



STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov



Continuing Education Course Approval Checklist

Title:

Provider Name:

- Completed Application
 - Open to all Optometrists? Yes No
 - Maintain Record Agreement? Yes No
- Correct Application Fee
- Detailed Course Summary
- Detailed Course Outline
- PowerPoint and/or other Presentation Materials
- Advertising (optional)
- CV for EACH Course Instructor
- License Verification for Each Course Instructor
 - Disciplinary History? Yes No



STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov



RECEIVED BY
OPTOMETRY BOARD OF OPTOMETRY

2017 MAR 29 AM 10:14

CONTINUING EDUCATION COURSE APPROVAL Board Use Only

APPLICATION

\$50 Mandatory Fee

Receipt #	Payor ID	Beneficiary ID	Amount
1-3053	1050356	928474	50

Pursuant to California Code of Regulations (CCR) § 1536, the Board will approve continuing education (CE) courses after receiving the applicable fee, the requested information below and it has been determined that the course meets criteria specified in CCR § 1536(g).

In addition to the information requested below, please attach a copy of the course schedule and topical outline of the subject matter. Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly.

Course Title <u>Primer on Keratitis</u>	Course Presentation Date <u>04/06/2017</u>
--------------------------------------------	-----------------------------------------------

Course Provider Contact Information

Provider Name <u>Rami</u> <u>Malin</u> <u>Heaton</u> <u>Zarney</u> (First) (Last) (Middle)
Provider Mailing Address Street <u>910 E. Stowell</u> City <u>Santa Maria</u> State <u>CA</u> zip <u>93454</u>
Provider Email Address <u>Dr. zarney@sheparyeye.com</u>
Will the proposed course be open to all California licensed optometrists? <input checked="" type="radio"/> YES <input type="radio"/> NO
Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation? <input checked="" type="radio"/> YES <input type="radio"/> NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name <u>Rami</u> <u>Zarney</u> (First) (Last) (Middle)	
License Number <u>682233</u>	License Type <u>Medical</u>
Phone Number <u>805 925-2637</u>	Email Address <u>Dr. zarney@sheparyeye.com</u>

I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider

Date

3-28-17



STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry.ca.gov



Request for Approval of Continuing Education Course(s)

Shepard Eye Center
910 E. Stowell
Santa Maria Ca 93454
Attn: Melin Heaton

Please type or print
name and mailing
address in the space
provided to the left

For Office Use Only	
Receipt No.	_____
ATS No.	_____
Date Rec'd	_____

Requests for approval of continuing optometric education (CE) courses should be submitted on this form. The California State Board of Optometry requires the following information in order to process a course approval request:

- \$50 processing fee
- Name of provider
- Course title(s)
- Date(s) the course is scheduled to be offered
- Topical outline of the course subject matter
- Any announcements, notices or advertisements of the course
- Curriculum vitae (CV) of all instructors and lecturers involved (NOTE: CVs should include every term of employment, academic credential, publication, contribution or significant achievement)

Requests for approval and the supplemental information should be submitted to the Board office at least 45 days prior to the first date that the course will be offered. Requests will be reviewed by staff and forwarded to the CE Committee for final review. If necessary, Board staff will contact the requestor for additional information. Course approvals are valid for 12 months or until the course is modified.

The CE Committee's decision(s) will be noted and a copy of this form will be returned to the provider to serve as official notification of approval and/or disapproval of the course(s). Please remember to include the contact person's name and mailing address in the space provided above.

CE Committee Member

Course Title	Date(s) of Course	Instructor(s)/Lecturer(s)	CE Hours Requested	FOR BOARD USE ONLY		
				Approved	Disapproved	ID #
Diagnosis of Uveitis	4-6-17	Dr. Candy Chan	1			
Primer on Keratitis	4-6-17	Dr. Rami Zarneghy	1			

COMMITTEE COMMENTS:



**SHEPARD
EYE CENTER**

Better Vision for a Better Life

Stephen Bylsma, MD Rami Zarnegar, MD Dan Shepard, MD Randall Goodman, MD
James Franta, OD Ken Kendall, OD Kimberly Breckon, OD Candy Chan, MD Timothy Nelson, OD

*General Ophthalmology • Cataract • Glaucoma • Strabismus • LASIK • Implant Refractive Surgery • Eyelid Plastic Surgery
Retina Specialist • Vitreoretinal Surgery • Diabetic Eye Care • Macular Degeneration
BOTOX • Primary Eye Care • Contact Lenses • Low Vision*

2017 CME

Dr. Zarnegar

Topic: Primer on Keratitis

Objective:

To recognize signs and symptoms and provide appropriate treatment for bacterial, viral and not-infectious keratitis.

Outline:

1. Bacterial Keratitis
2. Viral Keratitis
3. Non-infectious keratitis

Diagnosis and Management of (Pan-) Uveitis

Case-Presentation Format To Review:

- I. Common Findings in Panuveitis
 - A. Immune-competent Individuals
 - B. Immune-comprised Individuals
- II. Laboratory and Imaging Work-Up
 - A. Indications for Work-Up
 - B. Routine Work-Up
 - C. Special Testing
- III. Treatment and Management
 - A. Expectations for Resolution
 - B. Flare-Ups

Objectives:

1. Identify appropriate uveitis cases which may require laboratory and imaging work-up.
2. Identify appropriate treatment options during each stage of the discovery process in the management of uveitis cases.

Infectious Keratitis

Rami Zarnegar, M.D.
Shepard Eye Center
April 6, 2017

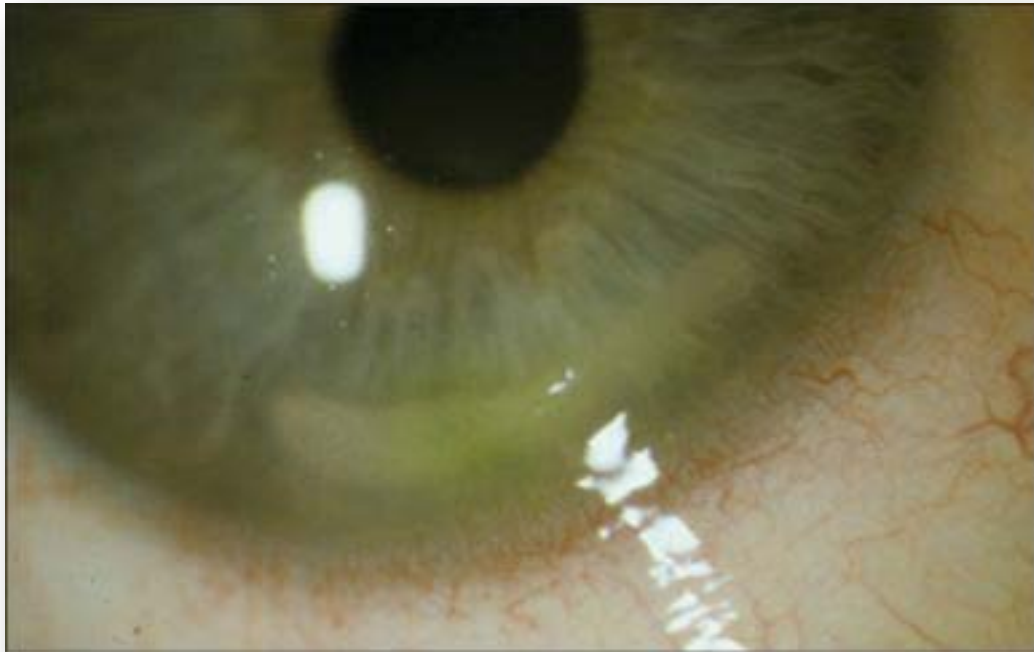
Bacterial Keratitis

- Inciting organisms from normal flora
- Gram (+) organisms:
 - Staph, Strep
 - Well-localized sharp-margined ulcers
 - Marginal ulcers (immune ulcers)
- Gram (-) organisms:
 - Pseudomonas, E. Coli
 - Diffuse liquifactive ulcers

Clinical Picture

- History
 - C.L wear (especially, overnight use)
 - Poor hygiene, trauma
- Symptoms
 - FBS, pain, photophobia, decreased VA
- Signs
 - Conjunctival injection, ciliary flush
 - Epi defect, K infiltrates, and edema





