CURRICULUM VITAE

Edward Chaum, M.D., Ph.D.
Margy Ann and J. Donald M. Gass Chair, Professor of Ophthalmology and Visual Sciences, Professor of Pathology, Microbiology & Immunology, and Biomedical Engineering
Vanderbilt University Medical Center

EDUCATION

Undergraduate:

Johns Hopkins University, (Baltimore, MD), **B.A.**, May 1979, *Natural Sciences*

Graduate:

Cornell Graduate School of Medical Sciences (New York, NY), **Ph.D.**, May 1986
Cell Biology and Genetics
Cornell University Medical College (New York, NY), **M.D.**, May 1987

Postgraduate Training:

Residencies:

Pediatrics, Massachusetts General Hospital (Boston, MA), July 1987 - June 1990
Ophthalmology, Boston University Hospital (Boston, MA), July 1990 - June 1993

Fellowship:

Retina, Massachusetts Eye & Ear Infirmary (Boston, MA), July 1993 - June 1994

BOARD CERTIFICATION

The National Board of Medical Examiners, July 1988
The American Board of Pediatrics, November 1990, Re-certified 5/1999, 12/2005, (retired 2016)
The American Board of Ophthalmology, May 1995, Re-certified 12/2005, 12/2015 (active)

ACADEMIC APPOINTMENTS

University of Massachusetts Medical Center, Worcester, MA

- Assistant Professor of Ophthalmology, Pediatrics and Cell Biology July 1994 – June 2000
- Interim Chief, Division of Ophthalmology, October 1998 - June 2000

University of Tennessee Health Science Center, College of Medicine, Memphis, TN

Plough Foundation Professor of Retinal Diseases, 2000 – 2018 (emeritus)

- Assistant Professor of Ophthalmology and Pediatrics, 2000 – 2001
- Associate Professor of Ophthalmology (with tenure), Assoc. Professor of Pediatrics 2001-6
- Professor of Ophthalmology, July 2006
- Professor of Pediatrics, Anatomy and Neurobiology, and Biomedical Engineering, July 2007.
- Hamilton Eye Institute, Director of Research: July 2014 - 2018

University of Tennessee Health Science Center, College of Graduate Health Sciences

Graduate School Faculty, December 2004 - present

University of Memphis, Memphis, TN

Adjunct Graduate Faculty, Department of Biomedical Engineering, July 2005 – present

Vanderbilt University Medical Center, Nashville, TN

Margy Ann and J. Donald M. Gass Chair, Professor of Ophthalmology & Visual Sciences, 2018 -
Professor of Pathology, Microbiology & Immunology, 2018 -
Professor of Biomedical Engineering, 2018 -

HOSPITAL APPOINTMENTS

Tennessee

Vanderbilt University Medical Center – 2018

PROFESSIONAL EXPERIENCE (Administrative)

UMass Memorial Health Care, Worcester, MA
Interim Chief, Division of Ophthalmology and Director, Vitreoretinal Service
October 1998 - June 2000, 8 physician, 15 staff member hospital Division

PROFESSIONAL ORGANIZATIONS

American Academy of Ophthalmology
Alpha Omega Alpha Honor Medical Society
Retina Society, Macula Society
Association for Research in Vision and Ophthalmology
American Telemedicine Association
Research to Prevent Blindness, Fight for Sight

PROFESSIONAL ACTIVITIES

Intramural - UTHSC

UTHSC Institutional Review Board, 2000 – 2007
Clinical Research Center, Scientific Advisory Committee, 2001 – 2011
UTMG Professional Practices Committee, 2005 – 2015
CTSI Scientific Advisory Board, 2008 – 2013
Strategic Planning Steering Committee, 2009 – 2018
Vice Chancellor for Research Search Committee, 2010
Post-Graduate Grievance Committee, 2011 – 2018
Director HEI Vision Core, 2013- 2017
UTHSC-ORNL Center for Biomedical Informatics Governance Committee – 2014
HEI, Director of Research, 2014 - 2018
Molecular Resource Center Advisory Board, 2016 - 2018
Ophthalmology Chair Search Committee, 2017

Intramural - VUMC

Store and Forward Telemedicine Committee, VUMC
Neurology Chair Search Committee, VUMC
Snyder Chair Review Committee, VUMC
Edge Review Committee, VUMC. Internal mock Study Section

Extramural

- National Eye Institute, NIH. Peer Review Study Sections, VisC, BDPE, DPVS, others; 2006 – 22
- Academic Editor: PLoS ONE, 2011-16
- Editorial Reviewer: 2000 - present
  American Journal of Ophthalmology, Archives of Ophthalmology, Autophagy, British Journal of Ophthalmology, British Journal of Pharmacology, Experimental Eye Research, Investigative Ophthalmology and Visual Science, Journal of Cellular Biochemistry, Journal of Cellular Physiology, Journal of Gene Medicine, Journal of Pharmacy and Pharmacology, Lipids, Molecular Vision, Ophthalmology, Pan American Journal of Public Health, PLoS ONE, Retina, Survey of Ophthalmology, IEEE Transactions in Medical Imaging, IEEE Computers in Biology and Medicine, SPIE, and others.

- Invited Grant and Fellowship Reviewer for International Funding Agencies
  Wellcome Trust, Great Britain, The Health Research Board, Ireland,
  Erwin Schroedinger-Post-Doctoral Research Fellowship, Austrian Science Fund; Fight for Sight, New York, NY, Prevent Blindness America, ARVO, Technology Foundation STW (Netherlands); Catalan Agency for Health Technology Assessment and Research, Spain; Medical Research Council, Great Britain; Canada Innovation Research, others

Other Professional Activities

Executive Committee Advisor, Fight for Sight, New York, NY, 2005- 2017
Board of Directors, Juvenile Diabetes Research Foundation, West TN Chapter, 2007 - 2011
Oak Ridge National Laboratory, External Advisory Board, Biomedical Science & Engineering, 2012
SENSORIUM: University of Memphis – Founding Principal Researcher, 2013 - present
Board of Directors, Research Inc., Memphis VA Medical Center, 2014 – 2018
VUMC Endowed Chair Review Committees (various) 2019- present

Entrepreneurial

1. **Hubble Telemedical - Founder and CMO**
   Winner, R&D100 Award, 2010 – TRIAD Telemedical Network
   Winner Federal Laboratory Consortium Award for Technology Transfer, 2010
   Winner, American Telemedicine Association Innovation Award, 2011
   USDA Phase I SBIR 2012, Phase II SBIR 2013
   Venture-backed telemedicine start up company. Acquired by Welch Allyn, 2015
2. **Infusense – Founder and CMO**
   Angel-backed start up in the biomedical sensor space
   SEBIO Finalist 2011, DOD Phase I SBIR, 2012
3. **Plexitome - Founder and CMO**
   Venture-backed start up in the surgical device space
4. **Focal Point Pharmaceuticals, Co-Founder and CSO**
   Venture-backed start up company.
5. **Ipax Pharmaceuticals, Co-Founder and CMO**
   Grant-backed start up company.

