

Curriculum Vitae

General Information

- Date Prepared: 5/15/2021
Name and Degree: Simon Kaja, Ph.D.
Current Rank: Assistant Professor
Office address: 2160 S. First Ave., Bldg. 115, Rm 425, Maywood, IL 60153
E-mail: skaja@luc.edu

Education

- Date Attended: 07/2002 – 06/2006 (degree conferred: 02/2007)
Degree conferred: Doctorate (Ph.D.)
Institution: Leiden University, Leiden, the Netherlands
Discipline: Medicine / Neuroscience
- Date Attended: 10/1998 – 06/2002 (degree conferred: 06/2002)
Degree conferred: Bachelor of Science with First Class Honours (B.Sc. Hons.)
Institution: University of Durham, Durham, United Kingdom
Major: Molecular Biology and Biochemistry with Industrial Placement
- Postdoctoral Training:
Date Attended: 10/2008 – 12/2008
Title: Research Scientist
Discipline: Vision Research
Place of Training: Department of Pharmacology and Neuroscience, University of North Texas Health Science Center at Fort Worth, Fort Worth, Texas, USA

Date Attended: 07/2008 - 10/2008
Title: Research Scientist II
Discipline: Neuroscience
Place of Training: Department of Behavioral Pharmacology II, Neurosearch A/S, Ballerup, Denmark

Date Attended: 07/2006 – 06/2008
Title: Senior Research Associate
Discipline: Neuroscience
Place of Training: Michael Smith Laboratories, The University of British Columbia, Vancouver, British Columbia, Canada

Licensure

- Not applicable

Academic Appointments

- 7/1/2015 – present
Assistant Professor
Ophthalmology and Molecular Pharmacology and Neuroscience
Loyola University Chicago
- 01/2009 – 07/2015
Research Assistant Professor
Ophthalmology
University of Missouri – Kansas City

Affiliated Institution Appointments

- 7/1/2015 – present
Research Health Scientist
Research Service
United States Department of Veterans Affairs , Edward Hines Jr. Veterans Affairs Hospital
(this a WOC-without compensation appointment)

Other Professional Positions and Major Visiting Appointments

- 11/2020 – present
Adjunct Member
North Texas Eye Research Institute
- 09/2014 – present
Scientific Advisor, Board Member
Experimentica Ltd.
- 07/2006 – 06/2008
Visiting Researcher
Neuromed Pharmaceuticals
- 07/2000 – 09/2001
Research Assistant
Department of Molecular Biology and Virology
NovoNordisk A/S
- 07/1999 – 10/1999
Volunteer/Intern
Department of Molecular Biology and Virology
Bayer AG

Hospital and Health Care Organization Service Responsibilities

- Not applicable

Major Committee Assignments

- Loyola University Chicago
 - Chair, Seminar Series Committee (Continuing Medical Education [CME] accredited), Department of Molecular Pharmacology & Neuroscience (2016 - present)
 - Member, Stritch School of Medicine, Curriculum Review Committee (2017-2018)
 - Member, Development Committee, Department of Molecular Pharmacology & Neuroscience (2016 - present)
 - Member, Steering Committee, Neuroscience Graduate Program (2016 - present)
 - Member, Pharmacovigilance Steering Committee (2019 – present)
 - Member, Research Committee, Department of Ophthalmology (2015 - present)
 - Member, Social Media Committee, Department of Molecular Pharmacology & Therapeutics (2017-2018)
 - Member: Interdisciplinary Ph.D. Program in Biomedical Sciences Admission Committee as Representative for Neuroscience Track (2017 – present, currently serving 2nd term)
 - Master in Neuroscience, Thesis Committees:

