

ARVO Annual Meeting
April 28 – May 2
Vancouver Convention Centre
Vancouver, B.C.

ARVO
2019

from
BENCH

to
BEDSIDE

and
BACK



Program Summary

 **ARVO**
The Association for Research
in Vision and Ophthalmology

ARVO.org/AM

Program Overview

Sunday, April 28

| | | |
|----------------------------------|---------------------|---|
| Registration/Badge Printing | Main Lobby | 7am–6pm |
| ARVO Central | Exhibit Hall | 7am–6pm |
| Basic Clinical Lecture | East Ballroom B | 8–10am |
| Symposia | See program listing | 8–10am |
| Posters | See program listing | 8–9:45am 1–2:45pm 3–4:45pm 5–6pm* |
| Exhibits | Exhibit Hall | 8:30am–5pm |
| ARVO/Alcon Keynote Session | ARVO Ballroom | 10:15–11:45am |
| Proctor Award Lecture | ARVO Ballroom | 12noon–12:45pm |
| China-ARVO Networking Forum | West 301 | 1–2:30pm |
| SIGs/Workshops | See program listing | 1–2:30pm |
| Low Vision Cross-sectional Group | West 223/224 | 1–2:30pm |
| Papers | See program listing | 3–4:45pm |
| Sunday Social † | Vancouver Aquarium | 7–10pm |

Monday, April 29

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|---|---------------------|---|
| Registration/Badge Printing | Main Lobby | 7am–6pm |
| ARVO Central | Exhibit Hall | 7am–6pm |
| NAEVR Defense Briefing | West 109/110 | 7–8am |
| Posters | See program listing | 8:15–10am 11:15am–1pm 4–5:45pm 6–7pm* |
| Papers/Minisymposia | See program listing | 8:15–10am 11:15am–1pm 3:30–5:15pm |
| Exhibits | Exhibit Hall | 8:30am–5pm |
| Section Business Meetings | See program listing | 10:15–11am |
| Workshops | See program listing | 1:15–2:45pm |
| SIGs | See program listing | 1:15–2:45pm 7:30–9pm |
| Multi-Disciplinary Ophthalmic Imaging Cross-sectional Group | East Ballroom B | 1:15–2:45pm |
| WEAVR Luncheon † | Harbour Ballroom | 1:15–2:45pm |
| Friedenwald Award Lecture | ARVO Ballroom | 3–3:45pm |
| Special Sessions | See program listing | 7:30–9pm |
| Student/Trainee Social | West Ballroom Foyer | 7:30–9pm |

Tuesday, April 30

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| Registration/Badge Printing | Main Lobby | 7am–6pm |
| ARVO Central | Exhibit Hall | 7am–6pm |
| Breakfast with the Experts † | Harbour Ballroom | 7–8:30am |
| Exhibits | Exhibit Hall | 8:30am–5pm |
| Posters | See program listing | 8:45–10:30am 11:45–1:30pm 2:45–4:15pm 4:30–5:30pm* |
| Papers/Minisymposia | See program listing | 8:45–10:30am 11:45–1:30pm 2:45–4:15pm |
| General Business Meeting | West 211 | 10:45–11:30am |
| Weisenfeld Award Lecture | ARVO Ballroom | 1:45–2:30pm |
| MIT Outstanding Poster Award Competition | Exhibit Hall | 4:15–6:30pm |
| ARVO/Champalimaud Award Lecture | ARVO Ballroom | 5:45–6:45pm |

Wednesday, May 1

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|--------------------------------|------------------------|--|
| Registration/Badge Printing | Main Lobby | 7am–6pm |
| ARVO Central | Exhibit Hall | 7am–6pm |
| Posters | See program listing | 8:15–10am 10:15–12noon 3–4:45pm 5–6pm* |
| Papers/Minisymposia | See program listing | 8:15–10am 10:15–12noon 3–4:45pm |
| Exhibits | Exhibit Hall | 8:30am–5pm |
| Genetics Cross-sectional Group | East Ballroom B | 12:15–1:45pm |
| Workshops | See program listing | 12:15–1:45pm |
| SIGs | See program listing | 12:15–1:45pm 6:15–7:45pm |
| Cogan Award Lecture | ARVO Ballroom | 2–2:45pm |
| Special Sessions | See program listing | 6:15–7:45pm |
| Classical Concert | West 301 | 8–10pm |
| Karaoke Night † | Blackbird Public House | 9pm–12midnight |

