

Department of Ophthalmology and Visual Science

1. Staff and students (April, 2010)

Professor;	Manabu Mochizuki	
Associate Professor;	Kyoko Ohno-Mastui	
Assistant Professor;	Sunao Sugita,	Yoshiharu Sugamoto
Hospital staff;	Akiko Tanaka,	Takeshi Yoshida,
	Hiroshi Takase,	Kouju Kamo,
	Kawaguchi Tatsushi,	Miyanaga Masaru
Graduate student;	Yukiko Yamada,	Kengo Hayashi,
	Hirofumi Emoto,	Megumi Shimizu,
	Manabu Ogawa,	Moriyama Muka,
	Murai Hideki,	Yuko Kawazoe

2. Purpose of education

Ophthalmology and Visual Science deals with the eye. Main objective of ophthalmology and visual science in the graduate course is to obtain the highly-advanced knowledge in the diagnosis and the treatment of various ocular disorders and to perform the basic research based on clinical experience. The graduate students are expected to be academic doctors who develop and perform highly-qualified ophthalmologists, as well as become scientists who can perform basic research focusing on their clinical interest.

3. Research subjects

- 1) Evaluation of the molecular mechanism of immunoregulation in intraocular inflammation
- 2) Pathogenic mechanism of intraocular inflammatory diseases
- 3) Development of novel treatments of intraocular inflammation
- 4) Molecular diagnosis of virus-infected uveitis and intraocular lymphomas.
- 5) Evaluation of the change of the circulation as well as the glucose metabolism in the visual cortex using positron emission tomography (PET) in various ocular disorders
- 6) Mechanism of visual pathway in normal conditions as well as in the patients with amblyopia.
- 7) Development of a novel treatment for vitreoretinal disorders like retinal detachment, diabetic retinopathy, and macular holes.
- 8) Analysis of retinochoroidal complications in high myopia (choroidal neovascularization, myopic tractional retinopathy)
- 9) Evaluation of the molecular mechanism of choroidal angiogenesis using the cultured cells as well as experimental animals (collaboratory project with Department of Cellular Physiological Chemistry)
- 10) Gene analysis of highly myopic patients (collaborator project with Kyoto University)
- 11) Establishment of a novel therapy to prevent an axial elongation or the formation of posterior staphyloma
- 12) Development of new materials for contact lens, the development of a novel drug delivery system using contact lens
- 13) Effect of the visual background on binocular vision as well as the influence of strabismus on dynamic visual acuity.

4. Clinical services

Clinical practice is organized by the general ophthalmology clinic as well as the several subspecialty clinics. When the patients visited our department, they are screened in the general clinic, and then the final decision of the diagnosis and treatment is made in cooperation with each subspecialty clinic.

Subspecialty clinics include uveitis clinic, retinal detachment clinic, diabetic retinopathy clinic, neuro-ophthalmology clinic, high myopia clinic, and medical retina clinic.

Approximately, 1,100 surgeries are performed per year (e.g., cataract surgery, vitreoretinal surgery, glaucoma surgery, strabismus surgery).

5. Publications

[Original Article]

1. Emoto H, Suzuki Y, Wakakura M, Horie C, Kiyosawa M, Mochizuki M, Kawasaki K, Oda K, Ishiwata K, Ishii K. Photophobia in essential blepharospasm – A positron emission tomographic study. *Mov Disord*, 2010; 25: 433-439.