- Chair: Zachary Green (graduated (2016), Kevin Burbidge (graduated 2017), Arthur Segismundo (graduated 2019), Morgan Lenz (graduated 2020), Trevor Nykamp (current)
- Member: Harsh N. Hariani (graduated with Distinction, 2020), Anita K. Ghosh (graduated with Distinction, 2019)
- Interdisciplinary Ph.D. Program in Biomedical Sciences, Dissertation Committees:
 - Chair: Jennifer Schreiber (graduated 2019), Anh Phan (current), Kevin Burbidge (graduated with Distinction, 2021), Gurpreet Sandhu (current), Christopher Himes (current)
 - Member: Daniel Sheperd (graduated 2016), Will Zhang (current), Anita K. Ghosh (current)
- Qualifying Exam committees:
 - Chair: Michael Long (2019), Rasa Valilauga (2021)
 - Member: Anita K. Ghosh (2020)
- Affiliated Institution: United States Department of Veterans Affairs, Station Hines
 - Alternate Member, Research Safety Committee (2016 – present)
 - Ad Hoc Member, Institutional Animal Care and Use Committee (2019 – present)
- Regional
 - Chicago Chapter Society for Neuroscience
Member, Executive Committee (2016 – 2019)
Chair, Corporate Sponsorship Committee (2017 – 2019)
Member, Grant Writing Committee (2018 – 2019)
- National
 - Alzheimer’s Association
Member, Peer Review Committee (2020 – present)
 - National Institutes of Health, Center for Scientific Review
Ad Hoc Member, BVS Study section (2020)
- International
 - EU-funded Marie Sklodowska-Curie Innovation Training Network (MSCA-ITN) ORBITAL (Ocular Research By Integrated Training And Learning)
Member, Supervisory Committee (2019-present),
Member, Doctoral Studies Committee (2019-present)
 - International Society for Eye Research
Member, Fundraising Committee (2019 – present)
 - Experimentica Ltd.
Animal Welfare Body (2015 – present)
 - Dissertation Committees:
 - Member, Azza Damrak – Complutense University of Madrid, Spain
 - Member, Inesa Lelyte – University of Birmingham, United Kingdom
 - Member, Sreeraj K. Manikandan – Waterford Institute of Technology, Ireland
 - Member, Robertas Cesna – Vilnius University, Lithuania
- Major committee assignments during prior Faculty appointment
 - Dissertation committee (2014): Michael Grillo - University of Missouri Kansas City

Professional Societies

- Association for Research in Vision and Ophthalmology, Member (2009 – present)
- Society for Neuroscience, Member (2003 – present)
- International Society for Eye Research, Member (2016 – present)
Member, Fundraising Committee (2019 – present)
- Association for Ocular Pharmacology and Therapeutics, Member (2015 – present)
- American Society for Pharmacology and Experimental Therapeutics (2017 – present)
- Chicago Chapter, Society for Neuroscience (2015 – present)

Editorial Boards

- Austin Journal of Clinical Ophthalmology (2014 – present)
- Editor in Chief: Journal of Biology and Medicine (2013 – resigned: 2016)
- Webmed Central Plus (2012 – present)
- Asian Journal of Neuroscience (2012 – 2015)

Awards & Honors

- Conference Paper Award, Association for Ocular Pharmacology and Therapeutics, 2021 Biennial Meeting
- Innovative Research Award 2020; Loyola University Chicago, Department of Molecular Pharmacology & Neuroscience
- “Graduate Faculty of the Year” 2019, Loyola University Chicago, Health Sciences Campus, Integrated Program in Biomedical Sciences
- Innovative Research Award 2019; Loyola University Chicago, Department of Molecular Pharmacology & Neuroscience
- Nominee, Faculty of the Year 2018, Stritch School of Medicine, Graduate Program in Molecular Pharmacology & Therapeutics
- Innovative Research Award 2017; Loyola University Chicago, Department of Molecular Pharmacology & Therapeutics
- Excellence in Mentoring Award 2013; UMKC School of Medicine
- Michael Smith Foundation for Health Research postdoctoral trainee award (2006-2008)
- European Molecular Biology Organization postdoctoral fellowship (2006-2008)
- RUBICON award (Netherlands Organisation for Scientific Research)
- Ph.D. scholar of the German National Merit Foundation (2003-2006)
- British Neuroscience Association Undergraduate Award 2002/2003 for outstanding achievement in Neuroscience;
- Neuroscience North East 2002, Sunderland, UK: Best oral presentation award
- Boulter Prize in Molecular Biology 2002, University of Durham; recognizes the top-of-class graduate
- Scholar of the e-fellows.net Foundation (2001 – 2006)
- Undergraduate scholar of the German National Merit Foundation (1999-2002)