Issued Patents

1. *Method and system for the diagnosis of disease using retinal image content and an archive of diagnosed human patient data* US 8243999, Sept. 20, 2012
2. *Method and system for assigning a confidence metric for automated determination of optic disc location* US 8218838, July 10, 2012
3. *Retinal instrument* US 8425596, April 23, 2013
4. *Microfabricated instruments and methods to treat recurrent corneal erosions,* US 8591481, Nov. 26, 2013
5. US 9044299, Jun. 02, 2015
6. *Method and device for detection of bioavailable drug concentration in a fluid sample* US #9700246, July 11, 2017.
7. #9983162, 5/29/2018
8. Notice of Allowance US Application No. 15/989,765
9. Canada CLP #2740421; August 28, 2018, #2875003; September 29, 2020
10. EPO #2856133, April 12, 2018

Special Awards and Recognition

1992 Alpha Omega Alpha, Honor Medical Society
1998 Research Career Award (K08), National Eye Institute, NIH
2000 Plough Foundation Professor of Retinal Diseases, University of Tennessee, endowed Chair
2006-13 Best Doctors in America®
2009 Keynote Speaker: 1st Annual Biomedical Science & Engineering Conf., Oak Ridge Natl. Lab.
2009 Senior Scientist Award, Research to Prevent Blindness, New York, NY
2010 R&D100 Award – Life Sciences: "TRIAD Network"
2010 Federal Laboratory Consortium Award for Technology Transfer, with ORNL
2011 American Telemedicine Association Innovation Award: *Hubble Telemedical, Inc.*
2013 Memphis Business Quarterly, Inaugural 2013 Innovation Award
2013 B. Otto Wheeley Award for Excellence in Technology Transfer, University of Tennessee
2014 Hamilton Eye Institute, Director of Research
2018 Elected to Retina Society
2018 Elected to Macula Society
2018 Margy Ann and J. Donald M. Gass Chair, Professor of Ophthalmology and Visual Sciences

Invited Lectures

New England Ophthalmological Society, April 1999
Keynote Speaker: Tennessee Academy of Sciences, Collegiate Division, May, 2005
Keynote Speaker: 1st Biomedical Science & Engineering Conference, ORNL, March, 2009
Keynote Speaker: National Council of University Research Administrators, April 2013
Keynote Speaker: St Jude Children' Research Hospital, March 2013
University of Memphis, Fogelman College of Business, 2015, 2017

RESEARCH PROGRAMS:

Clinical Science – Multicenter Clinical Trials

Diabetes Prevention Program Outcomes Studies, DCCT and EDIC: 2005- present
Clinical Study Center, Clinical Co-investigator UTHSC/VUMC study site
Clinical outcomes of diabetes prevention and treatment programs

Age-Related Eye Disease Study II (AREDS2) 2006 - present
Clinical Study Center, Clinical Co-investigator UTHSC study site
Clinical outcomes of diabetes prevention and treatment programs

https://www.vumc.org/ophthalmology/chaum-laboratory-translational-bioengineering-and-medicine

https://orcid.org/0000-0003-3542-8376

Publications and Presentations:

A. Basic Science Research and Clinical Retina – Peer-reviewed Manuscripts:

1. Chaum, E., Ellsworth, R.M., Haik, B.G., Kitchin, F.D., Chaganti, R.S.K. (1984) Cytogenetic analysis of retinoblastoma: Evidence for multifocal origin and in vivo gene amplification. Cytogenet Cell Genet 38: 82-91.

2. Chaum, E., Doucette, L.A., Ellsworth, R.M., Haik, B.G., Kitchin, F.D., Chaganti, R.S.K. (1984) Bleomycin-induced chromosome breakage in G2 lymphocytes of retinoblastoma patients. Cytogenet Cell Genet 38:152-154.

3. Sakai, K., Kanda, N., Shiloh, Y., Donlon, T., Schreck, R., Shipley, J., Dryja, T., Chaum, E., Chaganti, R.S.K., Latt, S. (1985). Molecular and cytologic analysis of DNA amplification in retinoblastoma. Cancer Genet Cytogenet 17: 95-112.

4. Chaum E. (1987) Cytogenetic and Molecular Studies of the Role of Oncogenes in Transformation in Retinoblastoma. Cornell University GSMS. Copyright TX 2 084 403.

5. Chaum, E. and Hatton, M.P. (1999) Congenital nystagmus associated with multiple congenital anomalies of extraocular muscles. J Ped Ophthalmol Strab 36:155-157.

6. Chaum, E., Hatton, M.P. and Stein, G. (1999) Polyplex-mediated gene transfer into human retinal pigment epithelial cells in vitro. J Cell Biochem 76 (1): 153-160.

7. Chaum, E., Drewry, RD, Ware, GT, Charles, S. (2001) Nerve fiber bundle visual field defect resulting from a giant peripapillary cotton-wool spot. J Neuro-Ophthalmol, 21:276-277.

8. Chaum, E. (2001) Comparative analysis of the uptake and expression of plasmid vectors in human ciliary and retinal pigment epithelial cells in vitro. J Cell Biochem, 83:671-677.

9. Chaum, E. and Greenwald, MA (2002) Retinochoroidal anastomoses and a choroidal neovascular membrane in a macular exudate following treatment for retinal macroaneurysms. Retina, 22:363-6.

10. Chaum, E., Yang, H. (2002) Transgenic expression of IGF-1 modifies the proliferative potential of human retinal pigment epithelial cells. Invest Ophthalmol Vis Sci, 43:3758-3764.

11. Yang, H., Chaum, E. (2003) A Reassessment of Insulin-like Growth Factor Binding Protein Gene Expression in the Human Retinal Pigment Epithelium. J Cell Biochem, 89:933-943.

12. Martin AC., Thornton JD, Liu J, Wang X, Zuo, J, Jablonski MM, Chaum E, Zindy F, Skapek SX. (2004) Pathogenesis of persistent hyperplastic primary vitreous in mice lacking the Arf tumor suppressor gene. Invest Ophthalmol Vis Sci, 45(10):3387-96.

13. Ashmore, E, Kerr, NC, Greenwald, M., Chaum, E. (2004) Natural History of Acquired Retinal Oxalosis in a Child. J Ped Ophthalmol Strab, 41:308-311.

14. Chaum E, Fawzi A, Chang TS, Shah GK. (2006) Diagnostic and therapeutic challenges. Retina. 26:219-22.

15. Yang, H., Yang, X., Lang, J.C., Chaum, E. (2006) Tissue Culture Methods Can Strongly Upregulate Immediate Early Gene Expression in Retinal Pigment Epithelial Cells. J Cell Biochem. 98:1560-1569.

16. Karnowski, T.P., Govindasamy, V.P., Tobin, K.W., Chaum, E., "Locating the Optic Nerve in Retinal Images: Comparing Model-Based and Bayesian Decision Methods," 28th Annual International Conf. of the IEEE EMBS, August 2006.

17. Tobin, K.W., Chaum, E., Govindasamy, V.P., Karnowski, T.P., Sezer, O., "Characterization of the Optic Disk in Retinal Imagery using a Probabilistic Approach", SPIE International Symposium on Medical Imaging, San Diego, California, Proceedings of SPIE, Vol. 6144:61443F, February 2006.

18. Tobin, K.W., Chaum, E., Govindasamy, V.P., Karnowski, T.P. (2007) "Detection of Anatomic Structures in Human Retinal Imagery," IEEE Transactions on Medical Imaging, 26(12):1729-39.

19. Tobin KW, Abdelrahman, M, Chaum E, Govindasamy VP, Karnowski TP. (2007) A Probabilistic Framework for Content-Based Diagnosis of Retinal Disease. Conf Proc IEEE Eng Med Biol Soc; 2007:6744-6747.