2. Emoto H, Emoto Y, Lim JI, Sadun AA, Sebag J. Regression of choroidal neovascularization after vitrectomy for postinjection endophthalmitis. *Retin Cases Brief Rep*, 2010; 4: 312-316.
3. Hashimoto Y, Funamoto S, Sasaki S, Honda T, Hattori S, Nam K, Kimura T, Mochizuki M, Fujisato T, Kobayashi H, Kishida A. Preparation and characterization of decellularized cornea using high-hydrostatic pressurization for corneal tissue engineering. *Biomaterials*, 2010; 31: 3941-8.
4. Hayashi K, Ohno-Matsui K, Shimada N, Moriyama M, Kojima A, Hayashi W, Yasuzumi K, Nagaoka N, Saka N, Yoshida T, Tokoro T, Mochizuki M. Long-term Results of Photodynamic Therapy for Choroidal Neovascularization in Japanese Patients with Pathological Myopia. *Am J Ophthalmol*, 2010; 151: 137-147.
5. Hayashi K, Ohno-Matsui K, Shimada N, Moriyama M, Kojima A, Hayashi W, Yasuzumi K, Nagaoka N, Saka N, Yoshida T, Tokoro T, Mochizuki M. Long-term Pattern of Progression of Myopic Maculopathy A Natural History Study. *Ophthalmology*, 2010 ; 117:1595-1611.
6. Horie S, Sugita S, Futagami Y, Yamada Y, Mochizuki M. Human retinal pigment epithelium-induced CD4⁺CD25⁺ regulatory T cells suppress activation of intraocular effector T cells. *co-first authors. *Clin. Immunol*, 2010; 136: 83-95.
7. Ito M, Yokoi T, Sugita S, Shinohara N, Nishina S, Azuma N. Endogenous candida chorioretinitis in a healthy infant. *Jpn J Ophthalmol*, 2010; 54: 629-31.
8. Kamoi K, Mochizuki M. Phaco forward-chop technique for managing posterior nuclear plate in hard cataract. *J Cataract Refractive Surg*, 2010; 36: 9-12.
9. Kawaguchi T, Sugita S, Yamada Y, Miyanaga M, Mochizuki M. Regression of optic disc neovascularization in patients with Behçet's uveoretinitis after infliximab therapy. *J Ocul Pharmacol Ther*, 2010; 26: 627-630.
10. Miyanaga M, Kawaguchi T, Miyata K, Horie S, Mochizuki M, Herbort CP. Indocyanine green angiography findings in initial acute pretreatment Vogt-Koyanagi- Harada disease in Japanese patients. *Jpn J Ophthalmol*, 2010; 54: 377-382.
11. Miyanaga M, Sugita S, Shimizu N, Morio T, Miyata K, Maruyama K, Kinoshita S, Mochizuki M. A significant association of viral loads with corneal endothelial cell damage in cytomegalovirus anterior uveitis. *Br J Ophthalmol*, 2010; 94: 336-340.
12. Mizuki N, Meguro A, Ota M, Ohno S, Shiota T, Kawagoe T, Ito N, Kera J, Okada E, Yatsu K, Song YW, Lee EB, Kitaichi N, Namba K, Horie Y, Takeno M, Sugita S, Mochizuki M, Bahram S, Ishigatsubo Y, Inoko H. Genome-wide association studies define IL23R/IL12RB2 and IL10 as susceptibility loci for Behçet's disease. *Nat Genet*, 2010; 42: 703-6.
13. Nakauchi Y, Takase H, Sugita S, Mochizuki M, Shibata S, Ishiwata Y, Shibuya Y, Yasuhara M, Miura O, Arai A. Concurrent administration of intravenous systemic and intravitreal methotrexate for intraocular lymphoma with central nervous system involvement. *Int J Hematol*, 2010; 92: 179-185.
14. Saka N, Ohno-Matsui K, Shimada N, Sueyoshi S, Nagaoka N, Hayashi W, Hayashi K, Moriyama M, Kojima A, Yasuzumi K, Yoshida T, Tokoro T, Mochizuki M. Long-term changes of axial length in eyes of adults with pathologic myopia. *Am J Ophthalmol*, 2010; 150: 562-568.
15. Shimada N, Ohno-Matsui K, Iseki S, Koike M, Uchiyama Y, Wang J., Yoshida T, Sato T, Peters C., Mochizuki M, Morita I. Cathepsin L in bone marrow-derived cells is required for retinal and choroidal neovascularization. *Am J Pathol*, 2010; 176: 2571-2580.
16. Sugita S, Horie S, Yamada Y, Keino H, Usui Y, Takeuchi M, Mochizuki M. Suppression of bystander T helper 1 cells by Iris pigment epithelium-inducing regulatory T cells via negative costimulatory signals. *Invest. Ophthalmol. Vis. Sci*, 2010;51:2529-2536.
17. Sugita S, Horie S, Yamada Y, Mochizuki M. Inhibition of B cell activation by retinal pigment epithelium. *Invest Ophthalmol Vis Sci*, 2010; 51: 5783-8.
18. Suzuki Y, Kiyosawa M, Mochizuki M, Ishiwata K, Ishii K. The pre-supplementary and primary motor areas generate rhythm for voluntary eye opening and closing movements. *Tohoku J Exp Med*, 2010; 222: 97-104.
19. Tanaka A, Takase H, Adamus G, Mochizuki M. Cancer associated retinopathy caused by benign tumor. *British Journal Ophthalmol*, 2010; 94: 514-518.
20. Tanaka A, Ohno-Matsui K, Shimada N, Hayashi K, Shibata Y, Yoshida T, Yamashita M, Tokoro T, Mochizuki M. Prevalence of Strabismus in Patients with Pathologic Myopia. *J Med Dent Sci*, 2010; 57: 75-82.
21. Yamada Y, Sugita S, Tanaka H, Kamoi K, Kawaguchi T, Mochizuki M. Comparison of infliximab versus ciclosporin during the initial 6-month treatment period in Behçet disease. *Br J Ophthalmol*, 2010; 94: 284-8.
22. Yamada Y, Sugita S, Horie S, Yamagami S, Mochizuki M. Mechanisms of immune suppression for CD8⁺ T cells by human corneal endothelial cells via membrane-bound TGFβ. *Invest Ophthalmol Vis Sci*, 2010; 51: 2548-2557.
22. Yamada Y, Sugita S, Tanaka H, Kamoi K, Takase H, Mochizuki M. Timing of recurrent uveitis in patients with

