References - Fundus autofluorescence in age-related macular degeneration

1. Eldred GE, Katz ML. Fluorophores of the human retinal pigment epithelium: separation and spectral characterization. Exp Eye Res. 1988;47(1):71-86.

2. Lamb LE, Simon JD. A2E: a component of ocular lipofuscin. Photochem Photobiol. 2004;79(2):127-36.

3. Bird A. Age-related macular disease. Br J Ophthalmol. 1996;80(1):2-3.

4. Boulton M, Yhaw-Barker P. The role of the retinal pigment epithelium: topographical variation and ageing changes. Eye. 2001;15(Pt3):384-89.

5. Feeney-Burns L, Berman ER, Rothman H. Lipofuscin of human retinal pigment epithelium. Am J Ophthalmol. 1980;90(6):783-91.

6. Wing GL, Blanchard GC, Weiter JJ. The topography and age relationship of lipofuscin concentration in the retinal pigment epithelium. Invest Ophthalmol Vis Sci. 1978;17(7):601-7.

7. Terman A, Brunk UT. Oxidative stress, accumulation of biological ‘garbage’, and aging. Antioxid Redox Signal. 2006;8(1-2):197-204.

8. Brunk UT, Wihlmark U, Wrigstad A, Roberg K, Nilsson SE. Accumulation of lipofuscin within retinal pigment epithelial cells results in enhanced sensitivity to photo-oxidation. Gerontology. 1995;41(Suppl2):201-12.

9. Solbach U, Keilhauer C, Knabben H, Wolf S. Imaging of retinal autofluorescence in patients with age-related macular degeneration. Retina. 1997;17(5):385-89.

10. Eldred GE, Katz ML. Fluorophores of the human retinal pigment epithelium: separation and spectral characterization. Exp Eye Res. 1988;47(1):71-86.

11. Liu J, Itagaki Y, Ben-Shabat S, Nakanishi K, Sparrow JR. The biosynthesis of A2E, a fluorophore of aging retina, involves the formation of the precursor, A2-PE, in the photoreceptor outer segment membrane. J Biol Chem. 2000;275(38):29354-60.

12. Zhou J, Jang YP, Kim SR, Sparrow JR. Complement activation by photooxidation products of A2E, a lipofuscin constituent of the retinal pigment epithelium. Proc Natl Acad Sci USA. 2006;103(44):16182-7.

13. Sparrow JR, Boulton M. RPE lipofuscin and its role in retinal pathobiology. Exp Eye Res. 2005;80(5):595-606.

14. Dorey CK, Wu G, Ebenstein D, Garsd A, Weiter JJ. Cell loss in the aging retina. Relationship to lipofuscin accumulation and macular degeneration. Invest Ophthalmol Vis Sci. 1989;30(8):1691-9.

15. Marmorstein AD, Marmorstein LY, Sakaguchi H, Hollyfield JG. Spectral profiling of autofluorescence associated with lipofuscin, Bruch‘s Membrane, and sub-RPE deposits in normal and AMD eyes. Invest Ophthalmol Vis Sci. 2002;43(7):2435-41.

16. Schmitz-Valckenberg S, Fleckenstein M, Scholl HP, Holz FG. Fundus autofluorescence and progression of age-related macular degeneration. Surv Ophthalmol. 2009;54(1):96-117.

17. Delori FC. Spectrophotometer for noninvasive measurement of intrinsic fluorescence and reflectance of the ocular fundus. Appl Opt. 1994;33(31):7439-52.

18. Delori FC, Dorey CK, Staurenghi G, Arend O, Goger DG, Weiter JJ. In vivo fluorescence of the ocular fundus exhibits retinal pigment epithelium lipofuscin characteristics. Invest Ophthalmol Vis Sci. 1995;36(3):718-29.

19. Webb RH, Hughes GW, Delori FC. Confocal scanning laser ophthalmoscope. Appl Opt. 1987;26(8):1492-99.

20. Bellmann C, Holz FG, Schapp O, Volcker HE, Otto TP. Topographie der Fundusautofluoreszenz mit

einem neuen konfokalen Scanning-Laser-Ophthalmoskop. Ophthalmologe. 1997;94(6):385-91.

21. Von Ruckmann A., Fitzke FW, Bird AC. Distribution of fundus autofluorescence with a scanning laser ophthalmoscope. Br J Ophthalmol. 1995;79(5):407-12.

22. American Nationale Standards Institute (ANSI). American National Standard for the Safe Use of Lasers. ANSI Z136.1-2007. American Nationale Standards Institute (ANSI). Washington, USA. 2007.

23. Solbach U, Keilhauer C, Knabben H, Wolf S. Imaging of retinal autofluorescence in patients with age-related macular degeneration. Retina. 1997;17(5):385-89.

24. Trieschmann M, Heimes B, Hense HW, Pauleikhoff D. Macular pigment optical density measurement in autofluorescence imaging: comparison of one- and two-wavelength methods. Graefes Arch Clin Exp Ophthalmol. 2006;244(12):1565-74.