Research, Teaching and Clinical Contributions

A. Funding Information

- Grant title: AcuiSee, Inc., Research Grant
Funding: \$30,000 (Direct costs: \$23,810, Indirect costs: \$6,190)
Date of Funding Period: 7/1/2021 – 6/30/2022
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 12%
Title of Project: Gene Expression Studies for Ocular Drug Discovery
- Grant title: NIH, R24 consortium award, #EY032440-01
Funding: \$10,149,476 (total cost);
to Loyola/Dr. Simon Kaja: Direct costs: \$1,016,001, Indirect costs: \$531,515
Date of Funding Period: 02/01/2021- 12/31/2025
Role in Project: Subaward PI responsible for all preclinical efficacy studies of entire R24
Name of Principal Investigator: Sandeep Jain, MD, UIC
Percentage on Project: 20%
Title of Project: Immunotherapy for Ocular Surface Diseases
- Grant title: European Commission, H2020-MSCA-ITN-2018, Project #813440
Funding: 4,066,231.32 € (Subaward PIs are reimbursed for expenses of visiting scholars)
Date of Funding Period: 9/1/2019 – 8/31/2023
Role in Project: Subaward PI
Name of Principal Investigator: Laurence Fitzhenry, PhD
Percentage on Project: 2% donated effort
Title: Ocular Research By Integrated Training And Learning (ORBITAL)
- Grant title: Department of Veterans Affairs - BLR&D Merit Award, Project #BX003938
Funding: \$825,000 (total cost)
Date of Funding Period: 10/01/2017 – 09/30/2021
Role in Project: Other Significant Contributor
Name of Principal Investigator: Evan B Stubbs Jr, PhD
Percentage on Project: no measurable effort
Title: Mitochondrial-Targeted Antioxidant-Encapsulating Nanoparticles as a Promising Therapeutic Strategy in Regulating Outflow Resistance
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$10,000 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2020 – 6/30/2021
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Targeting the thioredoxin system in AMD
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$5,000 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2019 – 6/30/2020
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Effects of chronic alcohol on oxidative stress levels in ocular tissues
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$5,000 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2019 – 6/30/2020
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort

Title: Effects of astrocyte-derived exosomes on neuronal survival in a model for exfoliation glaucoma

- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$5,000 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2019 – 6/30/2020
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Subconjunctival Chemotherapeutic Delivery by Fibrin Sealant in the Treatment of Retinoblastoma
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$5,000 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2019 – 6/30/2020
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Effect of aspirin on VEGF expression and barrier function in RPE cells
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$3,700 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2018 – 6/30/2019
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Efficacy of LXRalpha and beta agonists in dry eye disease
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$3,700 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2018 – 6/30/2019
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Targeting polycystin-2 for glioprotection in glaucoma
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$4,250 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2017 – 6/30/2018
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Evaluation of the effects of a high-fat diet on the optic nerve head in an in vitro model for glaucoma
- Intramural grant, Cardiovascular Research Institute (CVRI), Loyola University Chicago
Funding: \$5,000 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2016 – 6/30/2017
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 2% donated effort
Title: Identification of the pressure sensor in optic nerve head astrocytes - novel targets for preventing neurodegeneration in glaucoma
- Grant title: Illinois Society for the Prevention of Blindness, Research Grant
Funding: \$2,500 direct costs, \$0 indirect costs
Date of Funding Period: 7/1/2016 – 6/30/2017
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD

Percentage on Project: 1% donated effort
Title: Calcium signaling in exfoliation glaucoma

- Grant title: The Glaucoma Foundation, Research Grant
Funding: \$60,000 direct costs, \$0 indirect costs
Date of Funding Period: 02/01/2018 – 01/31/2019 (No-cost extension until: 12/31/2019)
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 1% donated effort
Title: Lysyl Oxidase-Like 1 (Loxl1) Dysregulation Promotes Reactive Astrocytosis by Altering Calcium Signaling in Optic Nerve Head Astrocytes
- Grant title: Kansas City Life Sciences Institute, Patton Trust Research Grant
Funding: \$50,000 direct costs, \$0 indirect costs
Date of Funding Period: 07/01/2011 – 06/30/2012
Role in Project: Co-PI
Name of Principal Investigators: Simon Kaja, PhD and Gary Johnson, PhD
Percentage on Project: 10%
Title: A Novel Canine Model for Early-Onset Cerebellar Ataxia
- Grant title: Fight for Sight, Grant-in-Aid
Funding: \$20,000 direct costs, \$0 indirect costs
Date of Funding Period: 08/01/2010 – 09/30/2011
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 10%
Title: Lacrimal gland dysfunction: A first step towards novel pharmacotherapy for dry eye disease.
- Grant title: National Headache Foundation, Research Grant
Funding: \$10,000 direct costs, \$0 indirect costs
Date of Funding Period: 04/01/2009 – 03/31/2010
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 5% (cost-shared)
Title: Novel mechanism underlying the visual impairments during migraine headaches.
- Michael Smith Foundation for Health Research, MSFHR ST-PDF-140(05-1)BM
Funding: CA\$40,000
Role in Project: PI
Name of Principal Investigator: Simon Kaja, PhD
Percentage on Project: 30%
Date of Funding Period: 07/01/2006 – 06/30/2008
Title: Functional characterization of low-voltage activated T-type calcium channels in cerebellar slices of wild-type and P/Q-type calcium channel mutant mice.

