Curriculum Vitae - David G. Birch, Ph.D. 3/1/2016

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Citizenship: U.S. Citizen
Date of Birth: 01/19/1949

EDUCATION

B.A. University of California, Riverside, California 1970
Ph.D. University of California, Santa Barbara, California 1978

POSITIONS

1978 - 1979	Post-doctoral fellow, University of Florida Medical School, Gainesville, Florida
1979 - 1982	Post-doctoral fellow, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, Massachusetts
1982 - 2009	Research Director, Retina Foundation of the Southwest, Anderson Vision Res Center, Dallas, Texas
1982 – present	Director, Rose-Silverthorne Laboratory for Retinal Degenerations, Anderson Vision Res Center, Retina Foundation of the Southwest, Dallas, Texas
1982 - 1988	Adjunct Assistant Professor of Ophthalmol, University of Texas Southwestern Medical School, Dallas, Texas
1988 - 1994	Adjunct Associate Professor of Ophthalmol, University of Texas Southwestern Medical School, Dallas, Texas
1994 - Present	Adjunct Professor of Ophthalmol, University of Texas Southwestern Medical School, Dallas, Texas
1999 – Present	Center Coordinator, Foundation Fighting Blindness Southwest Regional Center
2006 – Present	Director of Electrophysiology, University of Texas Southwestern Medical School, Dallas, Texas
2009 – Present	Chief Scientific and Executive Officer, Retina Foundation of the Southwest, Dallas, Texas

PROFESSIONAL ORGANIZATIONS

Association for Research in Vision and Ophthalmology
American Association for the Advancement of Science
Optical Society of America
American Academy of Ophthalmology
International Society for Clinical Electrophysiology of Vision
Schepens International Society
Southern Retina Study Group
International Society for Eye Research

PROFESSIONAL EXPERIENCE

Grants:

1978 - 1980	Post-doctoral fellowship, University of Florida Medical School
1980 - 1982	Post-doctoral fellowship, Massachusetts Eye and Ear Infirmary, Harvard Medical School
1984 - 2008	Principal Investigator, NEI 2R01 EY05235 "Retinal Pathophysiology in Infants and Adults"
1987 - 1992	Principal Investigator, NEI 1R01 EY07188 "Electroretinographic Studies in Age-related Macular Degeneration"
1987 - 1990	Co-Investigator, Cerebral Palsy Foundation "Effect of Dietary Omega-3 Fatty Acids on Brain and Visual Development in Low Birth Weight Infants"
1996 – 2001	Co-Investigator, Food and Drug Administration FD-R-001232