Thursday, May 2

| | | |
|-------------------------------|---------------------|------------------------------------|
| Registration | Main Lobby | 7am–4:30pm |
| ARVO Central | Exhibit Hall | 7am–3pm |
| Symposia | See program listing | 8–10am |
| Posters | See program listing | 8–9:45am 10:15am–12noon 2–3pm* |
| Papers | See program listing | 10:15am–12noon |
| SIGs/Workshops | See program listing | 12:15–1:45pm |
| ARVO 2020 Kickoff Reception | Exhibit Hall | 2–3pm |
| Beckman Argyros Award Lecture | ARVO Ballroom | 3:15–4:15pm |
| ARVO/Alcon Keynote Session | ARVO Ballroom | 4:30–6pm |

* All Poster Session (all first authors must be present at their poster)

† Separate registration required

ARVO 2019

APRIL 28 – MAY 2 | VANCOUVER, B.C.

Important Policies

Use of recording/photography/audiotape/video equipment: Recording by any means (photographing, audiotaping, videotaping) of any presentations or sessions at any ARVO Meeting is prohibited, except by an ARVO-authorized agent for official purposes or by First Authors who want to photograph their own poster presentations. Violators risk confiscation of their equipment and/or dismissal from the Annual Meeting as deemed appropriate by ARVO.

Commercial Relationships Policy: Presenters must state and display all applicable commercial relationships. For more information on this important policy, refer to the Commercial Relationships Index at arvo.org/program-summary.

Clinical Trials Registration Policy: All clinical trials that will be reported in ARVO Annual Meeting abstracts must be registered on a publicly available database. The required acknowledgement of the First Author, acting as the authorized agent for all authors, certifies that any research presented in the abstract that reports on a clinical trial is registered, and the registration location and number are included on the abstract, in compliance with the ARVO Statement on Registering Clinical Trials, arvo.org/About/policies/statement-on-registering-clinical-trials/. For more information on this policy, refer to the Clinical Trials Registration Index at arvo.org/program-summary.

Program Summary

Program Summary: Online at arvo.org/program-summary. Abstracts are referred to in the *Program Summary* by program number (not page number) and session number.

Online Planner: Abstracts may be viewed and printed from the online planner at arvo.org/annual-meeting/program/online-planner/.

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ARVO designates this live activity for a maximum of 23.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Please refer to the *Pocket Guide* for the complete CME information.

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Daily Program Schedules

(Scientific sessions in program number order)

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| Sunday | 13 |
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Indices

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See arvo.org/program-summary for:

- ARVO Commercial Relationships Policy
- Commercial Relationships Index
- Statement on Registering Clinical Trials
- Clinical Trials Index
- Moderator Index

Children in the Convention Center

Children under 18 years old must be accompanied by a parent or guardian at all times. Parents/guardians who bring children into paper sessions must remove them immediately if they become disruptive. Children are not allowed to accompany parents/guardians in sessions/events where tickets are required or food is provided, except events for which children's tickets are available for purchase. Under no circumstances are children permitted in the exhibit hall during set-up or dismantle times.

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855 — B0333 Trends in pathogens and antibiotic resistance of corneal culture isolates in infectious keratitis in Sao Paulo, Brazil, over a 5-year period. Luiza M. Oliveira, T. Tanaka, J. M. Kato, F. Rossi, J. N. Almeida Junior, T. R. Sabato di Gioia, V. B. Giglio, M. R. Alves, R. M. Santo. University of Sao Paulo

856 — B0334 The Resurgence of Ocular Syphilis in British Columbia: 2013-2016 A Retrospective Chart Review. Maryam Eslami¹, G. Noureddin¹, S. Warner¹, T. Grennan^{3,2}. ¹Ophthalmology and Visual Sciences, University of British Columbia; ²Infectious Disease, University of British Columbia; ³BC Centre for Disease Control

857 — B0335 Ocular syphilis: clinical manifestations and visual outcomes. Merav Koschitzky, K. Xu, S. Kiss. Ophthalmology, Weill Cornell Medicine

858 — B0336 Candida keratitis: epidemiology, management, and clinical outcomes. Grace L. Qiao¹, J. Ling¹, T. Wong², S. Yeung¹, A. Iovieno¹. ¹Ophthalmology & Visual Sciences, University of British Columbia; ²Pathology, University of British Columbia