20. Tobin, KW, Abramoff, MD, Chaum, E, Giancardo, L, Govindasamy, VP, Karnowski, TP, Tennant, MTS. (2008) Using a Patient Image Archive to Diagnose Retinopathy. Conf. Proc. IEEE Eng Med Biol Soc 1:5441-5444.

21. Karnowski, TP, Govindasamy, VP, Tobin, KW, Chaum, E, Abramoff, MD. (2008). Retina Lesion and Microaneurysm Segmentation using Morphological Reconstruction Methods with Ground-Truth Data. Conf. Proc. IEEE Eng Med Biol Soc 1:5433-5436.

22. Giancardo, L, Abramoff, MD, Chaum, E, Karnowski, TP, Meriaudeau, F, Tobin, KW. (2008) Elliptical Local Vessel Density: A Fast and Robust Quality Metric for Fundus Images. Conf. Proc. IEEE Eng Med Biol Soc 1:3534-3537.

23. Chaum, E., Karnowski, T.P., Govindasamy, V.P., Tobin, K.W. (2008) Automated Diagnosis of Retinopathy by Content-Based Image Retrieval, Retina, 28:1463-1477.

24. Fung, K, Mastellone, J, Chaum, E., (2008) Macular Neovascularization in Familial Exudative Vitreoretinopathy. Retinal Cases & Brief Reports. 2(4):319-321.

25. Hoehn, ME, Merchant, TE, Chaum, E., (2008) Macular epiretinal membrane formation after low-dose radiation exposure in a child with papilledema from a craniopharyngioma. Retinal Cases & Brief Reports. 2(4):289-291.

26. Karnowski TP, Aykac D, Chaum E, Giancardo L, Li Y, Tobin KW, Abramoff MD. (2009) Practical considerations for optic nerve location in telemedicine. Conf Proc IEEE Eng Med Biol Soc. 2009;1:6205-9.

27. Chaum E, Yin J, Yang H, Thomas F, Lang JC. Quantitative AP-1 gene regulation by oxidative stress in the human retinal pigment epithelium. J Cell Biochem. 2009 Dec 15;108(6):1280-91.

28. Chaum, E. Translating novel engineering concepts into biomedical research programs and clinical medicine, Biomedical Science & Engineering Conference, 2009. BSEC 2009. First Annual ORNL Conference, DOI: 10.1109/BSEC.2009.5090462

29. Giddabasappa A, Bauler M, Yepuru M, Chaum E, Dalton JT, Eswaraka J. 17-β estradiol protects ARPE-19 cells from oxidative stress through estrogen receptor-β. Invest Ophthalmol Vis Sci. 2010 Oct;51(10):5278-87.

30. Boone, A.R.W.; Karnowski, T.P.; Chaum, E.; Giancardo, L.; Li, Y.; Tobin, K.W., Jr. Image processing and hierarchical temporal memories for automated retina analysis, Biomedical Sciences and Engineering Conference (BSEC), 2010, DOI: 10.1109/BSEC.2010.5767510

31. Spentzas T, Henricksen J, Patters AB, Chaum E. (2010) Correlation of intraocular pressure with intracranial pressure in children with severe head injuries. Pediatr Crit Care Med. 2010;11(5):593-8.

32. Karnowski, T.P. Aykac, D. Giancardo, L. Li, Y. Nichols, T. Fox, K. Garg, S. Tobin, K.W. Chaum, E. Combining image and non-image data for automatic detection of retina disease in a telemedicine network. Biomedical Sciences and Engineering Conference, March 2011.

33. Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Tobin KW, Chaum, E. Automatic quality enhancement and nerve fibre layer artefacts removal in retina fundus images by off axis imaging. Image Processing (ICIP), 18th IEEE International Conference, 2011; 49-52.

34. Giancardo, L.; Meriaudeau, F.; Karnowski, T.P.; Li, Y.; Tobin, K.W.; Chaum, E. Automatic retina exudates segmentation without a manually labelled training set. Biomedical Imaging: From Nano to Macro, 2011 IEEE International Symposium, 2011; 1396-1400.

35. Langmaier J, Garay F, Kivlehan F, Chaum E, Lindner E. Electrochemical Quantification of 2,6-Diisopropylphenol (Propofol), Analytica Chimica Acta, 2011, 704 (1-2):63-67.

36. Santos-Villalobos H, Karnowski T, Aykac D, Giancardo L, Li Y, Nichols T, Tobin KW, Chaum E. Statistical characterization and segmentation of drusen in fundus images. Conf Proc IEEE Eng Med Biol Soc. 2011 Aug;2011:6236-41.

37. Fowler B, Shen C, Mastellone J, Chaum E. Acute systemic histoplasmosis associated with chorioretinitis in an immunocompetent adolescent. Dig J Ophthalmol : DJO 2011;17(3):31-35.

38. Karnowski TP, Aykac D, Giancardo L, Li Y, Nichols T, Tobin KW, Chaum E. Automatic detection of retina disease: Robustness to image quality and localization of anatomy structure. Conf Proc IEEE Eng Med Biol Soc. 2011 Aug;2011:5959-64.

39. Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Tobin KW, Chaum E. Microaneurysm detection with radon transform-based classification on retina images. Conf Proc IEEE Eng Med Biol Soc. 2011 Aug;2011:5939-42.

40. Devisetti K, Karnowski TP, Giancardo L, Li Y, Chaum E. Geographic atrophy segmentation in infrared and autofluorescent retina images using supervised learning. Conf Proc IEEE Eng Med Biol Soc. Aug;2011:3958-61.

41. Li Y, Karnowski TP, Tobin KW, Giancardo L, Morris S, Sparrow SE, Garg S, Fox K, Chaum E (2011) A Health Insurance Portability and Accountability Act–Compliant Ocular Telehealth Network for the Remote Diagnosis and Management of Diabetic Retinopathy, Telemedicine and e-Health, 2011 Oct;17(8):627-34.

42. Yin J, Thomas F, Lang JC, Chaum E. Modulation of oxidative stress responses in the human retinal pigment epithelium following treatment with vitamin C. J Cell Physiol. 2011;226(8):2025-32.

43. Bhattacharya S, Ray RR, Chaum E, Johnson DA, and Johnson LR. Inhibition of Mdm2 sensitizes human retinal pigment epithelial cells to apoptosis. Invest. Ophthalmol. Vis. Sci. 2011;52(6):3368-80.

44. Chaum E, Yin J, Lang JC. Molecular Responses Transduced by Serial Oxidative Stress in the Retinal Pigment Epithelium: Feedback Control Modeling of Gene Expression. Neurochem Res. 2011 36:574-582.

45. Giancardo L, Meriaudeau F, Karnowski T, Tobin K, Grisan E, Favaro P, Ruggeri A, Chaum E. Textureless Macula Swelling Detection with Multiple Retinal Fundus Images. IEEE Trans Biomed Eng. 2011 Mar;58(3):795-9.

46. Karnowski, T.P. Aykac, D. Giancardo, L. Li, Y. Nichols, T. Tobin, K.W. Chaum, E. Automatic Detection of Retina Disease: Robustness to Image Quality and Localization of Anatomy Structure. IEEE EMBC 2011, Boston, MA, 20110831.

47. Bhattacharya S, Chaum E, Johnson DA, Johnson LR. Age-related susceptibility to apoptosis in human retinal pigment epithelial cells is triggered by disruption of p53-Mdm2 association. Invest Ophthalmol Vis Sci. 2012; 53(13):8350-66.