	"DHA Supplementation and X-linked Retinitis Pigmentosa"
1987 - Present	Principal Investigator, The Foundation Fighting Blindness, Inc. "Rod Loss in Retinitis Pigmentosa"
1987 - 2002	Co-Investigator, 1R01 HD22380 "Are Omega-3 Fatty Acids Essential for Normal Development"
1991 - Present	Principal Investigator, 1R01 EY09076 "A measure of Human Receptor and Post-Receptor Activity"
1997 – 2001	Principal Investigator, TAP Holdings Inc. "The Use of Lansoprazole in Patients with Zollinger-Ellison Syndrome and Patients with Hypersecretion of Gastric Acid"
1997 – 1998	Consultant, Abbott Laboratories "Eye Findings in Patients Taking Ritonavir"
1997 – 1998	Principal Investigator, Pfizer Pharmaceuticals "A Double-Blind Randomized, Placebo-Controlled, Crossover Study to Investigate the Effects of a Single Oral Dose of Sildenafil (Placebo and 100 mg) on Visual Function in Subjects with Early Age-Related Macular Degeneration"
2003 – 2014	Food and Drug Administration, Co-Investigator "High Dose DHA and X-Linked Retinitis Pigmentosa: Phase II"
2006 – 2011	Neurotech USA, Lead Investigator A Phase II/III Study of Implants of Encapsulated Human NTC-201 Cells Releasing Ciliary Neurotrophic Factor (CNTF) for Participants with Retinitis Pigmentosa using Visual Field Sensitivity as the Primary Outcome Measure"
2007 – Present	Principal Investigator, Second Sight Medical Products, Inc. "Argus™ II Retinal Implant System Feasibility Protocol"
2007 – 2010	Principal Investigator, Centocor Research & Development, Inc. "Phase I Open-Label, Non-Comparative Study Evaluating the Safety of a Single, Unilateral Subretinal Administration of CNTO 2476 in Advanced Retinitis Pigmentosa"
2007 – 2008	Acucela Inc., Principal Investigator "An Outpatient Study of the Retinal Safety and Systemic Tolerability of Orally Administered ACU-3223 After Single-Dosing and Repeated-Dosing in Healthy Adults of 55 to 75 Years of Age"
2008 – 2011	Allergan, Inc., Principal Investigator "An Exploratory, Multicenter, Patient-masked, Dose-escalation, Paired-eye Comparison, Sham-controlled, 6-Month (Plus 6-Month Extension) Study to Evaluate the Safety and Effects on Visual Function of 100 µg, 200 µg, and µg Brimonidine Tartrate Posterior Segment Drug Delivery System (Brimonidine Tartrate PS DDS) Applicator System in Patients with Retinitis Pigmentosa"
2012 – Present	StemCell, Inc., Principal Investigator "Phase I/II safety and preliminary efficacy of human central nervous system stem cells (HuCNC-SC) subretinal transplantation in subjects with geographic atrophy of age-related macular degeneration"
2014 – Present	Foundation Fighting Blindness Clinical Research Institute, Principal Investigator "Clinical evaluation of individuals with X-linked retinoschisis (XLRS)"
2012 – Present	Foundation Fighting Blindness Clinical Research Institute, Principal Investigator "ProgSTAR, The natural history of the progression of atrophy secondary to Stargardt disease: a prospective longitudinal observational study"
2012 – Present	Foundation Fighting Blindness Clinical Research Institute, Principal Investigator "A Phase II Multiple Site, Randomized, Placebo-Controlled Trial of Oral Valproic Acid for Retinitis Pigmentosa Protocol #H-13371"

Journal Referee:
Survey of Ophthalmol, Invest Ophthalmol Vis Sci, Journal of Comparative Psychology, American Journal of

Ophthalmol, Doc Ophthalmol, Exp Eye Res, Ophthalmol, Vision Res, Arch Ophthalmol, Psychiatry Research, Vis Neurosci, Ophthalmic and Physiological Optics, Ophthalmic Genetics, Early Human Development, Neuron, Gene Therapy, Cell, Proc Nat Acad Sci., Brit J Ophthalmol, Graefe's Archives, PlosOne, Translational Vision Science & Technology, Human Molecular Genetics, JAMA Ophthalmology.