B. Report of Current Research Activities

<u>Project</u>	<u>Role</u>
Effects of chronic alcohol consumption on development of ocular surface disease. <i>Project is currently funded by T32 award to my graduate student, Anita Ghosh</i>	PI, 10%
Molecular mechanisms of environmental dry eye disease and allergic conjunctivitis in rabbits	PI, 5%

Project is in collaboration with Univ. of North Texas Health Science Center and Experimentica Ltd.

Molecular mechanisms underlying reactive astrocytosis and fibrosis in the glaucomatous eye. PI, 20%

This is the second major project in my laboratory, and includes a productive collaboration with Dr. Shandiz Tehrani at Oregon Health & Science University and Dr. Evan B. Stubbs Jr. at Hines VA/ Loyola University Chicago, Dept. of Ophthalmology

Subconjunctival delivery of fibrin sealant-embedded chemotherapy agents for the treatment of retinoblastoma. Co-PI, 5%

This is the dissertation project of Christopher Himes, and conducted in collaboration with Baxter Healthcare and Drs. Fareed (Pathology) and Stubbs (Ophthalmology).

C. Report of Teaching

1. Local contributions:

A. Medical School

- 1) 2018 - present
 - 2) MHD – Mechanisms of Human Disease
 - Ocular Pathologies
 - 3) Lecturer
 - 4) MS2 Medical Students, ~120 per year
 - 5) Preparation: 4 h, Contact hours: 1 h
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- 1) 2018 - present
 - 2) SHB – Structure of the Human Body
 - Visual System
 - 3) Lecturer
 - 4) MS1 Medical Students, ~120 per year
 - 5) Preparation: 4 h, Contact hours: 1 h
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- 1) 2017 - 2019
 - 2) FHB – Function of the Human Body
 - Small groups: Cardiac Mechanics
 - Small groups: Cardiac Electrophysiology
 - Small groups: Gastrointestinal Motility
 - Small groups: Gastrointestinal Secretions
 - 3) Facilitator
 - 4) MS1 Medical Students, 20 - 40 per year
 - 5) Preparation: 4 h, Contact hours: 9 h
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- 1) 2016 - present
 - 2) PHARM – Pharmacology and Therapeutics
 - Small Groups: Pharmacokinetics I
 - Small Groups: Pharmacokinetics II
 - Small Groups: Pharmacodynamics I
 - Small Groups: Pharmacodynamics II
 - Small Groups: Bench-to-Bedside I
 - Small Groups: Bench-to-Bedside II
 - Small Groups: Bench-to-Bedside III

- Small Groups: Bench-to-Bedside IV
- 3) Facilitator
- 4) MS1 Medical Students, ~120 per year
- 5) Preparation: 4 h, Contact hours: 1 h