25. Bellmann C, Rubin GS, Kabanarou SA, Bird AC, Fitzke FW. Fundus autofluorescence imaging compared with different confocal scanning laser ophthalmoscopes. Br J Ophthalmol. 2003;87(11):1381-86.

26. Spaide RF. Fundus autofluorescence and age-related macular degeneration. Ophthalmology. 2003;110(2):392-9.

27. Delori FC, Goger DG, Dorey CK. Age-related accumulation and spatial distribution of lipofuscin in RPE of normal subjects. Invest Ophthalmol Vis Sci. 2001;42(8):1855-66.

28. Delori FC, Fleckner MR, Goger DG, Weiter JJ, Dorey CK. Autofluorescence distribution associated with drusen in age-related macular degeneration. Invest Ophthalmol Vis Sci. 2000;41(2):496-504.

29. Spaide RF. Autofluorescence imaging with the fundus camera. In: Holz FG, Schmitz-Valckenberg S, Spaide RF, Bird AC, eds. Atlas of autofluorescence imaging. Berlin, Germany. Springer. 2007;5:49-54.

30. Wabbels B, Demmler A, Paunescu K, Wegscheider E, Preising MN, Lorenz B. Fundus autofluorescence in children and teenagers with hereditary retinal diseases. Graefes Arch Clin Exp Ophthalmol. 2006;244(1):36-45.

31. Weiter JJ, Delori FC, Wing GL, Fitch KA. Retinal pigment epithelial lipofuscin and melanin and choroidal melanin in human eyes. Invest Ophthalmol Vis Sci. 1986;27(2):145-52.

32. Lois N, Halfyard AS, Bunce C, Bird AC, Fitzke FW. Reproducibility of fundus autofluorescence measurements obtained using a confocal scanning laser ophthalmoscope. Br J Ophthalmol. 1999;83(3):276-9.

33. Lois N, Halfyard AS, Bird AC, Fitzke FW. Quantitative evaluation of fundus autofluorescence imaged “in vivo” in eyes with retinal disease. Br J Ophthalmol. 2000;84 (7):741-5.

34. Lois N, Owens SL, Coco R, Hopkins J, Fitzke FW, Bird AC. Fundus autofluorescence in patients with age-related macular degeneration and high risk of visual loss. Am J Ophthalmol. 2002;133(3):341-9.

35. Spital G, Radermacher M, Muller C, Brumm G, Lommatzsch A, Pauleikhoff D. Autofluoreszenz-Charakteristika von Lipofuszinbestandteilen bei unterschiedlichen Formen der späten altersabhängigen Makuladegeneration. Klin Monatsbl Augenheilkd. 1998;213(1):23-31.

36. Von Ruckmann A., Fitzke FW, Bird AC. Fundus autofluorescence in age-related macular disease imaged with a laser scanning ophthalmoscope. Invest Ophthalmol Vis Sci. 1997;38(2):478-86.

37. Von Ruckmann A., Schmidt KG, Fitzke FW, Bird AC, Jacobi KW. Dynamik der Einlagerung und des Abtransportes von Lipofuszin im retinalen Pigmentepithel bei altersbedingter Makuladegeneration. Klin Monatsbl Augenheilkd. 1998;213(1):32-7.

38. Von Ruckmann A., Fitzke FW, Bird AC. Distribution of pigment epithelium autofluorescence in retinal disease state recorded in vivo and its change over time. Graefes Arch Clin Exp Ophthalmol. 1999;237(1):1-9.

39. Schmitz-Valckenberg S, Jorzik J, Unnebrink K, Holz FG. Analysis of digital scanning laser ophthalmoscopy fundus autofluorescence images of geographic atrophy in advanced age-related macular degeneration. Graefes Arch Clin Exp Ophthalmol. 2002;240(2):73-8.

40. Bindewald A, Bird AC, Dandekar SS, Dolar-Szczasny J, Dreyhaupt J, Fitzke FW, Einbock W, Holz FG, Jorzik JJ, Keilhauer C, Lois N, Mlynski J, Pauleikhoff D, Staurenghi G, Wolf S. Classification of fundus autofluorescence patterns in early age-related macular disease. Invest Ophthalmol Vis Sci. 2005;46(9):3309-14.

41. Sawa M, Ober MD, Spaide RF. Autofluorescence and retinal pigment epithelial atrophy after subretinal hemorrhage. Retina. 2006;26(1):119-20.

42. Smith RT, Chan JK, Busuoic M, Sivagnanavel V, Bird AC, Chong NV. Autofluorescence characteristics of early, atrophic, and high-risk fellow eyes in age-related macular degeneration. Invest Ophthalmol Vis Sci. 2006;47(12):5495-504.

43. Sarks JP, Sarks SH, Killingsworth MC. Evolution of geographic atrophy of the retinal pigment epithelium. Eye. 1988;2(Pt5):552-77.

44. Sarks SH. Ageing and degeneration in the macular region: a clinico-pathological study. Br J Ophthalmol. 1976;60(5):324-41.

45. Deckert A, Schmitz-Valckenberg S, Jorzik J, Bindewald A, Holz FG, Mansmann U. Automated analysis of digital fundus autofluorescence images of geographic atrophy in advanced age-related macular degeneration using confocal scanning laser ophthalmoscopy (cSLO). BMC Ophthalmol. 2005;5(1):8.