Editorial Board:
Documenta Ophthalmologica, Experimental Eye Research

Service and Awards:
Adj. Professor of Ophthalmology; Director Visual Electrophysiology, University of Texas Southwestern Medical Center. Pro bono.
Head of Clinical Review Committee, Foundation Fighting Blindness.
Chair of DSMC; High Resolution Photoreceptor Imaging: A Novel Biomarker of Disease Progression and Treatment Response in Inherited Retinal Degenerations, UC San Francisco.
DSMC member; AAV2-hRPE65v2 treatment for Leber Congenital Amaurosis, Children's Hospital of Philadelphia.
DSMC member; Transcorneal electrical stimulation for the treatment of retinitis pigmentosa – a safety and efficacy NSR device study, Wills Eye Institute, Philadelphia, PA.
Visual Sciences Study Section, NIH
Small Business Innovation Research Program, 1988-1990
Special Reviewer, VisA2 Study Section, 1990-1991
Special Reviewer, VisC Study Section, 1991
Special Reviewer, VisB Study Section, 1992
Special Reviewer, VisC Study Section, 1993
Regular Member, VisC Study Section, 1994-1997
Special Emphasis Panels, 2000-present
Special Reviewer, DPVS Study Section, 2012
Technical Program Committee, Optical Society of America, 1989-1990
Instructor, American Academy of Ophthalmology
Charles A. and Anne Morrow Lindbergh Certificate of Merit, 1994
2001 Achievement Award, American Academy of Ophthalmology
Scientific Advisor, D/FW Chapter, Foundation Fighting Blindness
Scientific Advisory Board, Dallas Services for Visually Impaired Children
Scientific Advisory Board, Foundation Fighting Blindness
Scientific Advisory Board, Academy of Biomedical Professions
Scientific Review Committee, Fight for Sight
2009 Fellow, Association for Research in Vision and Ophthalmology
Visionary Award, Foundation Fighting Blindness, April, 2012
Executive Committee, Beckman Initiative for Macular Research, 2013-present
Board of Directors Award, Foundation Fighting Blindness, June 2014

Pre-doctoral fellows and interns:
Adriana Berezovsky, Mark Pennesi, Angela Peters, Janie Pantaglian, Megan Trese, Rachel Drennan, Hemaxi Patel, Erin Goin, Jane Gilmor, Brittany Holl, Kelley Locke, Salma Ferdous, Sydney Cooper

Post-doctoral fellows:
Steven Nusinowitz, Ph.D., Radouil Tzekov, M.D., Ph.D., Jesus Gonzales, M.D., Alejandra Alcala, M.D., Liane Baidelman Kibel, M.D., Petra Kozma-Wiebe, M.D., Ph.D., Eugene Filley, Ph.D., Nalini Rangaswamy Ph.D., Yuquan (Eddie) Wen Ph.D., Lea Bennett Ph.D.

PUBLICATIONS

Books:

Fuller DG and Birch DG. Assessment of Visual Function for the Clinician. Ophthalmology Clinics of North America, W.B. Saunders Co., Philadelphia, PA. September, 1989.

Fishman GA, Birch DG, Harding GE, Brignell MG. Electrophysiologic Testing. American Academy of Ophthalmology, San Francisco, CA. December, 2000.

Book Reviews:

Birch DG. Atlas of Fundus Autofluorescence (Holz FG, Schmitz-Valckenbergm S, Spaide RF, Bird AC, eds). Springer-Verlag, Berlin, 2007. ISBN: 978-3-540-71993-9

Articles:

1. Jacobs GH and Birch DG. Increment-threshold functions for different rodent species. Vision Res, 1975; **15**:375-378.
2. Birch DG and Jacobs GH. Behavioral measures of rat spectral sensitivity. Vision Res, 1975; **15**: 687-691.
3. Birch DG and Jacobs GH. Effects of constant illumination on vision in the albino rat. Physiology and Behavior, 1977; **19**:255-259.
4. Birch DG and Jacobs GH. Spatial contrast sensitivity in albino and pigmented rats. Vision Res, 1979; **19**:933-937.
5. Birch DG and Jacobs GH. The effects of prolonged dark exposure on visual thresholds in young and adult rats. Invest Ophthalmol Vis Sci, 1979; **18**:752-756.
6. Enoch JM, Birch DG, and Birch EE. Monocular light exclusion for a period of days reduces directional sensitivity of the human retina. Science, 1979; **206**:705-709.
7. Birch DG and Jacobs GH. Light-induced damage to photopic and scotopic mechanisms in the rat depends upon rearing conditions. Experimental Neurology, 1980; **68**:269-283.
8. Birch DG, Birch EE, and Enoch JM. Visual sensitivity, resolution, and Rayleigh matches following monocular occlusion for one week. J Opt Soc Am, 1980; **70**:954-958.
9. Enoch JM, Birch DG, Birch EE, and Benedetto MD. The effect of uniocular occlusion on selected visual functions. Transactions of the Ophthalmological Societies of the United Kingdom, 1980; **99**:407-412.
10. Enoch JM and Birch DG. Evidence for alteration in photoreceptor orientation. Ophthalmol, 1980; **87**:821-834.
11. Enoch JM, Birch DG, Birch EE, and Benedetto MD. Alteration in directional sensitivity of the retina by monocular occlusion. Vision Res, 1980; **20**:1185-1189.
12. Fitzgerald CR, Enoch JM, Birch DG, Benedetto MD, Temme LA, and Dawson WW. Anomalous pigment epithelial/photoreceptor relationships and receptor orientation. Invest Ophthalmol Vis Sci, 1980; **19**:956-966.
13. Fitzgerald CR, Birch DG, and Enoch JM. Functional analysis of vision in patients after retinal detachment repair. Arch Ophthal, 1980; **98**:1237-1244.
14. Enoch JM and Birch DG. Inferred positive phototrophic activity in human photoreceptors. Philos Trans R Soc Lond B Biol Sci, B, 1981; **291**:323-351.
15. Birch DG, Sandberg MA, and Berson EL. The Stiles-Crawford effect in retinitis pigmentosa. Invest Ophthalmol Vis Sci, 1982; **22**:157-164.
16. Birch DG and Sandberg MA. Psychophysical studies of cone optical bandwidth in patients with retinitis pigmentosa. Vision Res, 1982; **22**:1113-1117.
17. Jacobs GH, Birch DG, and Blakeslee B. Visual acuity and spatial contrast sensitivity in tree squirrels. Behav Proc, 1982; **7**:367-375.
18. Stromeyer CF, Mulligan JB, Birch DG, and Dawson BM. Adaptation to polarized light in humans. Vision Res, 1982; **22**:217-223.
19. Marmor MF, et al. Retinitis Pigmentosa. A symposium on terminology and methods of examination. Ophthalmol, 1983; **90**:126-131.