Marginal Ulcers

- Immune modulated disease
- Staph and Strep from lid margin
- Respond quickly to combined abx / steroids
- Treat the concomittent blepharitis, meibomitis with lid hygiene



Paracentral ulcers

- Broad spectrum mono therapy (Vigamox)
- Monitor daily until re-epithelialized
 - Add steroids cautiously
- Cx if not improving / modify regimen

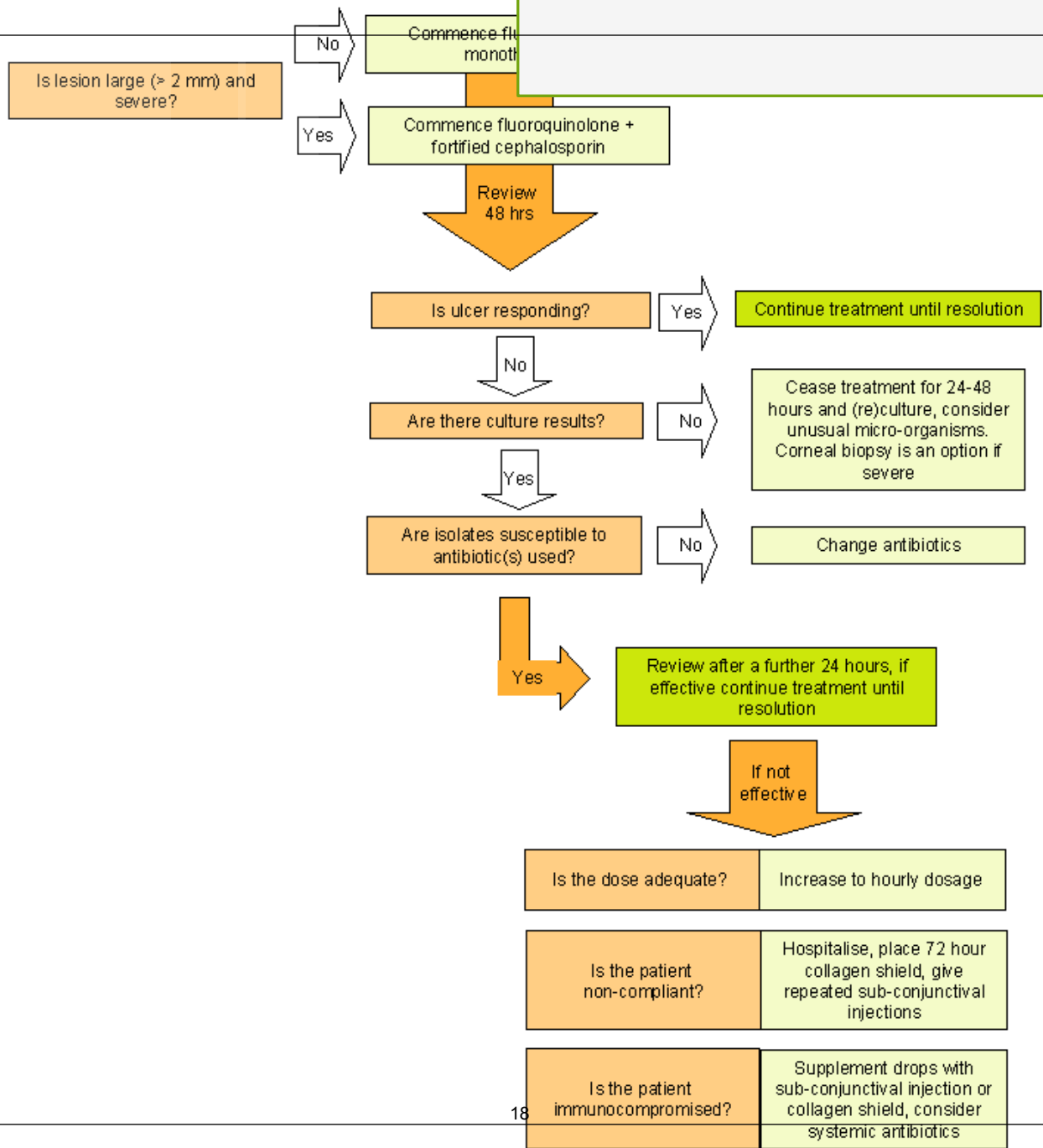


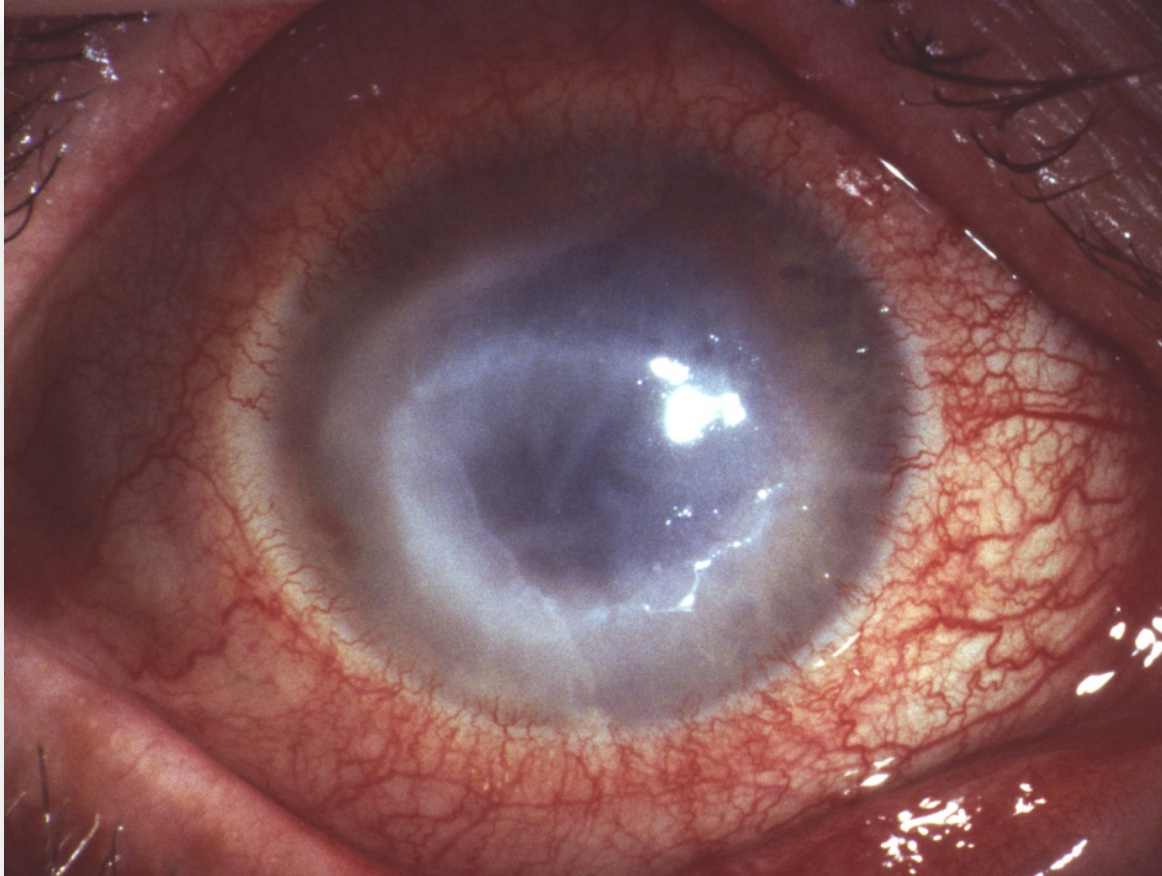
Central Ulcers

- Scrape and cx (consider G- pseudomonas)
- Intensive therapy with 4th generation fluoroquinolones.
- See subjective improvement before clinical improvement (ie. dec. Pain)
- Alter abx based on cx results
- Consider fortified abx if no improvement
- Re-culture if no improvement
- Hospitalization and IV abx
- Steroids (SCUT study)... no benefit / no harm
 - With the exception of fungal etiology