48. Garg S, Jani PD, Kshirsagar AV, King B, Chaum E. Telemedicine and Retinal Imaging for Improving Diabetic Retinopathy Evaluation, Arch Intern Med. 2012;172(21):1677-1680.

49. Kivlehan FA, Garay F, Guo J, Chaum E, Lindner E. Towards feedback-controlled anesthesia: Voltammetric measurement of propofol (2,6-diisopropylphenol) in serum-like electrolyte solutions. Anal Chem. 2012 Sep 18;84(18):7670-6. PMID: 22900668.

50. Paquit VC, Karnowski TP, Aykac D, Li Y, Tobin KW, Chaum E. Detecting flash artifacts in fundus imagery. Conf Proc IEEE Eng Med Biol Soc. 2012 Aug; 2012:1442-5. PMID: 23366172

51. Hines-Beard J, Marchetta J, Gordon S, Chaum E, Geisert EE, Rex TS. A mouse model of ocular blast injury that induces closed globe anterior and posterior pole damage. Exp Eye Res. 2012;99:63-70

52. Lindner E, Bordelon D, Kim MD, Dergunov SA, Pinkhassik E, Chaum E. Ion-Selective Optodes in a Sampling Capillary for Tear Fluid Analysis. Electroanalysis. 2012, 24(1):42–52.

53. Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Garg S, Tobin KW Jr., Chaum E. Exudate-based diabetic macular edema detection in fundus images using publicly available datasets, Med Image Anal. Med Image Anal. 2012 Jan;16(1):216-26.

54. H.J. Santos-Villalobos, D.R. Barstow, M. Karakaya, C.B. Boehnen, E. Chaum. ORNL biometric eye model for iris recognition. In proceeding of: Biometrics: Theory, Applications and Systems, 2012 IEEE Fifth Int'l Conference on Biometrics Compendium. 01/2012; ISBN: 978-1-4673-1384-1.

55. Karnowski, TP, Giancardo, L, Li, Y, Tobin, KW, Chaum, E. "Retina image analysis and ocular telehealth: The Oak Ridge National Laboratory-Hamilton Eye Institute case study," Conf Proc IEEE Eng Med Biol Soc. 2013;2013:7140-3.

56. Ali S, Sidibé D, Adal KM, Giancardo L, Chaum E, Karnowski TP, Mériaudeau F. Statistical atlas based exudate segmentation. Comput Med Imaging Graph. 2013 Jul-Sep;37(5-6):358-68.

57. Mériaudeau F, Sidibé D, Ali S, Adal KM, Giancardo L, Karnowski TP, Chaum E. Computer Aided Design for Diabetic Retinopathy. QCAV2013, 11th International Conference on Quality Control by Artificial Vision, Fukuoka, Japan 2013.

58. Ali S, Adal KM, Sidibé D, Chaum E, Karnowski TP, Mériaudeau F. Steerable wavelet transform for atlas based retinal lesion segmentation. QCAV2013, 11th International Conference on Quality Control by Artificial Vision, Fukuoka, Japan 2013.

59. Trucco E, Ruggeri A, Karnowski T, Giancardo L, Chaum E, Hubschman JP, Al-Diri B, Cheung CY, Wong D, Abràmoff M, Lim G, Kumar D, Burlina P, Bressler NM, Jelinek HF, Meriaudeau F, Quellec G, Macgillivray T, Dhillon B. Validating Retinal Fundus Image Analysis Algorithms: Issues and a Proposal. Invest Ophthalmol Vis Sci. 2013 May 1;54(5):3546-3559.

60. Wing BJ, Schaeffer DA, Hendricks TR, Bennett D, Chaum E, Simpson JT. Structural Manipulation of Microcone Arrays for Microsurgical Modification of Ophthalmic Tissues. J. Med. Devices. July 2014; 8(3):034558.

61. Rainey F, Kivlehan F, Chaum E, Lindner E. Toward Feedback Controlled Anesthesia: Automated Flow Analytical System for Electrochemical Monitoring of Propofol in Serum Solutions. Electroanalysis, 2014, 26:1295 – 1303.

62. Adal KM, Sidibé D, Ali S, Chaum E, Karnowski TP, Mériaudeau F. Automated detection of microaneurysms using scale-adapted blob analysis and semi-supervised learning. Comput Methods Programs Biomed. 2014 Apr;114(1):1-10.

63. Alami NH, Smith RB, Carrasco MA, Williams LA, Winborn CS, Han SS, Kiskinis E, Winborn B, Freibaum BD, Kanagaraj A, Clare AJ, Badders NM, Bilican B, Chaum E, Chandran S, Shaw CE, Eggan KC, Maniatis T, Taylor JP. (2014) Axonal transport of TDP-43 mRNA granules is impaired by ALS-causing mutations. Neuron. Feb 5;81(3):536-43.

64. Yin, J, Winborn, C.S., Thomas, F., Tran, Q.T., Lang, J.C. and Chaum, E. Modulation of Oxidative Stress Responses by Vitamin E, or Vitamin A plus Vitamin C Treatment in Human Retinal Pigment Epithelial Cells. Natural Science, 2015:7:558-570.

65. Senter K, Sukumar SR, Patton RM, Chaum E. Using Clinical Data, Hypothesis Generation Tools and PubMed Trends to Discover the Association between Diabetic Retinopathy and Anti-hypertensive Drugs", in the Proc. of the Workshop on Mining Big Data to Improve Clinical Effectiveness in conjunction with the IEEE Conference on Big Data, (2015)pp. 2366-2370.

66. Chaum E, Winborn CS, Bhattacharya S. Genomic regulation of senescence and innate immunity signaling in the retinal pigment epithelium. Human Genome, 2015; 26:210-221.

67. Kivlehan F, Chaum E, Lindner E. Propofol Detection and Quantification in Human Blood: The Promise of Feedback Controlled, Closed-loop Anesthesia. Analyst, 2015;140(1):98-106.

68. Myers MH, Li Y, Kivlehan F, Lindner E, Chaum E. A Feedback Control Approach to Organic Drug Infusions Using Electrochemical Measurement. IEEE Trans Biomed Engineer. 2016 Mar;63(3):506-11.

69. Chaum E, Huddleston S, Mastellone J. Nasal Hemiretinal Vein Occlusion. Ophthalmology. 2016, Feb. 123(2):399.

70. Huo W, Zhao G, Yin J, Ouyang X, Wang Y, Yang C, Wang B, Dong P, Wang Z, Watari H, Chaum E, Pfeffer LM, Yue J. Lentiviral CRISPR/Cas9 vector mediated miR-21 gene editing inhibits the epithelial to mesenchymal transition in ovarian cancer cells. J Cancer 2017; 8(1):57-64.

71. Toutounchian JJ, Pagadala J, Miller DD, Baudry J, Park F, Chaum E, Yates CR. Novel small molecule JP-153 targets the Src-FAK-paxillin signaling complex to inhibit VEGF-induced retinal angiogenesis. Mol Pharmacol. 2017 Jan;91(1):1-13. Journal Cover Article.

72. Bhattacharya S, Yin J, Winborn CS, Zhang Q, Yue J, Chaum E. Prominin-1 is a Novel Regulator of Autophagy in the human retinal pigment epithelium. Invest Ophthalmol Vis Sci. 2017;58(4):2366-2387.

73. Bhattacharya S, Gangaraju R, Chaum E. Recent Advances in Retinal Stem Cell Therapy. Curr Mol Biol Rep. 2017 Sep;3(3):172-182.