20. Birch DG, Berson EL, and Sandberg MA. Diurnal rhythm in the human rod ERG. Invest Ophthalmol Vis Sci, 1984; **25**:236-238.
21. Berson EL, Sandberg MA, Rosner B, Birch DG, and Hanson AH. Natural course of retinitis pigmentosa over a three year interval. American Journal of Ophthalmol, 1985; **99**:240-251.
22. Enoch JM and Birch DG. Comment on inferred positive phototropic activity in human photoreceptors. Philos Trans R Soc Lond B Biol Sci of London, B, 1985; **309**:611-613.
23. Birch DG, Sandberg MA, and Berson EL. Diurnal rhythm in the human rod ERG: relationship to cyclic lighting. Investigative Ophthalmol, 1986; **27**:268-270.
24. Birch DG, and Fish GE. Rod ERGs in children with hereditary retinal degeneration. J Pediatr Ophthalmol Strabismus, 1986; **23**:227-232.
25. Fish GE, Birch DG, Fuller DW, and Straach R. A comparison of visual function tests in eyes with maculopathy. Ophthalmol, 1986; **93**:1177-1182.
26. Birch DG. Diurnal rhythm in the rod ERG in retinitis pigmentosa and cone-rod degeneration. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1987; 50-52
27. Birch DG and Fish GE. Rod ERGs in retinitis pigmentosa and cone-rod degeneration. Invest Ophthalmol Vis Sci, 1987; **28**:140-150.
28. Birch EE, Hale LA, Stager DR, Fuller DG, and Birch DG. Operant acuity of toddlers and developmentally delayed children with low vision. J Pediatr Ophthalmol Strabismus, 1987; **24**:164-169.
29. Birch EE and Birch DG. Pupillometric measures of retinal sensitivity in infants and adults with retinitis pigmentosa. Vision Res, 1987; **27**:499-505.
30. Birch DG, Herman WK, deFaller JM, Disbrow DT, and Birch EE. The relationship between rod perimetric thresholds and full-field rod ERGs in retinitis pigmentosa. Invest Ophthalmol Vis Sci, 1987; **28**:954-965.
31. Birch DG and Sandberg MA. Dependence of cone b-wave implicit time on rod amplitude in retinitis pigmentosa. Vision Res, 1987; **27**:1105-1112.
32. Birch DG. Diurnal rhythm in the human rod ERG: retinitis pigmentosa. Invest Ophthalmol Vis Sci, 1987; **28**:2042-2048.
33. Enoch JM, Hamer RD, Lakshminarayanan V, Yasuma T, Birch DG, and Yamade S. Effect of monocular light exclusion on the Stiles-Crawford Function. Vision Res, 1987; **27**:507-510.
34. Birch DG and Fish GE. Focal cone ERGs: aging and macular disease. Doc Ophthalmol, 1988; **69**:211-220.
35. Birch DG, Birch EE and Uauy RD. ERGs and VEPs in very low birth weight (VLBW) infants. Topical *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1988; 94-97.
36. Birch DG, Jost BF, and Fish GE. The focal electroretinogram in fellow eyes of patients with idiopathic macular holes. Arch Ophthal, 1988; **106**:1558-1563.
37. Birch DG. Clinical electroretinography. In Fuller, D.G. and Birch, D.G. (Eds.) Assessment of Visual Function for the Clinician. W.B. Saunders Co., Philadelphia, PA., 1989.
38. Fish GE and Birch DG. The focal electroretinogram in the clinical assessment of macular function. Ophthalmol, 1989; **96**:109-114.
39. Birch DG and Jost BF. Prospective measures of the focal ERG in fellow eyes of patients with a full-thickness macular hole. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1989; 272-275.
40. Birch DG and Anderson JL. Rod visual fields in cone-rod degeneration: comparisons to retinitis pigmentosa. Invest Ophthalmol Vis Sci, 1990; **31**:2288-2299.
41. Birch EE, Birch DG, Uauy R, and Petrig B. Retinal and cortical function of very low birth weight infants at 36 and 57 weeks post-conception age. Clinical Vision Res, 1990; **5**:363-373.
42. Hood DC and Birch DG. The a-wave of the ERG as a quantitative measure of human receptor activity. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1990; 66-69.
43. Birch DG and Anderson JL. Rod visual fields in cone-rod degeneration: Comparisons to retinitis

pigmentosa. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1990; 36-39.