859 — B0337 Singapore Ocular Tuberculosis Immunity Study (SPOTIS). Ae Ra Kee¹, P. E. Huchinson², J. E. Connolly³, N. Yawata⁴, J. Siak⁵, R. V. Agrawal¹. ¹Ophthalmology, Tan Tock Seng Hospital, National Healthcare Group; ²Microbiology and Immunology, National University of Singapore; ³Translational Immunology, Institute of Molecular and Cellular Biology; ⁴Ocular Inflammation & Immunology, Singapore Eye Research Institute; ⁵Singapore National Eye Centre

860 — B0338 Collaborative Ocular Tuberculosis Study (COTS) Consensus guidelines on initiating antitubercular therapy in presumed tubercular choroiditis. Vishali Gupta¹, R. V. Agrawal^{2,3}, I. Testi⁴, S. Mahajan⁵, D. Raje⁶, A. Agarwal¹, D. Gunasekeran², J. H. Kempen⁷, Q. D. Nguyen⁸, C. Pavesio⁸. ¹Post Graduate Institute of Medical Education and Research, Chandigarh, India.; ²Tan Tock Seng Hospital; ³Nanyang Technological University; ⁴Department of Ophthalmology, University of Padova; ⁵Byers Eye Institute, Stanford Medical School; ⁶MDS Bioanalytics; ⁷Massachusetts Eye and Ear Harvard Medical School; ⁸Moorfields Eye Hospital

861 — B0339 Collaborative Ocular Tuberculosis Study (COTS) consensus guidelines on initiating antitubercular therapy in presumed tubercular retinal vasculitis. Rupesh V. Agrawal^{1,2}, I. Testi³, S. Mahajan⁴, D. Raje⁵, A. Agarwal⁶, D. Gunasekeran⁷, J. H. Kempen⁹, Q. D. Nguyen⁴, C. Pavesio⁸, V. Gupta⁶. ¹Ophthalmology, Tan Tock Seng Hospital; ²Nanyang Technological University; ³University of Padova; ⁴Byers Eye Institute, Stanford Medical School; ⁵MDS Bioanalytics; ⁶Post Graduate Institute of Medical Education and Research; ⁷Tan Tock Seng Hospital; ⁸Moorfields Eye Hospital; ⁹Massachusetts Eye and Ear Harvard Medical School

862 — B0340 Collaborative Ocular Tuberculosis Study (COTS) Consensus guidelines on initiating antitubercular therapy in intermediate uveitis and panuveitis. Ilaria Testi¹, R. V. Agrawal^{2,3}, S. Mahajan⁴, D. Raje⁵, A. Agarwal⁶, D. Gunasekeran², J. H. Kempen⁷, Q. D. Nguyen⁴, C. Pavesio⁸, V. Gupta⁶. ¹Department of Ophthalmology, University of Padova; ²Tan Tock Seng Hospital; ³Nanyang Technological University; ⁴Byers Eye Institute, Stanford Medical School; ⁵MDS Bioanalytics; ⁶Post Graduate Institute of Medical Education and Research; ⁷Massachusetts Eye and Ear Harvard Medical School; ⁸Moorfields Eye Hospital

863 — B0341 Microbial Keratitis After Penetrating and Endothelial Keratoplasty. Nicolas Dohse¹, T. D. Wibbelsman², S. Rapuano², K. Hammersmith², P. Nagra², C. J. Rapuano², Z. A. Syed². ¹Sidney Kimmel Medical College; ²Wills Eye Hospital

864 — B0342 Fumagillin in microsporidial keratitis. Faisal Aljassar, S. Shoughy, K. Tabbara. ophthalmology, The Eye Center

865 — B0343 Understanding fungal keratitis pathogenesis through a reverse-translational approach. Kevin K. Fuller^{1,2}, M. E. Brown⁸, D. Giacalone², J. Dunlap¹, T. Lietman³, R. Cramer⁷, K. Dharmalingam⁶, M. Zegans^{3,7}. ¹Ophthalmology, University of Oklahoma Health Sciences Center; ²Microbiology and Immunology, University of Oklahoma Health Sciences Center; ³Surgery, Dartmouth Hitchcock Medical Center; ⁴Molecular and Systems Biology, Geisel School of Medicine at Dartmouth; ⁵Ophthalmology, University of California at San Francisco; ⁶Proteomics, Aravind Medical Research Foundation; ⁷Microbiology and Immunology, Geisel School of Medicine at Dartmouth; ⁸Ophthalmology, Dean McGee Eye Institute