Acanthamoeba Keratitis

- Ubiquitous protozoa in soil, air and water
- Difficult to dx
- Soft CL use
- Home made saline solution
- Hut tub use

Acanthamoeba Keratitis

- Symptoms
 - Pain out of proportion to findings (K nerves)
 - Dec. VA, red eye, photophobia
- Signs
 - Hot eye
 - Keratoneuritis
 - Ulcer with ring infiltrate (Wesley's ring)
 - +/- hypopyon

Treatment

- Cx on E. Coli plate (special stains)
- Corneal bx to look for cycts
- Multilateral tx with
 - Brolene (propamidine)
 - Hexamidine
 - PHMB (algaecide)
- Intensive treatment for 3-6 mo.
- Often ends up in PKP

HSV Keratitis
can have multiple
presentations

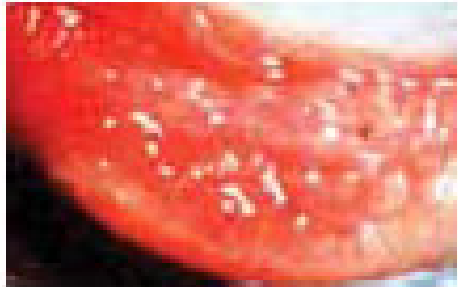
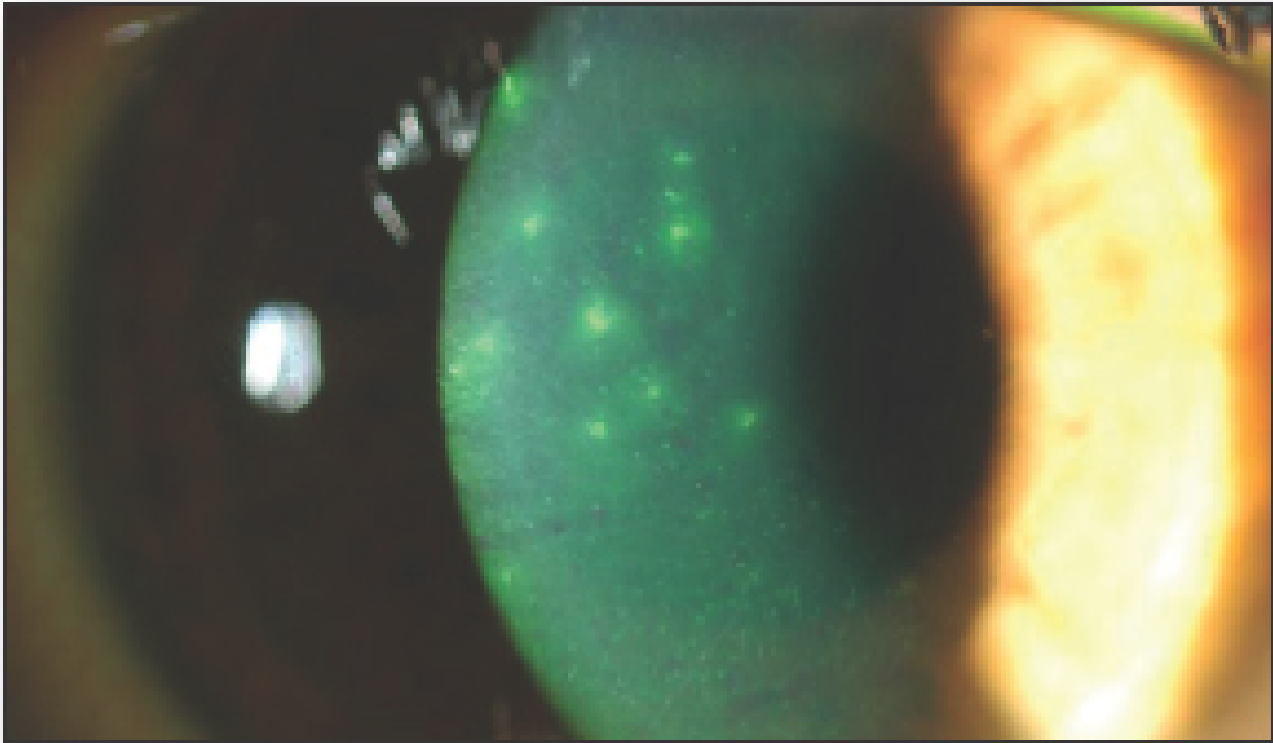
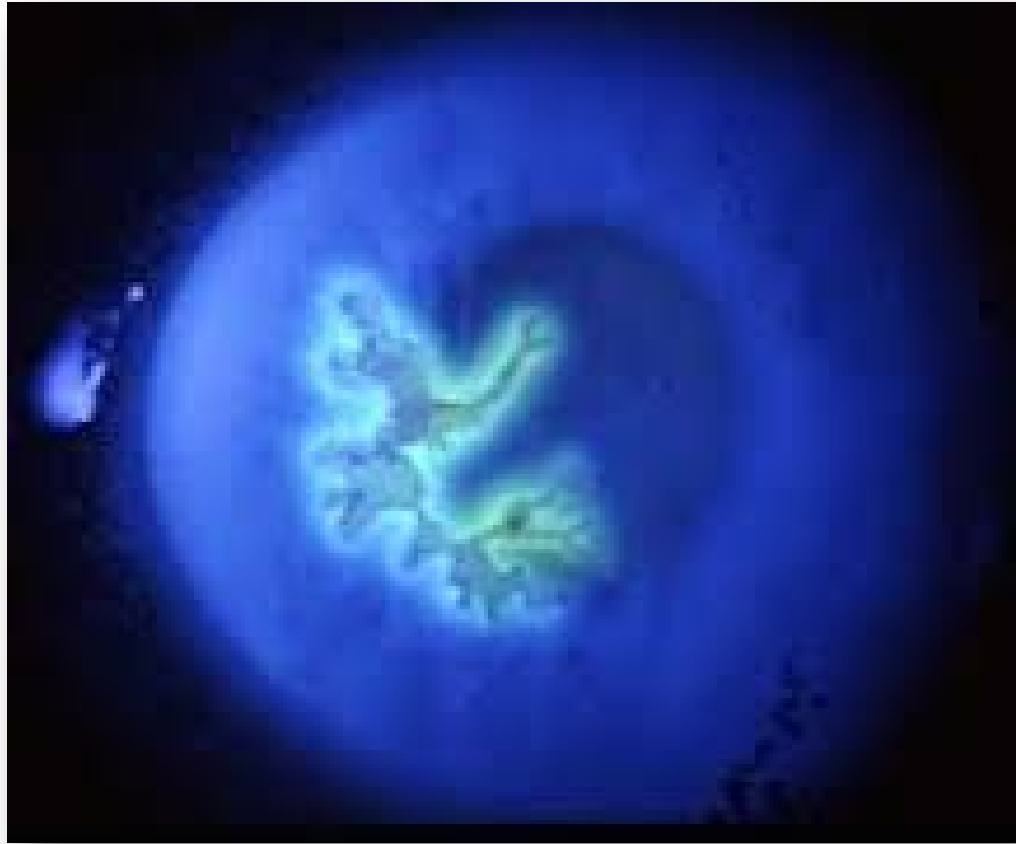
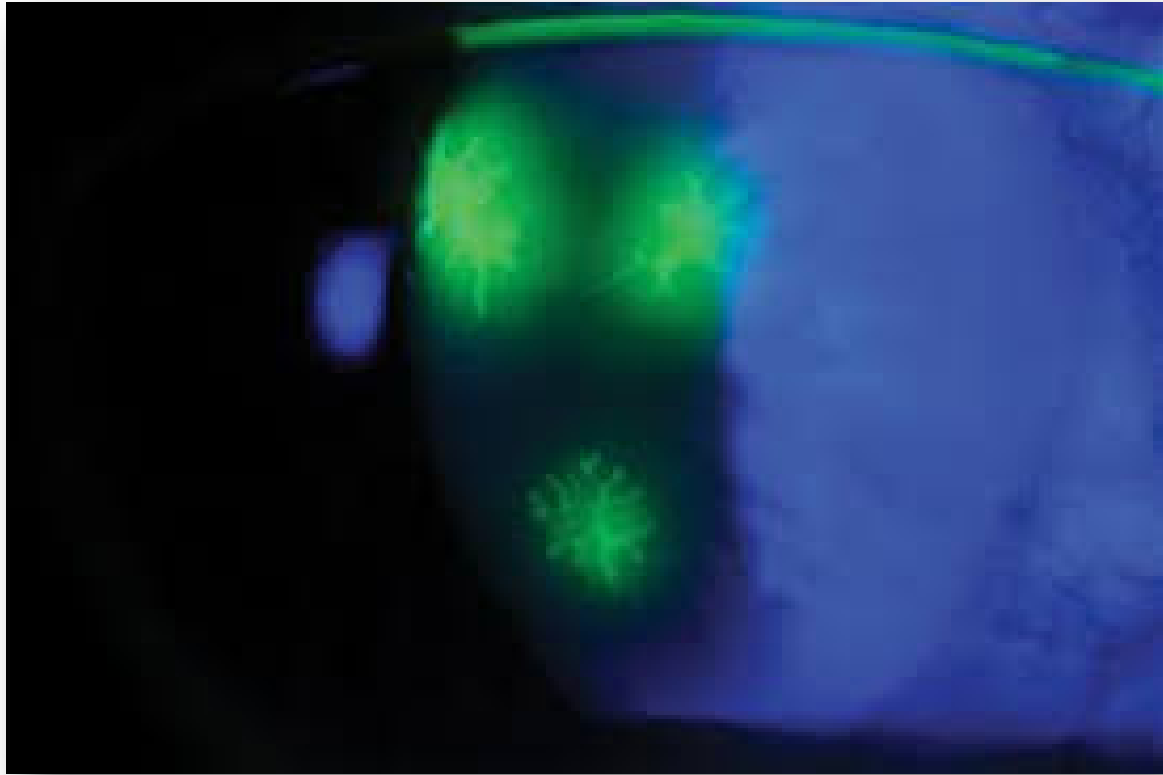