44. Birch EE, Birch DG, and Uauy R. Effects of gestational age at birth and diet on visual acuity. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1990; 14-17.
45. Fish GE, Jost BF, Snyder WB, Fuller DG, Birch DG. Cataract extraction after brachytherapy for malignant melanoma of the choroid. Ophthalmol, 1990; **98**:843-847.
46. Hood DC and Birch DG. The relationship between models of receptor activity and the a-wave of the human ERG. Clinical Vision Res, 1990; **5**:293-297.
47. Hood DC and Birch DG. The a-wave of the human electroretinogram and rod receptor function. Invest Ophthalmol Vis Sci, 1990; **31**:2070-2081.
48. Hood DC and Birch DG. A quantitative measure of the electrical activity of human rod photoreceptors using electroretinography. Vis Neurosci, 1990; **5**:379-387.
49. Jost BF, Hutton WL, Fuller DG, Vaiser A, Snyder WB, Fish GE, Spencer R, and Birch DG. Vitrectomy in eyes at risk for macular hole formation. Ophthalmol, 1990; **97**:843-847.
50. Uauy R, Birch DG, Birch EE, Tyson J, and Hoffman D. Effect of dietary omega-3 fatty acids on retinal function of very low birth weight neonates. Pediatric Research, 1990; **28**:485-492.
51. Birch DG, Anderson JL, and Fish GE. Longitudinal measures in children receiving ENCAD for hereditary retinal degeneration. Doc Ophthalmol, 1991; **77**:185-191.
52. Hood DC and Birch DG. An evaluation of the ERG b-wave as a measure of inner nuclear layer activity: Implications for Naka-Rushton fits. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1991; 2-5.
53. Birch EE, Birch DG, and Uauy RD. Maturation of the oscillatory potentials of the human electroretinogram. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1991; 28-31.
54. Birch DG, Birch EE, Hoffman DR, and Uauy RD. Effects of dietary Omega-3 fatty acids on rod ERG Function in very-low-birth-weight neonates. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1991; 32-35.
55. Swanson WH and Birch DG. SWS-Cone defects in photoreceptor degenerations. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1991; 208-211.
56. Birch DG. Focal electroretinography. In Heckenlively, J. and Arden, G. (Eds.) Principles and Practice of Clinical Electroretinography of Vision. Mosby Year Book, Inc., St. Louis MO., 1991.
57. Birch DG. Flicker electroretinography. In Heckenlively, J. and Arden, G. (Eds.) Principles and Practice of Clinical Electroretinography of Vision. Mosby Year Book, Inc., St. Louis MO., 1991.
58. Hood DC and Birch DG. Models of human rod photoreceptors and the ERG. In Landy, M. and Movshon, A. (Eds.) Computational Models of Visual Processing. MIT Press, Boston, MA., 1991; 57-67.
59. Birch DG, Anderson JL, Fish GE, and Jost BF. Pattern-reversal electroretinographic acuity in untreated eyes with subfoveal neovascular membranes. Invest Ophthalmol Vis Sci. 1992; **33**:2097-2104.
60. Birch DG, Birch EE, Hoffman DR, and Uauy RD. Retinal development in very-low-birth-weight infants fed diets differing in omega-3 fatty acids. Invest Ophthalmol Vis Sci, 1992; **33**:2365-2376.
61. Hood DC and Birch DG. A model of the human ERG: Predicting changes in a- and b-wave amplitude and timing with congenital stationary nightblindness. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1992; 57-60.
62. Birch EE, Birch DG, Hoffman DR, and Uauy R. Dietary essential fatty acid supply and visual acuity development. Invest Ophthalmol Vis Sci, 1992; **33**:3242-3253.
63. Birch DG and Anderson JL. Standardized full-field ERGs: normal values and their variation with age. Arch Ophthal, 1992; **110**:1571-1576.
64. Hood DC and Birch DG. A computational model of the amplitude and implicit time of the b-wave of the human ERG. Vis Neurosci, 1992; **8**:107-126.