74. Zhang P, Zhao G, Ji L, Yin J, Lu L, Li W, Zhou G, Chaum E, Yue J. Knockdown of survivin results in inhibition of epithelial to mesenchymal transition in retinal pigment epithelial cells by attenuating the TGFβ pathway. Biochem Biophys Res Commun. 2018 Apr 6;498(3):573-578.

75. Stebbins K, Kieltyka S, Chaum E. Follow-Up Compliance for Patients Diagnosed with Diabetic Retinopathy After Teleretinal Imaging in Primary Care. Telemed J E Health. 2020 Jun 15. doi: 10.1089/tmj.2019.0264.

76. Chaum E. Detection of Lipemia Retinalis During Telemedical Diabetic Retinopathy Screening. Ophthalmology. 2020 Jul;127(7):900. doi: 10.1016/j.ophtha.2020.03.016. PMID: 32564813

77. Lindner L, Guzinski M, Pendley B, Chaum E. Plasticized PVC Membrane Modified Electrodes: Voltammetry of Highly Hydrophobic Compounds. Membranes, Membranes 2020, 10(9), 202.

78. Ocran C, Chaum E, Sobel RK. Vaping May Be Hazardous to Your Eye. Ophthalmology. 2020 Dec;127(12):1756.

79. Chaum E. Preclinical Studies of a Novel Microfabricated Device to Treat Corneal Epithelial Disease. Cornea. 2021, 40(1):48-53. PMID: 32769679

80. Chaum E, Lindner E. A "Smart" Biosensor Catheter and Platform for Dynamic Delivery of Propofol to "Close the Loop" on Total Intravenous Anesthesia. Military Medicine, Volume 186, Issue Supplement_1, January-February 2021, Pages 370–377, https://doi.org/10.1093/milmed/usaa470

81. Klionsky DJ, Abdel-Aziz AK, Abdelfatah S, Abdellatif, M, et al. Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition). Autophagy. 2021 Feb 8:1-382. doi: 10.1080/15548627.2020.1797280.

82. Guzinski M, Lindner E, Pendley B, Chaum E. Polymeric membrane-modified voltammetric sensors for lipophilic analytes with nanomolar detection limit: Key parameters influencing the response characteristics. Anal Chim Acta. 2021 Aug 1;1171:338642.

83. Madadi, Y., Seydi, V., Sun, J., Chaum, E., Yousefi, S. Stacking Ensemble Learning in Deep Domain Adaptation for Ophthalmic Image Classification Lecture Notes in Computer Science. 2021, 12970 LNCS, pp. 168–178.

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2. Chaum, E. Comparative Analysis of the Uptake and Expression of Plasmid Vectors in Human Ciliary and Retinal Pigment Epithelial Cells In Vitro. ARVO, Ft. Lauderdale, 4/28 – 5/5, 2001

3. Antonio Capone, Jr., MD, for the PHOTO-ROP Study Group. Preliminary Results of The ROP Photographic Screening Trial (PHOTO-ROP). ARVO, Ft. Lauderdale, April 28 - May 5, 2001

4. Yang, H. and Chaum, E. Molecular Studies of IGF-1 Transgene Expression in Transfected Human Retinal Pigment Epithelial Cells Manifesting an Altered Cell Phenotype. Presented at the Sixth Annual Vision Research Conference, May, 2002. Ft. Lauderdale, FL

5. Chaum, E. and Yang, H. Biologically Active Human IGF-1 Fusion Gene Vectors for in Vitro and in Vivo Gene Transfer. American Society of Gene Therapy, Boston, MA, June 5-9, 2002

6. Chaum, E. and Yang, H. Molecular Studies of IGF-1 Transgene Expression in Transfected Human Retinal Pigment Epithelial Cells Manifesting an Altered Cell Phenotype. Presented at ARVO, Ft. Lauderdale, FL, May 4-10, 2002

7. Yang, H. and Chaum, E. Expression of Human IGF-1 Fusion Gene Vectors in Retinal Pigment Epithelial Cells Following In Vitro Gene Transfer. ARVO, May 4-10, 2002.

8. Chaum, E. and Yang, H. IGF-1 Transgene Expression Enhances Proliferation in Human RPE Cells. Sixth Annual Vision Research Conference, Ft. Lauderdale, FL, May 3-4, 2002.

9. Chaum, E. Modulation of the RPE Phenotype by Insulin-like Growth Factor-1 Transgene Expression. UT Resident-Alumni Day, Memphis, TN, April 2002.

10. Chaum, E., Yang, H.,Yang, X., Lang, J.C. Molecular Responses to Oxidative and Non-oxidative Stress in the Retinal Pigment Epithelium. ARVO, Ft. Lauderdale, May 3-9, 2003.

11. Yang, H. and Chaum, E. A Reassessment of IGF Binding Protein Gene Expression in the Human Retinal Pigment Epithelium. ARVO, Ft. Lauderdale, FL, May 3-9, 2003.

12. Chaum, E., Yang, H., Yang, X. Insulin-like Growth Factor-1 Enhances Plasmid Transgene Expression Through a PI3-Kinase-Dependent Pathway. American Society of Gene Therapy, Washington, DC, June 4-8, 2003.

13. Chaum E. Molecular Responses to Oxidative Stress in the Retina. UTHSC Comprehensive Ophthalmology Update, Memphis, TN, December 4, 2004.

14. Chaum, E., Yang, H., Yang, X., Lang JC. Microarray and real time transcriptional analyses of molecular responses to oxidative stress in the human RPE. ARVO, Ft. Lauderdale, 4/25-29, 2004.

15. Yang, H., Yang, X. Chaum, E. Transgenic IGF-1 gene expression and the extracellular matrix substrate modify the expression of IGF binding proteins in the human RPE. ARVO, Ft. Lauderdale April 25-29, 2004.

16. Chaum E. Molecular Responses to Oxidative Stress in the Retina. UTHSC Comprehensive Ophthalmology Update, Memphis, TN, December 4, 2004.

17. Chaum, E., Yang, H., Yang, X., Lang JC. Microarray and real time transcriptional analyses of molecular responses to oxidative stress in the human retinal pigment epithelium. ARVO, Ft. Lauderdale April 25-29, 2004.

18. Yang, H., Yang, X. Chaum, E. Transgenic IGF-1 gene expression and the extracellular matrix substrate modify the expression of IGF binding proteins in the human retinal pigment epithelium. ARVO, Ft. Lauderdale April 25-29, 2004.

19. Chaum, E. Nanoscale Tools for Retinal Surgery. UT Alumni/Resident Kambara Symposium, Memphis, TN June 24, 2005.

20. Chaum, E., Yang, H., Yang, X., Lang JC. Tissue Culture Wash Conditions Significantly Alter Gene Expression in Cultured Human Retinal Pigment Epithelial Cells - A Real Time RT-PCR Study. ARVO, Ft. Lauderdale April 30-May 5, 2005.

21. Chaum, E., Yang, H., Yang, X., Lang JC. Tissue Culture Wash Conditions Significantly Alter Gene Expression in Cultured Human Retinal Pigment Epithelial Cells - A Real Time RT-PCR Study. ARVO, Ft. Lauderdale April 30-May 5, 2005.

22. Chaum E. Lost in Translational Research. Tennessee Academy of Sciences Collegiate Division. Invited lecture, Memphis, TN, March 19, 2005.