B. Graduate School

- 1) 2020 – present
 - 2) PHAR415 – Current Topics in Pharmacology and Epidemiology of Disease
 - Ground-breaking Drug Approvals I (Rhopressa)
 - Ground-breaking Drug Approvals II (Nurtec ODT)
 - 3) Lecturer, Course Co-Director
 - 4) Graduate students (MS Pharmacology, IPBS program, Certificate Program in Pharmacovigilance), 1- 8 per year
 - 5) Preparation: 8 h, Contact hours: 3 h
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- 1) 2020 – present
 - 2) BMB501 – Biochemistry and Molecular Biology Journal Club
 - Introductory Session
 - Moderator for all Journal Club Sessions
 - Mentor for 2 - 3 paper presentations
 - 3) Lecturer / Moderator & Course Director
 - 4) Graduate students (MS Biochemistry and Molecular Biology, IPBS program), 8 -12 per year
 - 5) Preparation: 14 h, Contact hours: 12 h
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- 1) 2017 – present
 - 2) PHAR407 – Fundamentals of Drug Discovery and Development
 - High Throughput Screening I/II
 - Drug Repurposing
 - 3) Lecturer / Course Co-Director
 - 4) Graduate students (MS Pharmacology, IPBS program, Certificate Program in Pharmacovigilance), 1- 8 per year
 - 5) Preparation: 4 h, Contact hours: 3 h
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- 1) 2017 – present
 - 2) PIOL417 - Cellular Physiology
 - Cell Communication I
 - Cell Communication II
 - 3) Lecturer
 - 4) Graduate students, 30 per year
 - 5) Preparation: 4 h, Contact hours: 3 h
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- 1) 2016 – present
 - 2) PHAR408 – Molecular Basis of Disease and Therapeutics
 - Quantitative Microscopy
 - Intracellular Calcium Channels
 - 3) Lecturer
 - 4) Graduate students (MS Pharmacology, IPBS program), 1- 5 students
 - 5) Preparation: 4 h, Contact hours: 3 h
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- 1) 2016 – present
 - 2) NRSC410 - Cellular & Molecular Neurobiology
 - Classical Neurotransmitters
 - Visual System and Phototransduction
 - Introduction to Optogenetics
 - 3) Lecturer

- 4) Graduate students (MS Neuroscience, IPBS program), 5 – 12 students
- 5) Preparation: 6 h, Contact hours: 4.5 h

- 1) 2016 – present
- 2) NRSC415 - Neurochemistry
 - Neurochemical Basis of Neurodegenerative Disease
 - Ischemia, Seizures and Coma
 - Astrocytes & Glia
- 3) Lecturer
- 4) Graduate students (MS Neuroscience, IPBS program), 1 – 5 students
- 5) Preparation: 8 h, Contact hours: 6 h

- 1) 2016 – present
- 2) NRSC503 – Neuroscience Journal Club
 - Introductory Session
 - Roundtable Discussion on Plagiarism / Publication Ethics
 - Moderator for all Journal Club Session
- 3) Lecturer / Moderator & Course Co-Director
- 4) Graduate students (MS Neuroscience, IPBS program), 4 – 12 students
- 5) Preparation: 20 h, Contact hours: 16 h

C. Local Invited teaching presentations

- 1) 2021
- 2) Biochemistry and Molecular Biology Seminar
- 3) Lecturer
- 4) MS and IPBS students
- 5) Preparation: 5 h, Contact hours: 1 h

- 1) 2018
- 2) Neuroscience Seminar (Lake Shore Campus)
- 3) Lecturer
- 4) Neuroscience Majors, approx. 60
- 5) Preparation: 5 h, Contact hours: 1 h

- 1) 2016
- 2) Seminar, Burn Shock Trauma Research Center
- 3) Lecturer
- 4) MS and IPBS students
- 5) Preparation: 5 h, Contact hours: 1 h

D. Continuing Medical Education courses

- 1) 2016 – present
- 2) Seminar Series: Molecular Pharmacology and Therapeutics, #103N 0105
 - Update on Vision Research / Faculty presentation
- 3) Lecturer/Contributor and Course Director
- 4) Graduate students, medical students, residents, faculty staff; 10 – 50 students
- 5) Preparation: 4 h, Contact hours: 1 h

E. Advisory and supervisory responsibilities in laboratory setting

- 1) 2019 - present
- 2) Supervision and mentoring of Ph.D. students (IPBS Program) for dissertation work in the biomedical research laboratory
- 3) 250 h / yr

- 1) 2017 – present
- 2) Supervision and mentoring of Masters students (Neuroscience program) for thesis work in the biomedical research laboratory
- 3) 150 h / yr

- 1) 2015 – present
- 2) Supervision and mentoring of Medical students in the biomedical research laboratory (Research Honors program; research electives; STAR; etc.)
- 3) 50 h / yr

- 1) 2015 – present
- 2) Supervision and mentoring of rotation students (IPBS program, MS Pharmacology/MBA program, MS Neuroscience program, Discover Pharmacology program) in the biomedical research laboratory
- 3) 75 h / yr

F. Teaching leadership roles in department/affiliated Institution/Medical School

- 1) 2021 – present
- 2) Title: Course Director for PHAR407 (Pharmacology: Fundamentals of Drug Discovery and Development, 3 CH)
- 3) Primary responsibilities: Preparation of syllabus, invitation of lecturers, content review (videos and in-person classes), coordination with external lecturers, assistance with lecture recordings, administration of exams, grade administration, participation in all synchronous activities, maintenance of Sakai site
- 4) Special accomplishments: N/A