65. Snyder WB, Bloome MA, and Birch DG. Pneumatic retinopexy vs. scleral buckle- Preferences of Vitreous Society members- 1990. Retina, 1992; **12**:43-45.
66. Uauy R, Birch D, Birch E, Tyson J, and Hoffman, D. Are omega-3 fatty acids required for normal eye and brain development of the very low birth weight infant? In Koletzko, B. (Ed.) Recent Advances in Infant Feeding. Verlag, New York, 1992, pp 13-21.
67. Uauy R, Birch DG, Birch EE, and Hoffman DR. Essential fatty acid requirements for normal visual and neural development. In Hernandez, M and Argente, J. (Eds.) Human Growth: Basic and Clinical Aspects. Elsevier Science Publishers, New York, N.Y., 1992; 197-203.
68. Uauy R, Birch EE, Birch DG, and Peirana P. Visual and brain function measurements in studies of n-3 fatty acid requirements of infants. Journal of Pediatrics. 1992; **120**:168-180.
69. Birch DG, Anderson JL, Fish GE, and Jost BF. Pattern-reversal electroretinographic follow-up of laser photocoagulation for subfoveal neovascular lesions in age-related macular degeneration. American Journal of Ophthalmol, 1993; **116**:148-155.
70. Birch EE, Birch DG, Uauy R. Visual function and the essentiality of α-linolenic acid and docosahexaenoic acid in human infants. In Yehuda S and Mostofsky DI (Eds) Handbook of Essential Fatty Acid Biology: Biochemistry, Physiology, and Behavioral Neurobiology. Humana Press, Inc., Totowa, NJ, 1993
71. Birch DG, Anderson JL, and Birch EE. Early abnormalities of rod function in children with X-linked retinitis pigmentosa. Clinical Vision Sciences, 1993; **8**:329-335.
72. Birch DG and Anderson JL. Yearly rates of rod and cone functional loss in retinitis pigmentosa and cone-rod degeneration. *Vision Science and Its Applications,* Vol. 3, OSA Technical Digest Series (Optical Society of America, Washington, D.C.), 1993; 334-337.
73. Hood DC and Birch DG. Interpretations of Naka-Rushton parameters from patients with adRP and CRD. *Vision Science and Its Applications,* Vol. 3, OSA Technical Digest Series (Optical Society of America, Washington, D.C.), 1993; 338-341.
74. Birch EE, Birch DG, Hoffman D, Hale L, Everett M, and Uauy R. Breast feeding and optimal visual development. J Pediatr Ophthalmol Strabismus, 1993; **30**:33-38.
75. Hoffman DR, Birch EE, Birch DB, and Uauy R. Effects of supplementation with ω-3 long-chain polyunsaturated fatty acids on retinal and cortical development in premature infants. Amer J Clinical Nutrition. 1993; **57**:8075-8125.
76. Hoffman DR, Uauy R, and Birch DG. Red blood cell fatty acid levels in patients with autosomal dominant retinitis pigmentosa. Exp Eye Res, 1993; **57**:359-368.
77. Hood DC, Birch DG, and Birch EE. The use of models to improve hypothesis delineation. A study of infant electroretinography. In Simons, K. (Ed.) Early Visual Development: Normal and Abnormal. Committee on Vision, Commission on Behavioral and Social Sciences and Education, National Research Council. Oxford University Press, New York, 1993; pp 517-535.
78. Hood DC and Birch DG. Light adaptation of human rod receptors: The leading edge of the human a-wave and models of rod receptor activity. Vision Res, 1993; **33**:1605-1618.
79. Hood DC, Shady S, and Birch DG. Heterogeneity in retinal disease and the computational model of the human-rod response. J Opt Soc Am, A, 1993; **10**:1624-1630.
80. Hood DC and Birch DG. Human cone receptor activity: the leading edge of the a-wave and models of receptor activity. Vis Neurosci, 1993; **10**:857-871.
81. Rodriguez JA, Herrera CA, Birch DG, and Daiger SP. A leucine to arginine amino acid substitution at codon 46 of rhodopsin is responsible for a severe form of autosomal dominant retinitis pigmentosa. Hum Mut, 1993; **2**:205-213.
82. Swanson WH, Birch DG, and Anderson JL. S-cone function in patients with retinitis pigmentosa. Invest Ophthalmol Vis Sci, 1993; **34**:3045-3055.
83. Uauy R, Birch DG, Birch EE, Hoffman D, and Tyson J. Effect of dietary essential o-3 fatty acids on retinal and brain development in premature infants. In Sinclair, A. and Gibson, R. (Eds.) Essential Fatty Acids and Eicosanoids. American Oil Chemists' Society, Champaign, IL.,1993; pp 197-202.