Behçet's disease on infliximab therapy. *Br J Ophthalmol*, 2010; 95: 205-8.

[Review Article]

1. Kamoi K. Phaco Forward-Chop. *Cataract & Refractive Surgery Today Europe*. 2010; 3: 60-61.
2. Kamoi K. Phaco Dislocation Technique. *Cataract & Refractive Surgery Today Europe*. 2010; 7: 26-27.

[Presentation]

1. Shimada N, Ohno-Matsui K, Yoshida T, Mochizuki M, Morita I. Cathepsin L in bone marrow-derived endothelial progenitor cells is required for choroidal neovascularization. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.4.
2. Ogawa M, S. Sugita S, Shimizu N, Morio T, Mochizuki M. Use of Human Herpes Virus (HHV) PCR Assays to Detect Viral DNA in Ocular Fluids of Patients with Herpetic Eye Diseases. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.4.
3. J. Wang, Ohno-Matsui K, Yoshida T, Shimada N, Mochizuki M, Morita I. Molecular mechanism of the enhanced migration of endothelial progenitor cells induced by amyloid. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.5.
4. Horie S, Sugita S, Yamada Y, Mochizuki M. Potential Effects of Toll-like Receptor 4 Signaling on RPE. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.5.
5. Kawaguchi T, Yamada Y, Tanaka H, Miyanaga M, Sugita S, Mochizuki M. Efficacy of infliximab Therapy on Neovascularization in Patients with Behçet's disease. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.5.
6. Sugita S. (Symposium) Molecular Immunology in the eye: Approaching Immune Pathogenesis and Regulation. Immunosuppression Mechanisms of Retinal Pigment Epithelial (RPE) Cells. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.5.
7. Kawaguchi T, Yamada Y, Tanaka H, Miyanaga M, Sugita S, Mochizuki M. Efficacy of infliximab therapy on neovascularization in patients with Behçet's disease. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.6.
8. Yamada Y, Sugita S, Miyanaga Y, Mochizuki M. The safety of infliximab in Behçet's disease with refractory uveoretinitis. Association for Research in Vision and Ophthalmology 2010 Annual Meeting, Fort Lauderdale, 2010.5.6.
9. Hayashi H, Nakanishi H, Yamada R, Yamashiro K, Nakata I, Shimada N, Ohno-Matsui K, Mochizuki M, Ozaki M, Yoshitake S, Kuriyama S, Saito M, Iida T, Yoshimura N. Singlenucleotide polymorphisms in promoter region of matrix metalloproteinase 1, 2, and 3 in Japanese with high myopia. World Ophthalmology Congress 2010, Berlin, 2010.6.5.
10. Moriyama M, Ohno-Matsui K, Mochizuki M, Morita I, Tamada S, Kishimoto T, Yasuda A. Effects of reboflavin and UV irradiation on sclera. World Ophthalmology Congress 2010, Berlin, 2010.6.7.
11. Hayashi K, Ohno-Matsui K, Moriyama M, Shimada N, Hayashi W, Tokoro T, Mochizuki M. Intravitreal bevacizumab treatment of choroidal neovascularization secondary to pathologic myopia (PM) in Japanese patients. World Ophthalmology Congress 2010, Berlin, 2010.6.7.