- 1) 2020 – present
- 2) Title: Course Director for BMB501 (Biochemistry and Molecular Biology: Journal Club, 1 CH)
- 3) Primary responsibilities: Preparation of syllabus, weekly review of journal articles to be presented by students, course administration, moderating weekly journal club sessions, grading
- 4) Special accomplishments: Converted course format from in-person to online during COVID-19

- 1) 2020 – present
- 2) Title: Member, Steering Committee for PHAR420 (Pharmacology: Pharmacovigilance, 4CH)
- 3) Primary responsibilities: Content review of lectures (slides and recordings) of external and internal lecturers, participation in all synchronous sessions (twice weekly, 1.5 h), assistance with formal assessments and grading (committee review), assistance with syllabus and schedule (jointly with Course Director and Steering Committee)
- 4) Special accomplishments: Contributed to successful launch of inaugural PHAR420 course as core-class for the Graduate Certificate in Pharmacovigilance in Fall Semester 2020

- 1) 2020 – present
- 2) Title: Course Co-Director for PHAR415 (Pharmacology: Current Topics in Pharmacology and Epidemiology of Disease, 2 CH)
- 3) Primary responsibilities: Preparation of syllabus, invitation of lecturers, content review (videos and in-person classes), coordination with external lecturers (jointly with Course Director), assistance with lecture recordings, administration of exams and grade administration (jointly with Course Director), participation in all synchronous activities, maintenance of Sakai site (jointly with Course Director)
- 4) Special accomplishments: Participated in course development and successful launch of inaugural PHAR415 course in Fall 2020 semester

- 1) 2019
- 2) Title: Member of the Organizing Committee and Moderator for the “Pharmacovigilance and Drug Safety in the Era of Precision Medicine” Symposium, co-sponsored by AbbVie Inc. and Loyola University Chicago
- 3) Primary responsibilities: Design of conference program, review of handouts, liaising with AbbVie, moderation of program sessions.
- 4) Special Accomplishments: N/A

- 1) 2017 – present
- 2) Title: Course Co-Director for PHAR407 (Pharmacology: Fundamentals of Drug Discovery and Development, 3 CH)
- 3) Primary responsibilities: Assistance with preparation of syllabus and invitation of lecturers, content review (videos and in-person classes) jointly with Course Director, coordination with external lecturers (jointly with Course Director), assistance with lecture recordings, administration of exams, grade administration (jointly with Course Director), participation in all synchronous activities
- 4) Special accomplishments: Successfully updated and modified syllabus and changed course format from 2CH to 3CH course (2019); converted course from in-person classes to online format with asynchronous and synchronous components to offer course to students in the Certificate Program in Pharmacovigilance; created Sakai site for the course; recruited internally acclaimed experts to deliver guest lectures as part of course enhancements

- 1) 2017
- 2) Title: Member, Organizing Committee for the Department of Ophthalmology Translational Research Symposium, “Biomechanics”
- 3) Primary responsibilities: Organization of non-clinical conference components, invitation of speakers, review of conference materials.
- 4) Special accomplishments: N/A

- 1) 2017 – present
- 2) Title: Course Co-Director for NRSC503 (Neuroscience: Journal Club, 1CH)
- 3) Primary responsibilities: Preparation of syllabus, weekly review of journal articles to be presented by students (jointly with Course Director), course administration (jointly with Course Director), moderating weekly journal club sessions (jointly with Course Director), grading of participation, maintenance of Sakai site
- 4) Special accomplishments: Converted course format from in-person to online during COVID-19; created Sakai site for the course

- 1) 2016 – present
- 2) Title: Course Director for CME-accredited Seminar Series: Molecular Pharmacology and Therapeutics, #103N 0105
- 3) Primary responsibilities: Preparation of syllabus, organization and invitation of speakers, assistance with travel arrangements and itinerary, hosting seminar speakers, biweekly review of CME materials (presentation review) to determine objectivity and identify potential commercial bias, course administration incl. review, quarterly CME activity review, annual CME reporting, renewal of activity
- 4) Special accomplishments: Successfully renewed CME activity; increased participation by other departments; successfully transitioned CME activity to online format during COVID-19

G. Names of advisees / trainees (2015 – present)

- 1) Gurpreet Sandhu
- 2) 2020 – present, Ph.D. student
- 3) Currently working towards dissertation under my co-supervision