23. Tobin KW, Chaum E, Govindasamy VP, Karnowski TP. Characterization of the optic disc in retinal imagery using a probabilistic approach, Medical Imaging 2006, SPIE Society of Optical Engineering February 11-16, 2006 San Diego, CA. P/R

24. Tobin KW, Chaum E, Govindasamy VP, Karnowski TP. Automatically Diagnosing Retinopathy using digital Fundus, ATA, May 7-10, 2006, San Diego, CA

25. Tobin KW, Chaum E, Govindasamy VP, Karnowski TP. Screening for Diabetic Retinopathy by Image Content. ARVO, Ft. Lauderdale April 30-May 5, 2006.

26. Yang, H., Yang, X., Lang J.C., Chaum, E., Antioxidant Modulation of Quantitative Gene Regulation in the Human RPE Under Oxidative Stress. ARVO, Ft. Lauderdale, FL, 4/30-5/5, 2006.

27. Chaum, E., Yang, H., Yang, X., Lang J.C., Quantitative Gene Regulation by Oxidative Stress in the Retinal Pigment Epithelium. ARVO, Ft. Lauderdale April 30-May 5, 2006.

28. Govindasamy, V. Priya, Tobin, Kenneth, Chaum, Edward. Locating the Optic Nerve in Retinal Images: Comparing Model-Based and Bayesian Decision Methods. Retinal Image Analysis I (SaA12), 28th IEEE EMBS Annual International Conference, Aug 30-Sept. 3, 2006, New York, NY

29. Chaum E, Tobin KW, Govindasamy VP, Karnowski TP. An Image-Based Method for Automated, Computer-based Screening of Retinopathy. Comprehensive Ophthalmology Update, Hamilton Eye Institute, Memphis, TN, December 2, 2006.

30. Govindasamy, VP, Tobin, KW, Karnowski, TP, Chaum, E. A Study of the Variability of Fundus Cameras on Automatic Retinal Image Analysis. SPIE Medical Imaging, Feb. 2007, New York, NY.

31. Tobin KW, Chaum E, Govindasamy VP, Karnowski TP. Preliminary Results for the Statistical Diagnosis of Retinal Pathology by Image Content. ARVO, Ft. Lauderdale May 4-10, 2007.

32. Chaum E, Tobin KW, Govindasamy VP, Karnowski TP. Automated Diagnosis of Retinopathy by Content-Based Image Retrieval, SIG, ARVO, Ft. Lauderdale May 4-10, 2007.

33. Karnowski, Thomas, Mohammed Abdelrahman, Ph.D., V. Priya Govindasamy, Kenneth W. Tobin, Ph.D., Edward Chaum, M.D., Ph.D., Image Processing and Software Architecture for Retinal Image Search and Analysis. American Telemedicine Association, May 13-15, 2007, Nashville, TN.

34. Bordelon, D, Lindner, E, Chaum, E. Chemical analysis of tears: A novel approach to sampling and analyzing the tear film. Department of Bioengineering, Student Research Forum, University of Memphis, prize winning poster, 2008.

35. Chaum E, Yin J, Yang H, Yang X, Lang JC. Quantitative AP-1 Gene Regulation by Oxidative Stress in the Human Retinal Pigment Epithelium. ARVO, Ft. Lauderdale April 27-May 1, 2008.

36. Tobin KW, Chaum E, Abramoff MD, Giancardo L, Karnowski TP, Automated Diagnosis of Retinal Disease in a Large Diabetic Population, ARVO, Ft. Lauderdale April 27-May 1, 2008.

37. Tobin, KW, Abramoff, MD, Chaum, E, Giancardo, L, Govindasamy, VP, Karnowski, TP, Tennant, MTS. (2008) Using a Patient Image Archive to Diagnose Retinopathy. 30th Annual International IEEE EMBS, Vancouver BC, August 2008. P/R

38. Karnowski, TP, Govindasamy, VP, Tobin, KW, Chaum, E, Abramoff, MD. (2008). Retina Lesion and Microaneurysm Segmentation using Morphological Reconstruction Methods with Ground-Truth Data. 30th Annual International IEEE EMBS, Vancouver BC, August 2008. P/R

39. Giancardo, L, Abramoff, MD, Chaum, E, Karnowski, TP, Meriaudeau, F, Tobin, KW. (2008) Elliptical Local Vessel Density: A Fast and Robust Quality Metric for Fundus Images. 30th Annual International IEEE EMBS, Vancouver BC, August 2008. P/R

40. Chaum E, Lindner E, McKnight T. Towards Development of an Electrochemical Propofol Biosensor for Closed-Loop TCIA, Uniformed Services Society of Anesthesiology 17 October, 2008.

41. KW Tobin, E Chaum TP Karnowski, L Giancardo, Using Image Content to Diagnose and Stratify Diabetic Retinopathy, Asilomar Conference on Signals, Systems, and Computers, 2008, Asilomar Grounds, CA, October 26-29. P/R

42. Y Li, TP. Karnowski, KW. Tobin, L Giancardo, E Chaum. A Telemedicine Network for the Automated Diagnosis of Diabetic Retinopathy, Erlangen Graduate School in Advanced Optical Technologies, Erlangen Germany, March 9-10, 2009.

43. Chaum E. Translating Novel Engineering Concepts into Biomedical Research Programs and Clinical Medicine. Keynote Address, First Annual Biomedical Science and Engineering Conference, Oak Ridge National Laboratory, March 18-19, 2009.

44. A Network Infrastructure for Automated Diagnosis of Diabetic Retinopathy, Y Li, TP. Karnowski, KW. Tobin, L Giancardo, E Chaum, American Telemedical Association Annual Meeting, Las Vegas, NV April 26-28, 2009. Poster top 8 finalist.

45. T.P. Karnowski, D. Aykac, E. Chaum, L. Giancardo, Y. Li, K.W. Tobin, Jr., M.D. Abramoff. Evaluating the Accuracy of Optic Disk Detections in Retina Imaging Using Complimentary Methods. World Congress, 2009

46. Quantitative Analysis of Gene Regulation in Response to Serial Oxidative Stress in the Retinal Pigment Epithelium. E. Chaum, J. Yin, W. Huo, J.C. Lang. ARVO May, 2009, Ft. Lauderdale, FL.

47. Vitamin C Modulation of Oxidative Stress Responses in the Human Retinal Pigment Epithelium. J. Yin, W. Huo, J.C. Lang, E. Chaum. ARVO Meeting Ft. Lauderdale, FL. May 2009.

48. Reducing Disparities for People with Diabetes: The Role of Massive, Computer-assisted, Early Detection of Diabetic Retinopathy – (SIG Symposium) ARVO Annual Meeting May, Annual Meeting, Ft. Lauderdale, FL. May 3-7, 2009.

49. Changes From Baseline to One Year in Fundus Autofluorescence (FAF) Images in the Age-Related Eye Disease Study 2 (AREDS2) J.R. Armstrong, A. Domalpally, R.P. Danis, Jr., B. Blodi, Q. Peng, L. Hubbard, AREDS2 Research Group. ARVO Meeting, Ft. Lauderdale, FL, May 2009.

50. Association of Cognitive Function and Depression With Age Related Macular Degeneration in the Age-Related Eye Disease Study 2 (AREDS2) T.E. Clemons, E.Y. Chew, M. Harrington W.L. McBee1, J.P. SanGiovanni, AREDS2 Research Group. ARVO Annual Meeting May 3-7, 2009.