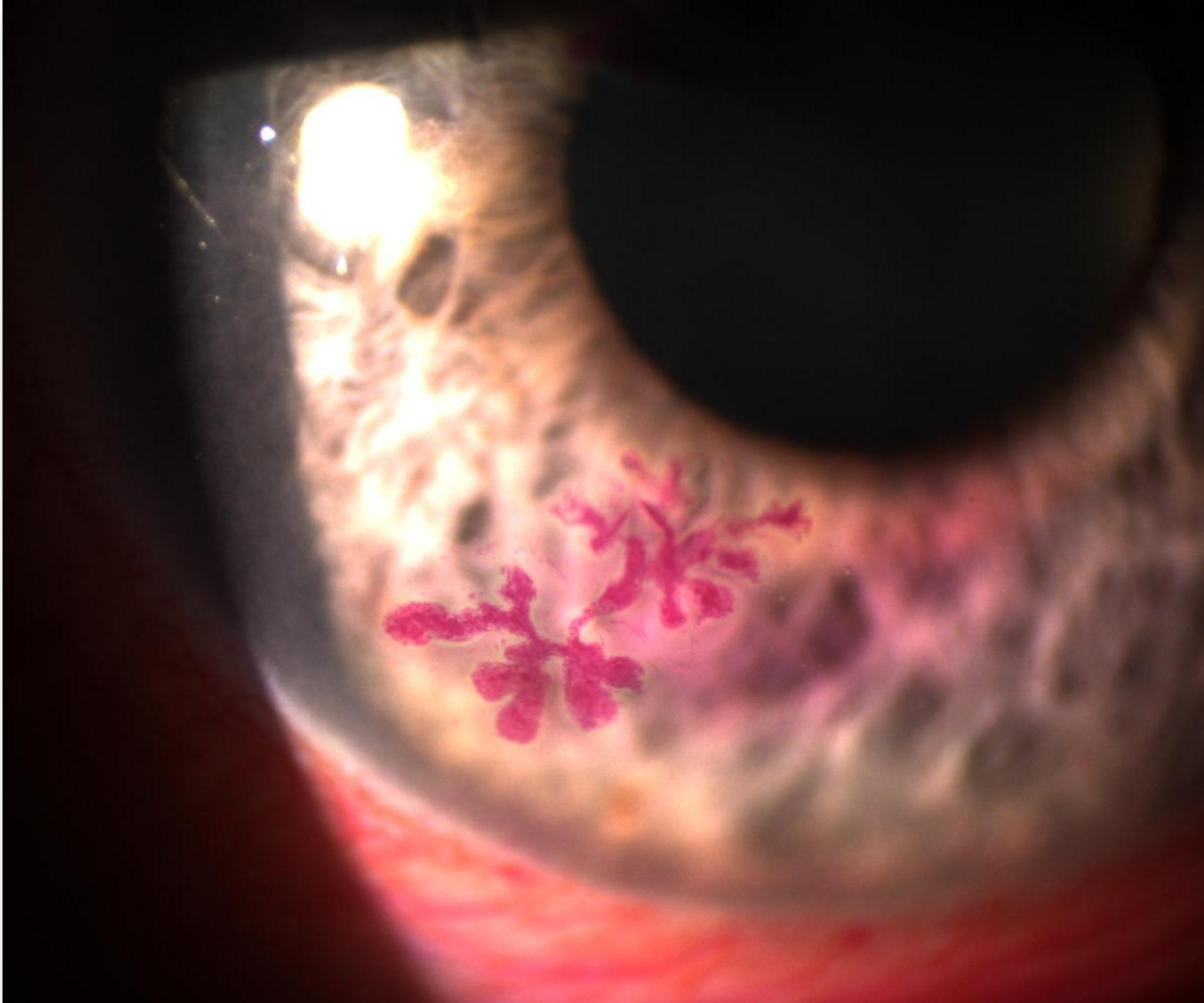
FIGURE 1 Herpes simplex virus (left), chlamydia (center), and adenovirus (right) can each manifest as a follicular conjunctivitis.