84. Uauy R, Birch DG, Birch EE, Hoffman DR, and Tyson J. Visual and brain development in infants as a function of essential fatty acid supply provided by the early diet. *Lipids, Learning, and the Brain: Fats in Infant Formulas* (J. Dobbing, J.D. Benson, eds.) Ross Laboratories, Columbus, OH, 1993; 215-232.
85. Hood DC, Shady S, and Birch DG. Understanding changes in the b-wave of the ERG caused by heterogeneous receptor damage. Invest Ophthalmol Vis Sci, 1994; **35**:2477-2488.
86. Hood DC and Birch DG. Rod phototransduction in retinitis pigmentosa: Estimation and interpretation of parameters derived from the rod a-wave. Invest Ophthalmol Vis Sci, 1994; **35**:2948-2961.
87. Birch DG, Hood DC, Nusinowitz S, and Pepperberg DR. Recovery from activation in human rods. *Vision Science and Its Applications*, Vol. 2, OSA Technical Digest Series (Optical Society of America, Washington, D.C.), 1994; 272-275.
88. Hood DC and Birch DG. The human rod a-wave and transduction: Interpreting the fit of the Lamb and Pugh model. *Vision Science and Is Applications*, Vol. 2, OSA Technical Digest Series (Optical Society of America, Washington, D.C.), 1994; 268-271.
89. Uauy R, Hoffman DR, Birch EE, Birch DG, Jameson DM, and Tyson J. Safety and efficacy of omega-3 fatty acids in the nutrition of very low birth weight infants: soy oil and marine oil supplementation of formula. J Pediatrics, 1994; **124**:612-620.
90. Uauy-Dagach R, Birch EE, Birch DG, and Hoffman DR. Significance of ω3 fatty acids for retinal and brain development of preterm and term infants. World Review of Nutrition and Dietetics, 1994; **75:**52-62.
91. Uauy R, Birch DG, Hoffman DR,and Birch EE. Omega-3 fatty acids: essential nutrients for optimal retinal and brain development. *Omega-3 Fatty Acids in Nutrition, Vascular Biology, and Medicine*, (H. J. Pournall and A. A. Spector, editors), 1994; 33-46.
92. Birch DG, Hood DC, Nusinowitz S, and Pepperberg DR. Abnormal activation and inactivation of rod transduction in patients with autosomal dominant retinitis pigmentosa and the pro-23-his mutation. Invest Ophthalmol Vis Sci, 1995; **36**:1603-1614.
93. Birch DG and Hood DC. Abnormal rod photoreceptor function in retinitis pigmentosa. *Degenerative Diseases of the Retina*, (R. Anderson, J. Hollyfield, and M. LaVail, editors), Plenum, New York, 1995; 359-369.
94. Hoffman DR and Birch DG. Docosahexaenoic acid in red blood cells of patients with x-linked retinitis pigmentosa. Invest Ophthalmol Vis Sci, 1995; **36**:1009-1018.
95. Pepperberg DR, Hood DC, and Birch DG. Light adaptation and post-flash recovery in human rods. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.), 1995; 268-271.
96. Hood DC and Birch DG. Retinitis pigmentosa affects cone transduction as well as post-synaptic cone activity. *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington, D.C.) 1995; 272-275.
97. Hoffman DR, Uauy R, and Birch DG. Docosahexaenoic acid abnormalities in red blood cells of patients with retinitis pigmentosa. *Degenerative Disease of the Retina* (R. Anderson, J. Hollyfield, and M. LaVail, editors), Plenum, New York, 1995; 385-393.
98. Hoffman DR, Uauy R, and Birch DG. Metabolism of omega-3 fatty acids in patients with autosomal dominant retinitis pigmentosa. Exp Eye Res, 1995; **60**:279-289.
99. Hood DC and Birch DG. Computational models of rod-driven retinal activity. IEEE Engineering in Medicine and Biology, 1995; **14**:59-66.
100. Hood DC and Birch DG. Phototransduction in human cones measured using the a-wave of the ERG. Vision Res, 1995; **35**:2801-2810.
101. Hood DC and Birch DG. Abnormal cone receptor activity in patients with hereditary degeneration. *Degenerative Disease of the Retina* (R. Anderson, J. Hollyfield, and M. LaVail, editors), Plenum, New York, 1995; 349-358.
102. Swanson WH, Lynn JR, Fellman RL, Starita RJ, Schumann SP, Birch DG, Nusinowitz S. Inter-operator variability in images obtained by laser ellipsometry of the nerve fiber layer. *Journal of Glaucoma*, 1995;

4:414-418

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