- 1) Sarah Rahman
 - 2) 2019 – 2020, mentor and research supervisor
 - 3) Currently Global Scientific Communications Senior Associate at Ely Lilly, Inc.
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- 1) Johana Santa-Maria
 - 2) 2019 – 2021, mentor and research supervisor
 - 3) Currently MS4 at Stritch
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- 1) Dana Gebel, MS, MBA
 - 2) 2018 - 2019, mentor and research supervisor
 - 3) Project Manager- Technical Transfer at Nexus Pharmaceuticals, Inc.
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- 1) Harsh N. Hariani, MBBS, MS
 - 2) 2018 – 2020, Master in Neuroscience student
 - 3) Currently Research Associate I at Herophilus (San Francisco, CA)
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- 1) Christopher Himes
 - 2) 2018 – present, Ph.D. student
 - 3) Currently completing dissertation under my co-supervision
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- 1) Anita K. Ghosh, MS
 - 2) 2017 – 2019, Master in Neuroscience student
2019 – present, Ph.D. student
 - 3) Currently Ph.D. student in in my laboratory
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- 1) Jennifer Schreiber, PhD
 - 2) 2017 – 2020, Mentor for dissertation project, committee Chair
 - 3) Currently Research Associate, Edward Hines Jr. VA Hospital
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- 1) Arthur Segismundo, MS
 - 2) 2017-2019, mentor, research supervisor, committee Chair
 - 3) Medical Student, University of Nebraska
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- 1) Raiza Bonomo
 - 2) 2017, mentor and research supervisor
 - 3) Currently IPBS Program, Mansuy-Aubert lab
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- 1) Vidhya Rao, PhD
 - 2) 2016 - 2018, mentor and postdoctoral research supervisor
 - 3) Research Scientist, Loyola University Chicago and Edward Hines Jr. VA Hospital
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- 1) Alexandra Hegel, MS
 - 2) 2016 - 2017, mentor and supervisor
 - 3) Lab Manager, Kastrati Lab, Loyola University Chicago
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- 1) Jamie Floss, MS, MBA
 - 2) 2016 - 2017, mentor and research supervisor
 - 3) Medical Student, University of Buffalo, Jacobs School of Medicine
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- 1) Sasha Rosen, MD
 - 2) 2015 – 2017, mentor and research supervisor
 - 3) Resident PGY-2 Ophthalmology, University of California at Davis
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- 1) Alexander Rockwell, MS, MBA
 - 2) 2016, mentor and research supervisor
 - 3) Currently Senior Analyst, Walgreens Inc.

2. a) National Contributions

A. Invited Presentations

- 1) 11/6/2020
- 2) Invited Seminar
- 3) University of North Texas – Health Science Center at Fort Worth, Department of Laboratory Animal Medicine

- 1) 12/4/2019
- 2) Invited Seminar
- 3) University of North Texas – Health Science Center at Fort Worth, North Texas Eye Research Institute

- 1) 8/20/2018
- 2) Invited Lecture
- 3) LabRoots Bioprocessing 2019 (virtual event)

- 1) 1/16/2014
- 2) Invited Seminar
- 3) Dept. of Cell Biology and Anatomy, Rosalind Franklin University of Medicine and Science, North Chicago, IL

- 1) 6/13/2013
- 2) Special Seminar
- 3) Creighton University, Omaha, NE

- 1) 11/6/2010
- 2) Opening lecture, European Molecular Biology Organization US Fellows Meeting 2010
- 3) European Molecular Biology Symposium, Boston, MA

- 1) 8/26/2010
- 2) Invited Seminar
- 3) School of Biological Sciences, University of Missouri Kansas City, Kansas City, MO

- 1) 5/8/2009
- 2) Invited Seminar
- 3) McKnight Brain Institute, University of Florida, Gainesville, FL

- 1) 3/11/2009
- 2) Vision Research Seminar
- 3) Eye Foundation of Kansas City, UMKC School of Medicine, Department of Ophthalmology, Kansas City, MO

- 1) 1/22/2008
- 2) Invited Departmental Seminar
- 3) Department of Pharmacology and Neuroscience, University of North Texas Health Science Center, Fort Worth, TX

- 1) 10/3/2006
- 2) Invited Departmental Seminar
- 3) Department of Pharmacology and Neuroscience, University of North Texas Health Science Center, Fort Worth, TX