866 — B0344 Tissue eradication and clinical resolution of adult inclusion chlamydia conjunctivitis (AIC) after treatment with one cycle of oral Azithromycin. Ana-Catalina Rodriguez-Martinez, K. Mohamed-Noriega, M. L. Fernandez, C. Fernández de Luna, G. Villarreal-Mendez, F. Morales-Wong, J. Mohamed-Noriega, J. Mohamed-Hamsho. Ophthalmology department, Universidad Autónoma de Nuevo León, Hospital Universitario “Dr. José E. González”, Facultad de Medicina, Dpto. Oftalmología

867 — B0345 Meta-analysis Reveals Multiple Disease Processes Underlying Trachoma. Mohammad A. Tahboub¹, C. Castillejo², A. Sabbagh³, B. Lauinger⁴, J. Aljabbani², S. McDermott², S. Frank², D. Hadley⁴. ¹Central Michigan University College of Medicine; ²Ohio State University College of Medicine; ³University of Michigan Medical School; ⁴UCSF Medical School

868 — B0346 Efficacy of voriconazole on Acanthamoeba Keratitis: Prospective Randomized Double masked trial. Bhupesh Bagga¹, S. Sharma², R. gour¹, J. Joseph Ruben², A. Mohamed¹. ¹Cornea, L.V.Prasad Eye institute, Hyderabad; ²Jhaveri Microbiology centre, L.V.Prasad Eys institute ✗

869 — B0347 Comparison Study on Aspergillus Pathogenicity of Corneal Clinical Isolates And Standard Strain: The Relationship Between Invasiveness And Growth Characteristics. Yingyu Li, P. Zhang, Z. Liu, W. Wang. Ophthalmology, Peking University Third Hospital

870 — B0348 Role of Circumferential Full Thickness Scleral Debridement in Fulminant Infective Ring Scleritis. Samendra Karkhur^{1,2}, A. Sen¹, P. Shenoy¹, M. Hassan², M. Halim², M. Hasanreisoglu³, R. Afridi², Y. Sepah², D. V. Do³, Q. D. Nguyen², V. Gupta⁴. ¹Retina & Uvea Service, Department of Ophthalmology, Sadguru Netra Chikitsalaya; ²Spencer Center for Vision Research, Byers Eye Institute at Stanford University; ³Department of Ophthalmology, Gazi University; ⁴Department of Ophthalmology, Post Graduate Institute of Medical Education & Research

871 — B0349 Limbal Stem Cell Deficiency Associated with Herpetic Keratitis: A Retrospective Study. Jimena T. Carreno-Galeano, T. Dohlman, J. Yin, R. Dana. Schepens Eye Research Institute, Massachusetts Eye and Ear Infirmary, Harvard Medical School

872 — B0350 Undiagnosed Ocular Syphilis Treated with Biologic Immunosuppressive Therapy. Andrew Pittner, P. Merrill, P. Patel. Ophthalmology, Rush University Medical Center

873 — B0351 Ocular Manifestations of Disseminated Mycobacterium Chimaera Infection After Cardiothoracic Surgery. Jingyi Ma, N. Carrell, C. Baker. University of Alberta

874 — B0352 Cryptococcal choroiditis in the absence of cryptococcal meningitis: a novel clinical description. Doran Spencer, A. Yarmohammadi, C. B. Toomey, T. Ofstad, W. R. Freeman. Shiley Eye Institute, Univ. of Calif., San Diego

875 — B0353 Electroretinography and Visual Function among Individuals Infected with Human Immunodeficiency Virus. Davin C. Ashraf¹, L. D. Alves⁵, A. K. Goldberg², G. N. Holland^{3,4}, F. Yu³, S. Nusinowitz³. ¹Department of Ophthalmology, University of California, San Francisco; ²Department of Ophthalmology, University of Texas Health Science Center of Houston; ³Department of Ophthalmology, UCLA Stein Eye Institute; ⁴Ocular Inflammation Disease Center, UCLA Stein Eye Institute; ⁵Department of Ophthalmology, Universidade Federal de Goiás

876 — B0354 Decreased optic nerve head blood flow in acute retinal necrosis. Hiroshi Keino, M. Nakayama, T. Watanabe, Y. Ando, T. Koto, K. Hirota, M. Inoue, A. Okada. Ophthalmology, Kyourin Univ Sch of Med



The Association for Research
in Vision and Ophthalmology

1801 Rockville Pike, Suite 400
Rockville, MD 20852-5622
Tel: +1.240.221.2900

ARVO.org