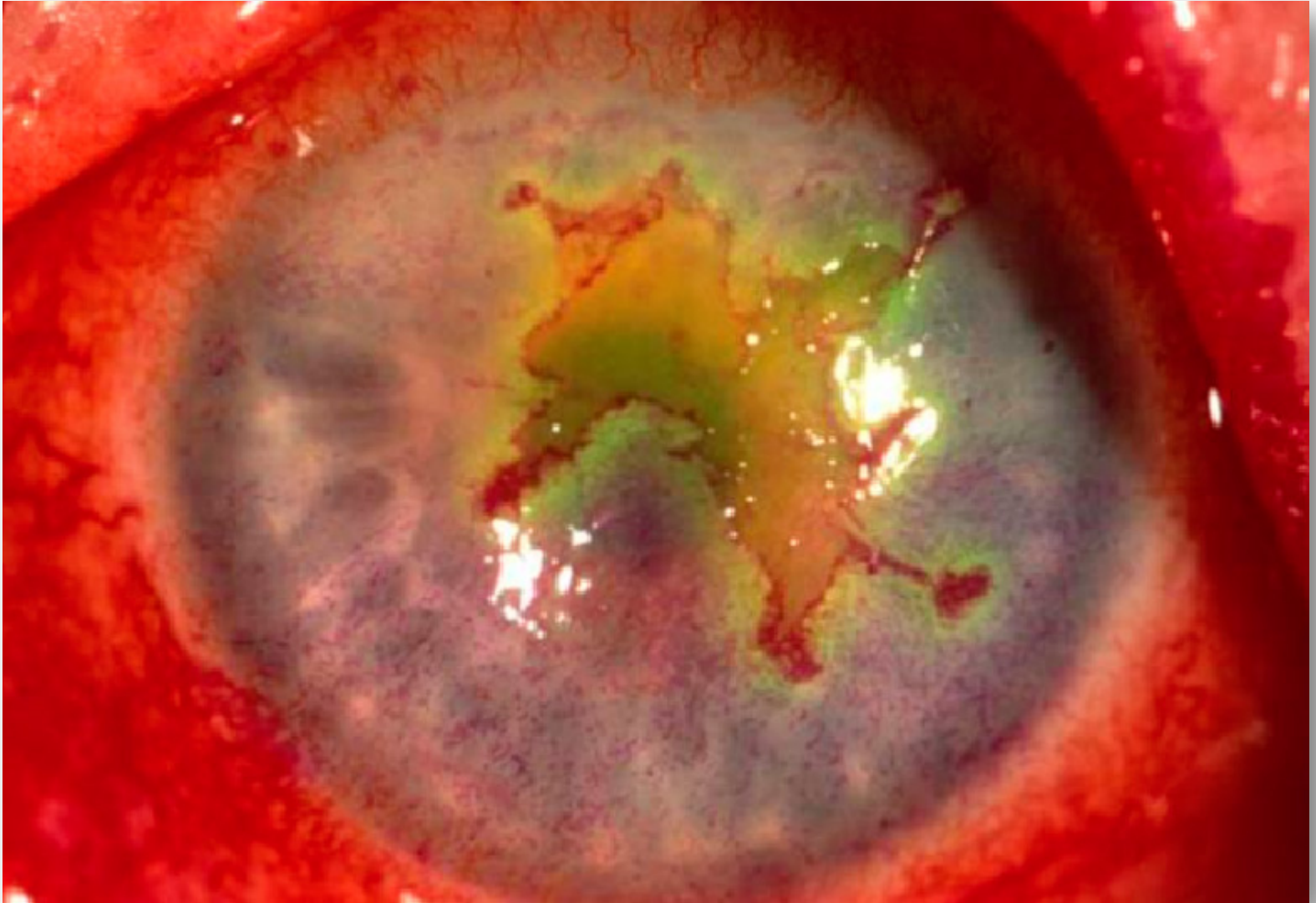




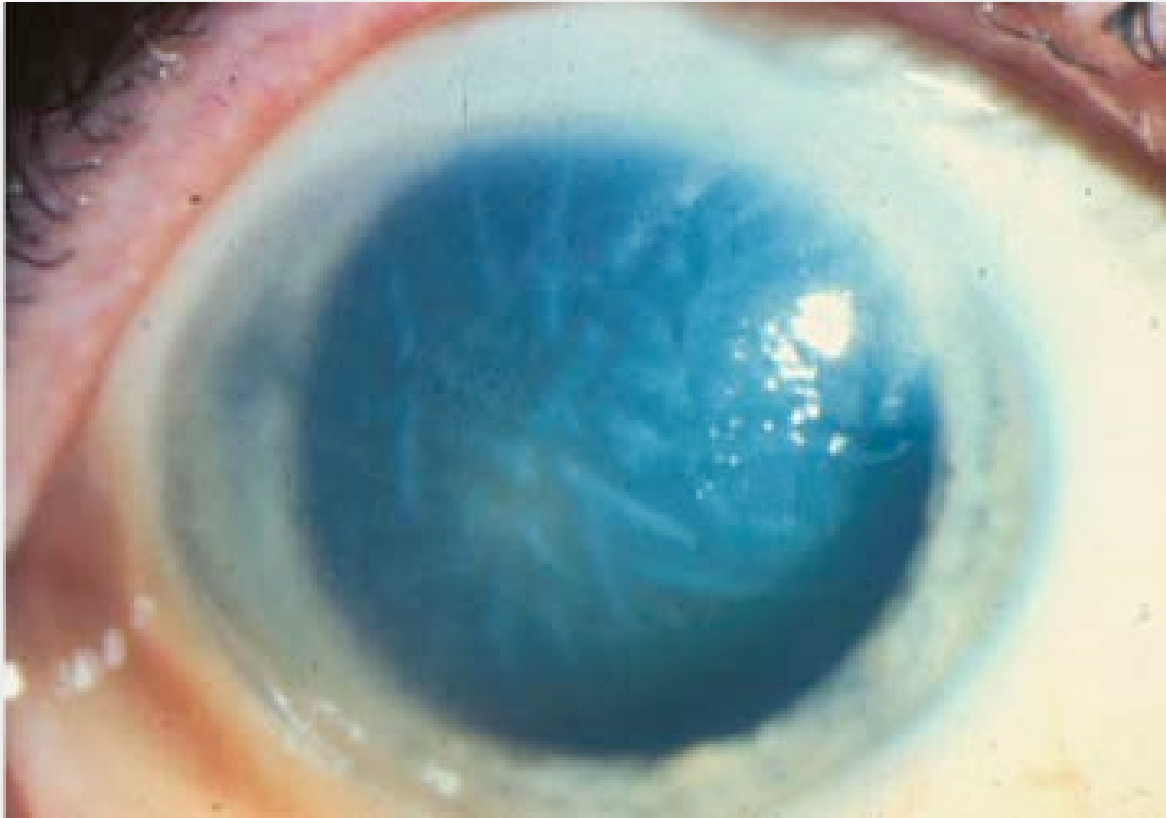


















Herpetic Keratitis

- Man is the only natural host
- 90% carry antibodies to virus (intrapartum)
- 2nd only to trauma as cause of blindness
- Ocular infections mostly type I
- Type II only in congenital cases

Clinical Picture

- History
 - ? Antecedent cutaneous or lip lesion
 - ? Previous hx of HSV ocular infection
- External exam
 - Tender pre-auricular node
 - +/- cutaneous vesicles

Ocular Exam

- Follicular conjunctivitis
- Punctate / dendritic / geographic keratitis
- Corneal hypesthesia
- Corneal infiltrates and stromal edema
- Granulomatous uveitis (rarely hypopyon)
- Increased IOP due to trabeculitis

Treatment

- Self-limiting process
- Debulk and patch
- Topical antivirals (Zirgan, Viroptic)
- Cycloplegics
- Systemic antivirals (acyclovir 400, valacyclovir 500)
- Steroids
 - Once epithelium healed
 - Treat uveitis and stromal edema
- Prophylactic maintenance rx for recurrent cases
- HZV (topicals not effective, Acyclo. 800 5x/day or Val. 1000mg tid, control bact infections)







Fungal Keratitis

- Less common
- Preceding trauma with vegetative matter
- Immunocompromized pt.
- Fusarium and Candida most common fungi

Clinical Picture

- Signs of trauma
- Pt. on chemo or other immune modulators
- Dec. VA, pain and photophobia
- Prolonged slow course
- Infiltrate with fluffy borders
- +/- satellite lesions
- Unresponsive to previous abx



Treatment

- Fungal cultures (hold for 3-4 wks)
- Topical antifungals
 - Natamycin, ampho (long treatment period)
- Systemic antifungals
- NO STEROIDS
- Corneal biopsy if not improving



CURRICULUM VITAE

Shahriar Rami Zarnegar, M.D.

Shepard Eye Center
910 E. Stowell Ave.
Santa Maria, California 93454
(805) 925-2637
Fax (805) 347-0033
Rami@EliteEyecareMG.com

PRIVATE PRACTICE, OPHTHALMOLOGY:

Shepard Eye Center, Santa Maria, California, 1996-present

EDUCATION:

Board Certified, American Board of Ophthalmology, 1998

Ophthalmology Residency, St. Louis University, Anheuser-Busch Eye Institute, St. Louis, MO, 1993-1996

Transitional Internship, St. John's Mercy Medical Center, St. Louis, MO, 1992-1993

Medical School (M.D.), St. Louis University School of Medicine, St. Louis, MO, 1988-1992

San Jose State/Stanford Universities, Graduate studies in Biology, San Jose, CA, 1985-1988

Santa Clara University (B.S.), Santa Clara, CA, 1981-1985

LICENSURE:

Medical Board of California, 1996-present

MEMBERSHIPS:

Fellow, American Academy of Ophthalmology

American Society of Cataract & Refractive Surgery

International Society of Refractive Surgeons

California Association of Ophthalmology

Research to Prevent Blindness

PUBLICATIONS

A. Journals

1. Steinberg GK, Saleh J, DeLapaz R, Kunis D, Zarnegar SR: Protective effects of N-Methyl-D-Aspartate antagonist after focal cerebral ischemia in rabbits. *Stroke* 20:1247-1252, 1989.
2. Steinberg GK, Saleh J, DeLapaz R, Kunis D, Zarnegar SR: Pretreatment with the NMDA antagonist dextrorphan reduces cerebral injury following focal transient ischemia in rabbits. *Brain Res* 497:382-386, 1989.
3. DeLapaz R, Shibata D, Steinberg GK, George CP, Zarnegar SR: Acute cerebral ischemia in rabbits: correlation of MRI and histopathology. *Am J Neuroradiol* 12:89-95, 1991.
4. Assil KK, Zarnegar SR, Schanzlin DJ: Visual outcome after penetrating keratoplasty with double continuous or combined interrupted and continuous suture wound closure. *Am J Ophthalmol* 114:63-71, 1992.
5. Assil KK, Zarnegar SR, Fouraker B, Schanzlin DJ: Efficacy of tobramycin soaked collagen shields versus tobramycin eye drop loading dose for sustained treatment of experimental *Pseudomonas aeruginosa*-induced keratitis in rabbits. *Am J Ophthalmol* 113:418-423, 1992.
6. Zarnegar SR, Massry G, Gomez C, Shields S, Chung S: An unusual case of amaurosis fugax. *Ophthalmology*, Submitted, December 1994.
7. Cruz OA, Zarnegar SR, Myers SE: Treatment of periocular capillary hemangioma with topical clobetasol propionate. *Ophthalmology*, Submitted, December 1994.
8. Assil KK, Meyer J, Zarnegar SR, Talamo JH, Chayet A: Defining the keratorefractive axis of astigmatism: rationale for a standardized approach. *Arch Ophthalmol*, Submitted, December 1994.

B. Published Abstracts

1. Steinberg GK, Saleh J, DeLapaz R, Kunis D, Zarnegar SR: Delayed treatment with the NMDA-antagonists dextromethorphan and dextrorphan reduces cerebral damage after transient focal ischemia. *Soc Neurosci Abs* 14:817, 1988.
2. Steinberg GK, Saleh J, DeLapaz R, Kunis D, Zarnegar SR: Pretreatment with the NMDA-antagonists dextromethorphan and dextrorphan attenuates neuronal damage and edema in focal cerebral ischemia. *Soc Neurosci Abs* 14:817, 1988.
3. Cruz OA, Zarnegar SR, Myers SE: Treatment of periocular capillary hemangioma with topical clobetasol propionate. *Ophthalmology* 101(9A):116, September 1994.
4. Sanni S, Zarnegar SR, Assil KK: Management of astigmatism in radial keratotomy practice. Submitted, ARVO, 1995.

C. Presentations

1. Steinberg GK, Saleh J, DeLapaz R, Kunis D, Zarnegar SR: Post-ischemic treatment with the NMDA-antagonists dextromethorphan and dexetorphan reduces cerebral damage after transient focal ischemia. American Association of Neurological Surgeons Annual Meeting, Washington, D.C., April 5, 1989.
2. Assil KK, Zarnegar SR, Fouraker B, Schanzlin DJ: Sustained therapeutic effect of tobramycin saturated collagen shields versus topical tobramycin therapy in experimental Pseudomonas keratitis. Ocular Microbiology and Immunology Group Meeting, Anaheim, CA, October 1991.
3. Zarnegar SR, Massry G, Gomez C, Shields S, Chung S: An unusual case of amaurosis fugax. Submitted, North American Neuro-ophthalmology Society Meeting, Tucson, AZ, 1995.

D. Clinical Studies

1. Sub-Investigator, FDA Clinical Trial of Staar Hyperopic Implantable Cloolamer Phakic Intra-ocular Lens.
2. Sub-Investigator, FDA Clinical Trial of Hoya Acrylic Intra-ocular Lens 2005-2008
3. Sub-Investigator, FDA Clinical Trial of Glaukos iStent for Glaucoma 2007-2010.
4. Investigator, FDA Trial of Hoya Toric IOL, 2011-2014
5. Investigator, FDA Trial of Senju SJP-0035/2-01 for corneal epithelial wound healing, 8/2014 - present
6. Investigator, FDA Clinical Trial of Allergan 191578-007 Ketorolac Study (closed)
7. Sub-investigator, injectable depot dexamethasone implant post cataract surgery (Icon), completed 2014
8. Sub-Investigator, FDA Clinical Trial of Allergan Bitmatoprost , pending

CANDY K. CHAN, MD, PhD

I. PERSONAL INFORMATION

Position: Ophthalmologist, Vitreoretinal Surgeon

Home Address: 1144 S. Chapel Ave
Alhambra, CA 91801

Phone Number: (323) 459-3136 (cell)

Email Address: candycha@gmail.com

Birth Place: Ottawa, Canada

Citizenship: USA

Languages: English, Spanish, Chinese (Mandarin and Cantonese)

Hobbies: Swimming, skiing, rollerblading, cooking, reading

II. EDUCATION

07/01/10 – 07/15/12 Fellowship (Clinical):
Vitreoretinal Surgery and Uveitis
University of California, San Diego
Shiley Eye Center
9415 Campus Point Drive, 0946
La Jolla, CA 92037
(858) 534-3513
Director and Vice-Chairman: William R. Freeman, MD

07/2007 – 06/2010 Residency (PGY-2 to PGY-4):
Flaum Eye Institute
University of Rochester
Department of Ophthalmology
601 Elmwood Ave, Box 659
Rochester, NY 14621
(585) 273-3954; (585) 275-1126
Program Director: Matthew D. Gearinger, MD
Chairman: Steven E. Feldon, MD, MBA

08/2006 – 06/2007 Post-doctoral Research Fellowship:

Doheny Eye Institute
Keck School of Medicine
University of Southern California
2011 Zonal Avenue, HMR 209
Los Angeles, CA 90033
(323) 442-6617
Director: David R. Hinton, MD and Stephen J. Ryan, MD

06/2005 – 06/2006 Internship (PGY-1):

Department of Surgery
University of California at San Francisco
513 Parnassus Ave, S-321
San Francisco, CA 94143
(415) 476-1239
Program Director: Linda Reilly, MD
Chairman: Nancy L. Ascher, MD, PhD

08/1996 - 06/1998; 07/2003 - 05/2005 Medical School (MD/PhD Program) (MD, May 2005):

Keck School of Medicine at the University of Southern California
1975 Zonal Ave, KAM 100
Los Angeles, CA 90033

07/1998 – 06/2003 Graduate (PhD, Department of Pathobiology, May 2004):

Keck School of Medicine at the University of Southern California
Los Angeles, CA
PhD Thesis: Mechanisms of Strain-dependent Angiogenesis and its
Implications in Angiogenesis-dependent Diseases
Mentors: David R. Hinton, MD; Stephen J. Ryan, MD

08/1994 – 05/1995 Graduate (MHS, Molecular Microbiology & Immunology, 1995):

The Johns Hopkins University,
School of Hygiene and Public Health
615 N Wolfe Street
Baltimore, MD 21205
(410) 955-3543 (tel)

08/1991 – 05/1994 Undergraduate (BA, Chemistry, 1994):

The Johns Hopkins University
3400 N. Charles Street
75 Garland Hall
Baltimore, MD 21218

09/1988 – 06/1991 High School (Diploma 1991):

Arcadia High School
Arcadia, CA

III. Employment

October 1, 2014 – Present (Courtesy Assistant Clinical Professor, Vitreoretinal Surgery)
March 01, 2014 – September 30, 2014 (Assistant Clinical Professor, Vitreoretinal Surgery):

University of Washington
Department of Ophthalmology
325 Ninth Ave, Box 359608
Seattle, WA 98104
Chairman: Russell N. Van Gelder, MD, PhD
Chief of Ophthalmology: Philip P Chen, MD
Retina Division: G. Atma Vemulakonda, MD
HR and Faculty Affairs Manager: Paula R. Morris (prmorris@uw.edu)
(206) 685-1780 (tel)
(206) 685-7055 (fax)

April 13, 2013 – February 28, 2014 (Vitreoretinal Surgery, Long-term Locum Tenens):

Haik Humble Eye Center
1804 N 7th Street
West Monroe, LA 71291
(318) 325-2610 (tel)
(318) 325-7715 (fax)
CEO: Mary Sue Jacka (CEO) (msjacka@eyenela.com)
Administrative Assistant: Shelley Letlow (Shelleyl@eyenela.com)
Medical Director and Owner: Raymond Haik, MD (rehaik@live.com)

