Previous Disease Modifying Therapy (EPOC)
- 2010 Droxidopa NOH306 “A Multicenter, Double-Blind, Randomized, Parallel-Group, Placebo-Controlled Study to Assess the Clinical Effect of Droxidopa in the Treatment of Symptomatic Neurogenic Orthostatic Hypotension in Patients with Parkinson’s Disease”

- 2010 FHP: "A Randomized Double-Blind Placebo Controlled Multi-Center Study to Evaluate the Safety and Efficacy of Botulinum Neurotoxin Type A in the Treatment of Forward Head Posture with Associated Chronic Tension Type Headache using a Novel Fixed site Injection Paradigm." Investigator
- 2010 NTS-INT08-009 " A double-blind, randomized, sham-controlled, parallel group, multicenter, pivotal study to assess the safety and efficacy of transcranial laser therapy with the NeuroThera® Laser System for the treatment of acute ischemic stroke within 24 hours of stroke onset.
- 2010 TIMI: A Multicenter, Randomized, Double-Blind, Placebo Controlled Study to Evaluate the Safety and Efficacy of SCH 530348 in Addition to Standard of Care in Subjects with a History of Atherosclerotic Disease: Thrombin Receptor Antagonist in Secondary Prevention of Atherothrombotic Ischemic Events.
- 2010 S187.3.002 "A Randomized, Double-Blind, Double-Dummy, Efficacy, Safety and Tolerability Study of Levodopa-Carbidopa Intestinal Gel in Levodopa-Responsive Parkinson's Subjects Receiving Optimized Treatments with Parkinson Medicinal Products, who Continue to Experience Persistent Motor Fluctuations
- 2010 S187.3.003 "Open-Label, 12-Month Safety and Efficacy Study of Levodopa – Carbidopa Intestinal Gel in Levodopa-Responsive Parkinson's Disease Subjects.
- 2010 S187.3.004 "An Open-Label, 12-Month Safety and Efficacy Study of Levodopa – Carbidopa Intestinal Gel in Levodopa-Responsive Subjects with Advanced Parkinson's Disease and Severe Motor-Fluctuations Despite Optimized Treatment with Available Parkinson's Disease Medications
- 2010 S187.3.005 "Open-Label Continuation Treatment Study With Levodopa – Carbidopa Intestinal Gel In Subjects With Advanced Parkinson's Disease And Severe Motor-Fluctuation Who Have Exhibited A Persistent And Positive Effect To Treatment in Previous Studies.
- 2010 101MS325 "A Multicenter, Randomized, Rater-Blind, Parallel-Group, Active Controlled Study to Evaluate the Benefits of Switching Therapy (Glatiramer Acetate or Interferon  $\beta$  1a) to Natalizumab in Subjects with Relapsing Remitting Multiple Sclerosis
- 2010 01373 "A double blind, randomized, placebo-controlled, parallel group, multicenter Phase 3 pivotal study to assess the safety and efficacy of 1mg/kg/day intravenous DP-b99 over 4 consecutive days versus placebo when initiated within nine hours of acute ischemic stroke onset."
- 2010 AAB-001-SC-ALZ-2003 " A Phase 2, Randomized, Double-Blind, Placebo-Controlled, Parallel Group, Multi-Center, Biomarker, Safety, and Pharmacokinetic Study of Bapineuzumab (AAB-001) Administered Subcutaneously at Monthly Intervals in Subjects with Mild to Moderate Alzheimer's Disease

2010	EFC6058 “ A multi-center double-blind parallel-group placebo-controlled study of the efficacy and safety of teriflunomide in patients with relapsing multiple sclerosis who are treated with interferon-beta
2010	0462-082-00 “ A Worldwide, Randomized, Double Blind, Placebo-Controlled, Parallel Group Clinical Trial to Evaluate the Safety and Efficacy of Rizatriptan for the Acute Treatment of Migraine in Children and Adolescents
2010	Study Ptcl-01373 entitled: A double blind, randomized, placebo-controlled, parallel group, multicenter Phase 3 pivotal study to assess the safety and efficacy of 1mg/kg/day intravenous DP-b99 over 4 consecutive days versus placebo when initiated within nine hours of acute ischemic stroke onset
2012	Principal Investigator: COMPEL An open-label, multicenter study of the long-term efficacy, safety, and tolerability of BOTOX for the prophylaxis of headaches in adult patients with chronic migraine
2012	Principal Investigator: Botox Adolescent: BOTOX (Botulinum Toxin Type A) Purified neurotoxin complex as headache prophylaxis in adolescents (Children 12 to < 18 years of age) with chronic migraine. 2012
2012	FTY Prefer A 12-month, Prospective, Randomized, active-controlled, open-label study to evaluate the patient retention of Fingolimod vs. approved first-line disease modifying therapies in adults who are in early stages of treatment for Relapsing Remitting multiple sclerosis
2012	Novartis Assess FTY (2312): Fingolimod vs Glatiramer Acetate A 12-month, randomized, rater and dose-blinded study to compare the efficacy and safety of fingolimod 0.25mg and 0.5mg administered orally once daily with glatiramer acetate 20mg administered subcutaneously once daily in patients with relapsing-remitting multiple sclerosis
2012	PrecisionMed 4800: A single or multiple visit protocol for collection of DNA/RNA/SERUM/PLASMA/CSF in Amyotrophic Lateral Sclerosis and related disorders
2013	Sub-Investigator: An open-label, two part, multicenter study to assess the safety and efficacy of levodopa-carbidopa intestinal gel (LCIG) for the treatment of Non-Motor symptoms in subjects with advanced Parkinson’s disease (M12-920)
2013	Sub-Investigator: Principal Investigator: Electrocore: Non-invasive Neurostimulation of the vagus nerve with the GammaCore device for the treatment of cluster headache
2014-2015	Sub-Investigator: Labrys: A multicenter, randomized, double-blind, double-dummy, placebo-controlled, parallel group, multi-dose study comparing the efficacy and safety of subcutaneous LBR-101 with placebo for the preventive treatment of chronic migraine
2014-2015	Sub-Investigator: Labrys: A multicenter, randomized, double-blind, placebo-controlled, parallel-group, study comparing the efficacy and

safety of two doses of subcutaneous LBR-101 with placebo for the preventive treatment of high frequency episodic migraine

- 2014 Principal Investigator: Allergan: Forward Study, A multicenter, randomized, open-label study to compare the efficacy safety, and tolerability of Botox and Topiramate for headache prophylaxis in adults with chronic migraine
- 2015 Principal Investigator: A Multicenter, Randomized, Double-blind, Placebo-controlled study evaluating the Efficacy and Safety of MLD10 in the prevention of Migraine Headache in Adults
- 2015 Sub-Investigator: A Six-Week, Double-Blind, Placebo-Controlled, Randomized-Withdrawal, Multicenter Study of the Safety and Efficacy of JZP-110 [(R)-2-amino-3-phenylpropylcarbamate hydrochloride] in the Treatment of Excessive Sleepiness in Subjects with Obstructive Sleep Apnea (OSA)