51. Reproducibility of Classification by AREDS Severity Scale and Component Features in AREDS2 R.P. Danis, J. Armstrong, Q. Peng, A. Domalpally, L. Hubbard, AREDS2 Research Group. ARVO Annual Meeting May 3-7, 2009, Ft. Lauderdale, FL.

52. Meleth AD, G. Gensler, T.E. Clemons, J.P. SanGiovanni, E.Y. Chew, AREDS2 Research Group. Baseline Nutritional Characteristics of the Age-Related Eye Disease Study 2 (AREDS2) Cohort ARVO Annual Meeting May 3-7, 2009, Ft. Lauderdale, FL.

53. Meleth AD, Gensler G, Clemons TE, SanGiovanni JP, Chew EY, Age-Related Eye Disease Study 2 (AREDS2). Baseline nutritional characteristics of the Age-Related Eye Disease Study 2 (AREDS2) cohort. Annual Meeting, (ARVO), May 2009.

54. Clemons TE, Chew EY, Harrington M, McBee WL, SanGiovanni JP, AREDS2 Research Group. Association of cognitive function and depression with age-related macular degeneration in the Age-Related Eye Disease Study 2 (AREDS2). Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, FL, May 2009.

55. Danis RP, Armstrong J, Peng Q, Domalpally A, Hubbard L. AREDS2 Research Group. Reproducibility of classification (AREDS severity scale and component features in AREDS2). Annual Meeting, (ARVO), Fort Lauderdale, FL, May 2009.

56. Armstrong JR, Domalpally A, Danis RP, Blodi B, Peng Q, Hubbard L. AREDS2 Research Group. Changes from baseline to one year in fundus autofluorescence (FAF) images in the Age-Related Eye Disease Study 2 (AREDS2). ARVO, Ft. Lauderdale, FL, May 2009.

57. Jones KR, Harrington M, Watson V, McBee W, Clemons TE, SanGiovanni JP, Chew EY. An online data entry certification process for a large multi-center trial. Poster presentation at the 30th Annual Meeting of the Society for Clinical Trials, Atlanta, GA, May 2009.

58. McBee WL, Clemons TE, Chew EY, SanGiovanni JP. A multi-level approach for retention of participants in a long-term clinical trial. Presented at the 30th Annual Meeting of the Society for Clinical Trials, Atlanta, GA, May 2009.

59. E. Chaum, J. Yin, W. Huo, J.C. Lang. Studies of Zinc and Vitamin C Modulation of AP-1 Gene Regulation in the Human Retinal Pigment Epithelium Under Oxidative Stress. Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, FL, May 2010.

60. E. Chaum, The Future of Computer-Assisted, Early Detection of Diabetic Retinopathy: Integration into Health Care – SIG, Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, FL, May 1-5 2010.

61. J. Yin, W. Huo, J.C. Lang, E. Chaum. Vitamin A Modulation of AP-1 Gene Regulation in the Human Retinal Pigment Epithelium Under Oxidative Stress. Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, FL, May 1-5 2010.

62. L. Giancardo, F. Meriaudeau, T.P. Karnowski, K. Tobin, Y. Li, E. Chaum. An Algorithm for Automated Diagnosis of Clinically Significant Macular Edema in a Teleophthalmology Network. ARVO Annual Meeting May 1-5, 2010, Ft. Lauderdale, FL.

63. J.R. Armstrong, J. White, A. Domalpally, R.P. Danis, Jr., B. Blodi, Q. Peng, M.L. Klein, AREDS2 Research group Evaluation of Precursors of Geographic Atrophy Associated With Age-Related Macular Degeneneration in the Age-Related Eye Disease Study 2 (AREDS2). ARVO Annual Meeting May 1-5, 2010, Ft. Lauderdale, FL.

64. Boone, ARW, Karnowski TP, Chaum E, Giancardo L, Li Y. Image Processing and Hierarchical Temporal Memories for Automated Retina Analysis. Biomedical Science and Engineering Conference, Oak Ridge National Laboratory, March 2010.

65. Li Y, Karnowski TP, Tobin, KW, Giancardo L, Garg S, Chaum E. Diabetic Retinopathy Management in the Primary Care Space Using a Semi-Automated Ocular Telehealth Network: Telemedical Retinal Image Analysis and Diagnosis (TRIAD). American Telemedicine Association Conference, Washington DC, April 2010.

66. Chaum, E. Automated Diagnosis of Diabetic Retinopathy by Content-based Image Retrieval in an Ocular Telehealth Network: Telemedical Networks for Real-time Diabetic Retinopathy Management in the Primary Care Setting. ARVO Ft. Lauderdale, May 2010.

67. Devisetti, K, Karnowski TP, Giancardo L, Li Y, Chaum E. Computer-Based Automated Detection of Geographic Atrophy in Retinal Images. MemBIS, Memphis TN, 2010

68. Karnowski TP. Automated Image Analysis and Disease Stratification in RISANet: a Web-Based Telemedicine Network in the Southern USA. World Ophthalmology Congress, Berlin, June 2010.

69. Quantitative AP-1 Gene Regulation by Oxidative Stress in the Human Retinal Pigment Epithelium. Edward Chaum, Jinggang Yin, Huaitao Yang, Fridtjof Thomas, and John C. Lang. Joint Statistical Meetings 2010, July 31-August 5, Vancouver, Canada, No. 308041.

70. L. Giancardo, F. Meriadeau, T. Karnowski, K. Tobin, Y. Li, S. Garg, E. Chaum. A Comparison between a new Automated Macular Edema Screening System and Retina Experts Diagnosis. Annual Meeting, Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May 2011.

71. L. Giancardo F. Meriaudeau T.P. Karnowski Y. Li K.W. Tobin Jr. E. Chaum. AUTOMATIC RETINA EXUDATES SEGMENTATION WITHOUT A MANUALLY LABELLED TRAINING SET. 8th International Symposium on Biomedical Imaging, March 30 – April 2, 2011 Chicago, IL.

72. E. Chaum, J. Yin, W. Huo, J.C. Lang. High Throughput Protein Assays of Gene Expression Following Oxidative Stress in Human Retinal Pigment Epithelial Cells In Vitro. Annual Meeting, Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May 1-5 2011.

73. J. Yin, E. Chaum, W. Huo, J.C. Lang. Synergistic Effects of Vitamin E and Vitamin C Modulation of AP-1 Gene Regulation in the Human Retinal Pigment Epithelium Under Oxidative Stress. Annual Meeting, ARVO, Fort Lauderdale, FL, May 1-5 2011.

74. Bennett, D, Chaum, E. A novel instrument and treatment for recurrent corneal erosions. Annual Meeting, Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May 1-5 2011.

75. K Devisetti, T Karnowski, L Giancardo, E Chaum. Computer-Based Automated Detection of Geographic Atrophy in Retinal Images. MemBIS Bioimaging Conference, 2011.

76. E Chaum, J Yin, F Thomas, J C. Lang. Can We Bring AREDS into the Laboratory? International Society of Eye Research, July 2010, Montreal Canada.

77. Karnowski TP, Aykac D, Giancardo L, Li Y, T. Nichols T, Garg S, Fox K, Tobin, KW, Chaum E. Combining Image and Non-Image Data for Automatic Detection of Retina Disease in a Telemedicine Network. Biomedical Science and Engineering Conference, Oak Ridge National Laboratory, March 2011.