October 2012 – Present (Ophthalmologist, Locum Tenens):

Weatherby Healthcare
1020 Southhill Drive
Cary, NC 27513
(919) 659-1639 (tel) or (888) 611-4254, Ext 1639
(866) 608-0521 (fax)
Contact Person: Martha Bilardo (Martha.Bilardo@weatherbyhealthcare.com)
or Joel Brown (Joel.Brown@WeatherbyHealthcare.com)
Email: verifications@weatherbyhealthcare.com

IV. HOSPITAL AND SURGERY CENTER PRIVILEGES

April 2015 – Present (Provisional Staff):

Los Angeles County + University of Southern California Medical Center
1200 N. State Street, Clinic Tower Room 2B300
Los Angeles, CA 90033
Attending Staff Office Director: Jesus Ceja, CPCS, CPMSM
(323) 409-6225 (tel)
(323) 441-8123 (fax)

March 2014 – Present (Active Staff):

University of Washington
Harborview Medical Center
325 Ninth Ave, Box 359712
Seattle, WA 98104
Medical Director: J. Richard Goss, MD, MPH
Medical Director's Office
(206) 744-3134 (tel)

(206) 744-4422 (fax)
meddirec@u.washington.edu
kvorhees@uwp.washington.edu

July 24, 2013 – Feb 28, 2014 (Inactive, Prior Active Staff):

P&S Surgical Hospital
318 Grammont Street, Suite101
Monroe, LA 71201
(318) 388-4040 (tel)
(318) 998-1355 (fax)
CEO & President: Linda S. Holyfield, RN, MSN

July 25, 2013 – Present (Courtesy Staff):

Glenwood Regional Medical Center
503 McMillan Road
West Monroe, LA 71291
(318) 329-4200; (318) 329-4702; (318) 329-4735
Medical Staff Coordinator: Lindsey Moore

July 17, 2013 – July 16, 2015 (Provisional (Courtesy) Staff X1 Yr, Active thereafter):

St. Francis Medical Center
309 Jackson Street, PO Box 1901
Monroe, LA 71210-1901
(318) 966-7034
President and CEO: Louis H. Bremer, Jr., FACHE

April 16, 2013 – April 16, 2014 (Active Staff):

Surgery Center of West Monroe, LLC
102 Regency Street
West Monroe, LA 71291
(318) 322-4888
CEO: Mary Sue Jacka

December 03, 2012 – December 31, 2013 (Courtesy Medical Staff, Ophthalmologist):

Cary Medical Center
Medical Staff Office
163 Van Buren Road, Suite 1
Caribou, ME 04736-2509
(207) 498-1227 (tel) OR
(207) 493-3500, ext 1227 (tel)
Manager (Medical Staff Services): Rebecca West (bwest@carymed.org)

V. HONORS / AWARDS

2010	Heed Foundation Ophthalmic Fellowship Award
2009	University of Rochester Medical Center Strong Star Recognition Award for Patient Care
2008	Association of University Professors of Ophthalmology Heed Foundation Resident Retreat Award
2008	North American Neuro-Ophthalmology Society Resident Travel Award
2008	The Snell Ophthalmology Resident Investigator Award at the University of Rochester Eye Institute
2007	Doheny Eye Institute Association for Research in Vision and Ophthalmology (DEI-ARVO) Basic Science Award
2004	JoAnn Vukomanovich Stevens Memorial Research Fund Award

- 2001-2003 Arnold and Mabel Beckman Foundation Macular Degeneration Research Fellowship
- 2003 Philanthropic Education Organization (PEO) Scholar Award
- 2002 National Eye Institute (NEI) Association for Research in Vision and Ophthalmology (ARVO) Travel Award
- 2002 Keystone Research Symposia Scholarship Award – Angiogenesis in Cancer and Other Diseases: From Genes to Function Therapy
- 2001-2002 USC Baxter Foundation Research Scholarship
- 1997-2002 Keck School of Medicine of USC Medical Student Research Fellowship
- 1998 California Breast Cancer Research Program Fellowship
- 1994 The Johns Hopkins University Provost's Award for Research and Excellence
- 1992 TRW Foundation Scholarship

VI. CLINICAL RESEARCH TRIALS

April 2013 to Feb 2014

Co-Investigator, Alcon Nepafenac QDaily Phase III Study (C-12-071), **Alcon Research**.

July 2010 to July 2012

Co-Investigator, A Multicenter, Masked, Randomized, Sham-Controlled, Parallel-Group, 3 Month Study with a 9-Month safety Extension to Evaluate the Safety and Efficacy of Brimonidine Tartrate Posterior Segment Drug Delivery System (Brimonidine Tartrate PS DDS) Applicator System in Improving Visual Function in Patients with a Previous Rhegmatogenous macula-Off Retinal Detachment; **(BRIMO), Allergan Inc.**

July 2010 to July 2012

Co-Investigator, A Phase III, Double-Masked, Multicenter, Randomized, Sham Injection Controlled Study of the Efficacy and Safety of Ranibizumab Injection in Subjects With Clinically Significant Macular Edema With Center Involvement Secondary to Diabetes Mellitus; **(RIDE), Regeneron Pharmaceuticals Inc.**

July 2010 to July 2012

Co-Investigator, A Randomized, Double Masked, Controlled Phase 3 Study of the Efficacy, Safety, and Tolerability of Repeated Intravitreal Administration of VEGF Trap-Eye in Subjects with Macular Edema Secondary to Central Retinal Vein Occlusion (CRVO); **(CRVO), Regeneron Pharmaceuticals Inc.**

July 2010 to July 2012

Co-Investigator, An Open-label, Long-term, Safety and Tolerability Extension Study of Intravitreal VEGF Trap-eye in Neovascular Age-Related Macular Degeneration; **(VGFT-OD-0910 EXT), Regeneron Pharmaceuticals Inc.**

July 2010 to July 2012

Co-Investigator, The Longitudinal Study of the Ocular Complications of AIDS Renewal; **(LSOCA), NIH**

VII. BOARD CERTIFICATION

American Board of Ophthalmology, Active 10/14/12 – 12/31/22

VIII. STATE MEDICAL LICENSURE

California (A98768), Active (Issued 01/31/07, Expires 07/31/2016)
Iowa (MD-41623), Active (Issued 03/04/14, Expires 07/01/2015)
Louisiana (206033), Inactive (Issued 04/10/13, Expired 07/31/2014)
Maine (TD121107, 10/22/2012 - 4/22/2013; 10/15/14 - 04/15/15, Active)
(EL131030, 11/20/13 - 02/28/14, Inactive)
(MD20383, 10/24/14 - 07/31/15, Active)
New York (242727), Inactive (Issued 12/21/06, Expired 06/30/10)
Oregon (MD169620), Active (Issued 09/11/14, Expires 12/31/15)
Washington (MD60438830), Active (Issued 02/11/14, Expires 07/02/2016)

IX. STATE CONTROLLED SUBSTANCES PERMITS

Iowa (1246130), Active (Issued 03/05/14, Expires 08/31/2015), Schedules (2, 2N, 3, 3N, 4, 5)
Louisiana (043021), Inactive (Issued 04/10/13, Expired 04/21/2014), Schedules (2, 2N, 3, 3N, 4, 5)

X. FEDERAL DEA

FC1649966, Active (Issued 09/15/2009, Expires 08/31/2015)
FC4535413, Active (Issued 05/16/2014, Expires 08/31/2017)
FC4904771, Active (Issued 10/21/2014, Expires 08/31/2017)
FC4370906, Active (Issued 02/18/2014, Expires 08/31/2016) **Limited for University Only (UW)

XI. PROFESSIONAL MEMBERSHIPS

Heed Ophthalmic Foundation, Lifetime Member (2010 - Present)
American Society of Retina Specialists, Member (2013 - Present)
American Academy of Ophthalmology, Member (2007 - Present)
New York State Ophthalmological Society, Member (2007 - 2010)

XII. INSTRUCTION COURSES - AMERICAN ACADEMY OF OPHTHALMOLOGY

Course Instructor, Maximizing Diagnostic Information From Your Office OCT. Program 585, AAO 2011.