12. Ohno-Matsui K. The role of cathepsin L from bone-marrow derived cells in retinal angiogenesis. World Ophthalmology Congress 2010, Berlin, 2010.6.7.
13. Mochizuki M. (Symposium) Ocular sarcoidosis-definite, probable, possible. World Ophthalmology Congress 2010, Berlin, 2010.6.8
14. Mochizuki M. (Symposium) HTLV1, EBV and HHV6 associated uveitis. World Ophthalmology Congress 2010, Berlin, 2010.6.8.
15. Tanaka A, Ohno-Matsui K, Yamashita M, Moriyama M, Hayashi K, Shibata Y, Tokoro T, Mochizuki M. Strabismus in Pathologic Myopes. World Ophthalmology Congress, Berlin Germany, 2010.6.8.
16. Mochizuki M. The role of ocular pigment epithelial cells in the regional immunity of the eye. International Society for Eye Research 2010, Montreal, Canada, 2010.7.20.
17. Ohno-Matsui K. Advances in Pathologic Myopia. Fermo-la Myopia, Fermo, Italy, 2010.9.9.
18. Wang J, Ohno-Matsui K, Yoshida T, Shimada N, Mochizuki M, Morita I. Molecular mechanism of the enhanced migration of endothelial progenitor cells induced by amyloid β . The 24th Asia-Pacific Academy of Ophthalmology Congress, 2010.9.16.

19. Mochizuki M. Infliximab therapy Behcet's disease. 4th Annual Symposium of the Society for Ophthalmology-Immunoinfectiology in Europe, Austria, 2010.9.17.
20. Ohno-Matui K. Long-term visual progression of myopic maculopathy. The 25th APAO Congress-A joint Meeting of APAO/AAO, Beijing, China, 2010.9.17.
21. Mochizuki M. Diagnosis and therapy of ocular sarcoidosis. 4th Annual Symposium of the Society for Ophthalmology-Immunoinfectiology in Europe, Austria, 2010.9.18.
22. Mochizuki M. A prompt and comprehensive diagnostic system for infection and lymphoma. 4th Annual Symposium of the Society for Ophthalmology-Immunoinfectiology in Europe, Austria, 2010.9.18.
23. Ohno-Matsui K. The role of cathepsin L from bone-marrow derived cells in retinal angiogenesis. The 25th APAO Congress-A joint Meeting of APAO/AAO, Beijing, China, 2010.9.19.
24. Tanaka A, Yamashita M, Tomita M, Mochizuki M. Correlation between axial length difference and refractive error difference in children with strabismus/amblyopia. XIth International meeting of the strabismological association Istanbul, Turkey 2010.9.22
25. Klaska I, Kamoi K, Forrester JV. Dendritic Cell based Therapy for Treatment of Uveitis. 11th International Symposium on Dendritic Cells and Clinical Immunology. Switzerland, 2010.9.26.
26. Mochizuki M. (Symposium) Uveitis Subspecialty Day in American Academy of Ophthalmology 2010: Autoimmune uveitis: Managing sarcoidosis. American Academy of Ophthalmology, Chicago, 2010.10.16.
27. Mochizuki M. Non-infectious Stromal Choroiditis: Sarcoidosis. Moorfields Uveitis Symposium and Course, Chandigarh, India, 2010.10.29.
28. Mochizuki M. Sarcoidosis diagnostic criteria. The Uveitis Society of India, Chandigarh, India, 2010.10.30.