78. Karnowski TP, Telemedical Retinal Image Analysis and Diagnosis (TRIAD) at Oak Ridge National Laboratory, IEEE Biomedical Science and Engineering Conference, Oak Ridge National Laboratory, Oak Ridge, TN, March 2011. P/R

79. Giancardo L, Meriaudeau F, Karnowski TP, Tobin, KW, Li Y, Garg S, Fox K, Chaum E. A Comparison between a new Automated Macular Edema Screening System and Retina Experts Diagnosis. ARVO Ft. Lauderdale, May 2011.

80. Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Tobin, KW, Chaum E. Automatic Retina Exudates Segmentation Without a Manually Labeled Training Set. 8th International Symposium on Biomedical Imaging, Chicago, April 2011. P/R

81. Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Tobin, KW, Chaum E. Microaneurysm Detection with Radon Transform Based Classification on Retina Fundus Images. 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Boston, August, 2011. P/R

82. Devisetti, K, Karnowski TP, Giancardo L, Li Y, Chaum E. Geographic Atrophy Segmentation in Infrared and Autofluorescent Retina Images using Supervised Learning. 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Boston, August, 2011. P/R

83. Karnowski TP, Aykac D, Giancardo L, Li Y, T. Nichols T, Fox K, Garg S, Tobin, KW, Chaum E. Robustness to Image Quality and Anatomy Structure Localization for Automatic Detection of Retina Disease. 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Boston, August, 2011. P/R

84. Santos-Villalobos, H, Karnowski TP, Aykac D, Giancardo L, Li Y, T. Nichols T, Tobin, KW, Chaum E Statistical Characterization and Segmentation of Drusen in Fundus Images. 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August, 2011. P/R

85. Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Tobin, KW, Chaum E. Automatic Quality Enhancement and Nerve Fibre Layer Artefacts Removal in Retina Fundus Images by Off Axis Imaging. IEEE International Conference on Image Processing, Brussels, Sept. 2011. P/R

86. Chaum E. Translational Research: Bringing Your Engineering Concepts into Clinical Research and Patient Care. Oak Ridge National Laboratory, Oak Ridge, TN, Sept 2011.

87. Telemedicine-based digital retinal imaging (DRI) improves diabetic retinopathy screening. S. Garg, B. King, P. Jani, S. Weir, E. Chaum. ARVO, Ft. Lauderdale, May 2012.

88. J. Yin, W. Huo, JC. Lang, E. Chaum. Study of Carnosic acid, Genistein, Quercetin, Taurine, and Melatonin Modulation of AP-1 Gene Regulation in the Human Retinal Pigment Epithelium Under Oxidative Stress. ARVO, Ft. Lauderdale, May 2012.

89. CS. Winborn, TE. McKnight, JC. Lang, E. Chaum. Nanoscale Probes and Platforms for Analysis of Gene Expression in Living RPE Cells. ARVO, Ft. Lauderdale, May 2012.

90. TS. Rex, J. Hines-Beard, E. Chaum, EE. Geisert. Primary blast exposure induces retinal damage. ARVO, Ft. Lauderdale, May 2012.

91. TP. Karnowski, D Aykac, L Giancardo, Y Li, E Chaum. Comparing meta-data and image data for automated diagnosis of retinopathy in an ocular telehealth application. ARVO, May 2012.

92. Chaum E. Startup Companies Developed Through Statewide Collaborations between UTHSC, ORNL and UMemphis: Translation of Novel Biomedical Concepts Into Clinical Medicine. Memphis Research and Innovation Exposition, September 2012.

93. Chaum E. Hubble Telemedical. University of Tennessee Board of Trustees Annual meeting.

94. Meriaudeau, et al., Automated Early Detection of Microaneurysms Using Robust Blob Descriptors, 11th International Conference on Quality Control by Artificial Vision QCAV, Fukuoka, Japan May/Jun 2013. P/R

95. Ali S, Adal KM, Sidibe D, Karnowski TP, Chaum E, Meriaudeau, F. Exudate segmentation on retinal atlas space. Image and Signal Processing and Analysis (ISPA), 2013 8th International Symposium, Trieste, Italy, Sept 2013; 700-704. P/R

96. Giancardo, F. Meriaudeau, TP. Karnowski, KW. Tobin Jr, E. Chaum, Validation of Microaneurysm-based Diabetic Retinopathy Screening across Retina Fundus Datasets, IEEE International Symposium on Computer-based Medical Systems, Orlando FL, CBMS 2013. P/R

97. Adal, S. Ali, D. Sidib, T. Karnowski, E. Chaum, F. Meriaudeau, Automated Detection of Microaneurysms Using Robust Blob Descriptors, SPIE Medical Imaging, Orlando FL, 2013. P/R

98. Ali, K. Adal, D. Sidib, T. Karnowski, E. Chaum, F. Meriaudeau, Steerable wavelet transform for atlas based retinal lesion segmentation*,* SPIE Medical Imaging, Feb 2013. P/R

99. TP. Karnowski, L. Giancardo, Y. Li, KW. Tobin, Jr., E. Chaum, Retina Image Analysis and Tele-Health: The Oak Ridge National Laboratory-Hamilton Eye Institute Case Study, IEEE Engineering in Medicine and Biology Society EMBC Conference, July 2013, Osaka, Japan. P/R

100. Toward Feedback-controlled Anesthesia: Automated Flow Analytical System for Monitoring Propofol (2,6-diisopropylphenol) in Serum. E. Lindner, F. Kivlehan, F. Rainey, J. Sheppard, F. Garay, E. Chaum. Pittcon March 2013, Chicago, IL. P/R.

101. Chaum E. "Nanophthalmics" 2013 ARVO Foundation Vision Innovation and Venture Forum, Seattle, WA, May13.

102. Chaum E. "Translating Biomedical Engineering Concepts into Clinical Practice: the Future of Medicine". National Council of University Research Administrators. Keynote Presentation Memphis, TN, 29Apr13.

103. Chaum E. "Nanomaterials in Ophthalmic Research and Clinical Practice". Hamilton Eye Institute, Annual Clinical Update, Memphis, TN, Dec13.

104. Senter K, Sukumar SR, Patton RM, Chaum E. Using Clinical Data, Hypothesis Generation Tools and PubMed Trends to Discover the Association between Diabetic Retinopathy and Anti-hypertensive Drugs", in the Proc. of the Workshop on Mining Big Data to Improve Clinical Effectiveness in conjunction with the IEEE Conference on Big Data, Santa Clara, CA, Oct/Nov 2015. P/R

105. Chaum E. Metadata-assisted Risk Assessment in a Diabetic Retinopathy Screening Program in Health Disparity Communities. American Telemedicine Association, Los Angeles, CA, 4May15

106. Bhattacharya S, Yin J, Winborn, CS, Chaum E. Prom1 is a Novel Regulator of Autophagy in the Human Retinal Pigment Epithelium. ARVO, Denver, CO, May15.

107. Molecular Mechanisms Regulating Prom1-dependent Autophagy in Human Retinal Pigment Epithelial Cells. ARVO, Seattle, WA, May16.

108. Chaum et al. Prominin 1 Plays a Central Role in Regulating Stress-induced Autophagy in the Retinal Pigment Epithelium. ARVO, Seattle WA, May16.

109. Yin J, Huo W, Chaum E. Modulation of Epithelial Mesenchymal Transition Through the Notch Signaling Pathway in Human Retinal Pigment Epithelial Cells. ARVO, Seattle, WA, May16.

110. Bhattacharya S, Yin J, Chaum E. Prom1-dependent Autophagy Prevents Mitochondrial Damage and Apoptosis in Human Retinal Pigment Epithelial Cells. ARVO, May17, Baltimore, MD.