XIII. BIBLIOGRAPHY
Journal Publications

KW Small, **CK Chan**, T Walsh. Onset of an outbreak of fungal endophthalmitis of bipolaris hawaiiensis following intravitreal injections of triamcinolone. *Ophthalmology* 121:952-958, 2014.

SN Lee, J Chhablani, **CK Chan**, H Wang, G Barteselli, S El-emam, ML Gomez, I Kozak, L Cheng, WR Freeman. Characterization of Microaneurysm Closure After Focal Laser Photocoagulation in Diabetic Macular Edema. *Am J Ophthalmol* 155:905-912, 2013.

H Wang, J Chhablani, WR Freeman, **CK Chan**, I Kozak, D-U Bartsch, L Cheng. Characterization of diabetic microaneurysms by simultaneous fluorescein angiography and spectral domain optical coherence tomography. *Am J Ophthalmol* 153:861-867, 2012.

JS Kim, J Chhablani, **CK Chan**, L Cheng, I Kozak, K Hartmann, WR Freeman. Retinal Adherence and Fibrillary Surface Changes Correlate with Surgical

Difficulty of Epiretinal Membrane Removal. *Am J Ophthalmol* 153:692-697, 2012.

CK Chan, J Chhablani, WR Freeman. Prognostic Indicators for No Light Perception After Open-Globe Injury: Eye Injury Vitrectomy Study
Am J Ophthalmol 153: 777, 2011. (Letter to the Editor)

Chan CK, Lee S, Sangani P, Lin L, Lin MS, and Lin SC. Primary Trabeculectomy Surgery Performed by Residents at a County Hospital. *J Glaucoma* 16(1):52-56, 2007.

Kramerov AA, Saghizadeh M, Pan H, Kabosova A, Montenarh M, Ahmed K, Penn JS, **Chan CK**, Hinton DR, Grant MB, Ljubimov AV. Expression of protein kinase CK2 in astroglial cells of normal and neovascularized retina. *Am J Pathol* 168(5):1722-36, 2006.

Lutty GA, Chan-Ling T, Phelps DL, Adamis AP, Berns KI, **Chan CK**, Cole CH, D'Amore PA, Das A, Deng WT, Dobson V, Flynn JT, Friedlander M, Fulton A, Good WV, Grant MB, Hansen R, Hauswirth WW, Hardy RJ, Hinton DR, Hughes S, McLeod DS, Palmer EA, Patz A, Penn JS, Raisler BJ, Repka MX, Saint-Geniez M, Shaw LC, Shima DT, Smith BT, Smith LE, Tahija SG, Tasman W, Trese MT. Proceedings of the Third International Symposium on Retinopathy of Prematurity: an update on ROP from the lab to the nursery (November 2003, Anaheim, California). *Mol Vis* 23(12):532-80, 2006.

Chan CK, Pham LN, Zhou J, Spee C, Ryan SJ, Hinton DR. Differential expression of pro- and anti-angiogenic factors in mouse strain-dependent hypoxia-induced retinal neovascularization. *Lab Invest* 85:721-733, 2005.

Chan CK, Pham LN, Chinn C, Spee C, Ryan SJ, Akhurst RJ, Hinton DR. Mouse strain-dependent heterogeneity of resting limbal vasculature. *Invest Ophthalmol Vis Sci* 45:441-447, 2004.

Sanchez RN, **Chan CK**, Garg S, Kwong JM, Wong MJ, Sadun AA, Lam TT. Interleukin-6 in retinal ischemia reperfusion injury in rats. *Invest Ophthalmol Vis Sci* 44(9):4006-11, 2003.

Hangai M, Kitaya N, Xu J, **Chan CK**, Kim JJ, Werb Z, Ryan SJ, Brooks PC. Matrix Metalloproteinase-9-dependent exposure of a cryptic migratory control site in collagen is required before retinal angiogenesis. *Am J Pathol* 161(4):1429-37, 2002.

Hangai M, Moon YS, Kitaya N, **Chan CK**, Wu DY, Peters KG, Ryan SJ, Hinton DR. Systemically expressed soluble tie2 inhibits intraocular neovascularization. *Hum Gene Ther* 12(10): 1311-1321, 2001.

Takao S, Smith EH, Wang D, **Chan CK**, Bulkley GB, Klein AS. Role of reactive oxygen metabolites in murine peritoneal macrophage phagocytosis and phagocytic killing. *Am J Physiology* 271(4 Pt 1): C1278-84, 1996.

Mayumi T, **Chan CK**, Clemens MG, Bulkley GB.

Zonal heterogeneity of hepatic injury following shock / resuscitation: relationship of xanthine oxidase activity to localization of neutrophil accumulation and central lobular necrosis. *Shock* 5(5): 324-32, 1996.

Abstracts Published

KW Small, **CK Chan**, T Walsh. Presentation of Fungal Endophthalmitis Outbreak Due to Contaminated Triamcinilone from a Compounding Pharmacy. American Ophthalmological Society, La Jolla, CA, May 2013.

CK Chan, DU Bartsch, SY Lee, JS Kim, J Chhablani, H Wang, K Hartmann, L Dustin, ML Gomez, SP Azen, K Zhang, SR Sadda, WR Freeman. Image Quality Comparison among Spectral Domain Optical Coherence Tomography Systems. *Investigative Ophthalmology & Visual Science* Suppl. S, 2011. (Abstract)

Chan CK, Wells WJ, Starnes VA, Bremner RB. Technical skills evaluation for cardiothoracic training program applicants: use of a coronary anastomosis model. *Innovations in Medical Education*, 2004. (Abstract)

Pham L, **Chan CK**, Spee C, Ryan SJ, Hinton DR. Retinal vessel remodeling during hyperoxia. *Investigative Ophthalmology & Visual Science* 45(4): 1874 B685, Suppl. S, 2004. (Abstract)

Chan CK, Pham LN, Zhou J, Spee C, Ryan SJ, Hinton DR. Early regulation of strain-dependent retinal angiogenesis. *Investigative Ophthalmology & Visual Science* 44(4): 1500 B396, Suppl. S, 2003. (Abstract)

Chan CK, Chan SK, Wood MG, Starnes VA, Nuno I. Assessment of resident-performed Bentall procedures at LAC+USC Medical Center. *American College of Surgeons, Southern California Chapter*, 42, 2002. (Abstract)

Chan CK, Chinn C, Spee C, Ryan SJ, Hinton DR. Quiescent Endothelium is a Determinant of Strain-Dependent Angiogenesis. *Investigative Ophthalmology & Visual Science* 43(4): 1758 B768, Suppl. S, 2002. (Abstract)

Chan CK, Hangai M, Chinn C, Spee C, Atkinson R, Masood R, Gill P, Ryan SJ, Hinton DR. Saposin B inhibition of oxygen-induced retinal angiogenesis. *Investigative Ophthalmology & Visual Science* 42(4): 1330 B643, Suppl. S, 2001. (Abstract)

Chan CK, Hangai M, Miyawaki N, Murata T, Spee C, Yancopoulos GD, Ryan SJ, Hinton DR. Tumor necrosis factor- α up-regulates angiopoietin and VEGF in sub-retinal neovascularization. *Investigative Ophthalmology & Visual Science* 41(4): 3384 B482, Suppl. S, 2000. (Abstract)

Hangai M, Kitaya N, **Chan CK**, Xu J, Kim JJ, Ryan SJ, Brooks PC. Angiogenic cryptic site of proteolyzed subendothelial type IV collagen as a novel target to treat retinal neovascularization. *Investigative Ophthalmology & Visual Science* 41(4): 3401 B501, Suppl. S, 2000. (Abstract)

Chan CK, Najm I, Chun JT, Crispino M, Schreiber SS, Baudry M.

Further studies on the role of p53 induction in kainic acid-induced neuronal degeneration. *Journal of Investigative Medicine* 47(2): 32A, 1999.
(Abstract)

Abello PA, Mayumi T, Turner DJ, **Chan CK**, Bulkley GB, Buchman TG.

Gut epithelial apoptosis is enhanced by hemorrhagic-shock resuscitation.
Gastroenterology 106(4): A218, Suppl. S.