46. Dreyhaupt J, Mansmann U, Pritsch M, Dolar-Szczasny J, Bindewald A, Holz FG. Modelling the natural history of geographic atrophy in patients with age-related macular degeneration. Ophthalmic Epidemiol. 2005;12(6):353-62.

47. Sunness JS, Gonzalez-Baron J, Applegate CA, Bressler NM, Tian Y, Hawkins B, Barron Y, Bergman A. Enlargement of atrophy and visual acuity loss in the geographic atrophy form of age-related macular degeneration. Ophthalmology. 1999;106(9):1768-79.

48. Schmitz-Valckenberg S, Bindewald-Wittich A, Dolar-Szczasny J, Dreyhaupt J, Wolf S, Scholl HP, Holz FG. Correlation between the area of increased autofluorescence surrounding geographic atrophy and disease progression in patients with AMD. Invest Ophthalmol Vis Sci. 2006;47(6):2648-54.

49. Bindewald A, Schmitz-Valckenberg S, Jorzik JJ, Dolar-Szczasny J, Sieber H, Keilhauer C, Weinberger AW, Dithmar S, Pauleikhoff D, Mansmann U, Wolf S, Holz FG. Classification of abnormal fundus autofluorescence patterns in the junctional zone of geographic atrophy in patients with age related macular degeneration. Br J Ophthalmol. 2005;89(7):874-8.

50. Holz FG, Bindewald-Wittich A, Fleckenstein M, Dreyhaupt J, Scholl HP, Schmitz-Valckenberg S. Progression of geographic atrophy and impact of fundus autofluorescence patterns in age-related macular degeneration. Am J Ophthalmol. 2007;143(3):463-72.

51. Jeong YJ, Hong IH, Chung JK, Kim KL, Kim HK, Park SP. Predictors for the progression of geographic atrophy in patients with age-related macular degeneration: fundus autofluorescence study with modified fundus camera. Eye. 2014;28:209-18.

52. Mauschitz MM, Fonseca S, Chang P et al. Topography of geographic atrophy in age-related macular degeneration. Invest Ophthalmol Vis Sci. 2012;53:4932-9.

53. Batıoğlu F, Gedik Oğuz Y, Demirel S, Ozmert E. Geographic atrophy progression in eyes with age-related macular degeneration: role of fundus autofluorescence patterns, fellow eye and baseline atrophy area. Ophthalmic Res. 2014;52:53-9.

54. Biarnés M, Arias L, Alonso J, Garcia M, Hijano M, Rodríguez A, Serrano A, Badal J, Muhtaseb H, Verdaguer P, Monés J. Increased Fundus Autofluorescence and Progression of Geographic Atrophy Secondary to Age-Related Macular Degeneration: The GAIN Study. Am J Ophthalmol. 2015;160:345-53 e5.

55. Dreyhaupt J, Mansmann U, Pritsch M, Dolar-Szczasny J, Bindewald A, Holz FG. Modelling the natural history of geographic atrophy in patients with age-related macular degeneration. Ophthalmic Epidemiol. 2005;12:353-62.

56. Domalpally A, Danis RP, White J, Narkar A, Clemons T, Ferris F, Chew E. Circularity index as a risk factor for progression of geographic atrophy. Ophthalmology. 2013;120:2666-71.

57. Caire J, Recalde S, Velazquez-Villoria A, Garcia-Garcia L, Reiter N, Anter J, Fernandez-Robredo P, Alfredo García-Layana; Spanish Multicenter Group on AMD. Growth of geographic atrophy on fundus autofluorescence and polymorphisms of CFH, CFB, C3, FHR1-3, and ARMS2 in age-related macular degeneration. JAMA Ophthalmol. 2014;132:528-34.

58. Holz FG, Pauleikhoff D, Spaide RF, Bird AC. Age-related macular degeneration. Berlin, Germany. Springer. 2004; 1-234 p.

59. Dandekar SS, Jenkins SA, Peto T, Scholl HP, Sehmi KS, Fitzke FW, Bird AC, Webster AR. Autofluorescence imaging of choroidal neovascularization due to age-related macular degeneration. Arch Ophthalmol. 2005;123(11):1507-13.

60. Vaclavik V, Vujosevic S, Dandekar SS, Bunce C, Peto T, Bird AC. Autofluorescence imaging in age-related macular degeneration complicated by choroidal neovascularization: a prospective study. Ophthalmology. 2008;115(2):342-6.

61. McBain VA, Townend J, Lois N. Fundus autofluorescence in exudative age-related macular degeneration. Br J Ophthalmol. 2007;91(4):491-6.

62. Schmitz-Valckenberg S, Holz FG, Bird AC, Spaide RF. Fundus autofluorescence imaging: review and perspectives. Retina. 2008;28(3):385-409.

63. Karadimas P, Paleokastritis GP, Bouzas EA. Fundus autofluorescence imaging findings in retinal pigment epithelial tear. Eur J Ophthalmol. 2006;16(5):767-69.

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