2. b) International Contributions

A. Invited Presentations

- 1) 1/31/2019
 - 2) Invited Lecture
 - 3) SILK – Elsemay Björn Symposium, Tampere, Finland
-
- 1) 11/6/2017
 - 2) Invited Lecture, Invited Seminar
 - 3) National Technical University of Ukraine – Igor Sigorski Kiev Polytechnic Institute
-
- 1) 8/16/2016
 - 2) Invited Lecture
 - 3) University of Tampere, Tampere, Finland
-
- 1) 6/13/2014
 - 2) Invited Seminar
 - 3) Dept. of Neurobiology, University of Eastern Finland, Kuopio, Finland
-
- 1) 6/12/2014
 - 2) Invited Seminar and Workshop
 - 3) Experimentica Ltd., Kuopio, Finland
-
- 1) 2/13/2012
 - 2) Invited Seminar
 - 3) Ruhr University Bochum, Bochum, Germany, Host: Professor Dr. Stefan Herlitze
-
- 1) 12/09/2010
 - 2) Departmental Seminar
 - 3) Institute of Physiology, University of Bern, Switzerland
-
- 1) 2/6/2010
 - 2) Invited Technical Seminar
 - 3) Perkin Elmer Germany and Hamburg Screening Port, Hamburg, Germany
-
- 1) 2/12/2010
 - 2) Departmental Seminar
 - 3) School of Biological and Biomedical Sciences, University of Durham, UK
-
- 1) 10/7/2008
 - 2) Scientific Seminar
 - 3) Memory Disorders Research Unit, Copenhagen University Hospital, Copenhagen, Denmark
-
- 1) 10/3/2008
 - 2) Scientific Seminar
 - 3) Glostrup Research Institute, Glostrup Hospital, Glostrup, Denmark
-
- 1) 4/8/2008
 - 2) Invited Lecture, The Chris Thompson Memorial Symposium and Neuroscience North East
 - 3) School of Biological and Biomedical Sciences, University of Durham, Durham, UK
-
- 1) 11/23/2007
 - 2) Invited Departmental Seminar
 - 3) School of Biological Sciences, University of Liverpool, Liverpool, UK
-
- 1) 5/11/2007
 - 2) Invited Departmental Seminar
 - 3) Department of Pharmacology, University of Innsbruck, Innsbruck, Austria

- 1) 5/9/2007
- 2) Invited Departmental Seminar
- 3) Institute for Surgical Research, Ludwig-Maximilians-University Munich, Munich, Germany

- 1) 5/7/2007
- 2) Invited Departmental Seminar
- 3) Institute for Physiology II/Neurophysiology, University of Jena, Jena, Germany

- 1) 3/22/2006
- 2) Invited Departmental Seminar
- 3) Department of Neuropathology, Friedrich Alexander University Erlangen-Nuremberg, Erlangen, Germany

- 1) 10/11/2005
- 2) Invited Departmental Seminar
- 3) Center for Molecular Neurobiology, University of Hamburg, Hamburg, Germany

- 1) 5/16/2005
- 2) Invited Seminar
- 3) Michael Smith Laboratories, University of British Columbia, Vancouver, Canada

- 1) 7/20/2004
- 2) Departmental Seminar
- 3) School of Biological and Biomedical Sciences, University of Durham, Durham, UK

B. International Professional and Educational Leadership Roles Related to Teaching

- 1) 2021 (ongoing; scheduled for November 2021)
- 2) European Commission-funded Marie Skłodowska-Curie Innovation Training Network, ORBITAL (Ocular Research By Integrated Training And Learning)
- 3) Organizer, Workshop “In vitro models for ocular drug discovery”
- 4) Developed the curriculum for a half day (4 h) workshop; recruited international experts to contribute lectures and case studies to the workshop. The workshop is mandatory for the 15 PhD students currently trained by the ORBITAL consortium. This workshop was to be held in person in Waterford, Ireland, but is transitioning to an online format due to COVID-19.

- 1) 11/25/2020
- 2) European Commission-funded Marie Skłodowska-Curie Innovation Training Network, ORBITAL (Ocular Research By Integrated Training And Learning)
- 3) Organizer and Contributor, Workshop “In vivo models for ocular drug discovery”
- 4) Developed the curriculum for a full day (8 h) workshop; recruited international experts to contribute lectures and case studies to the workshop. The workshop is mandatory for the 15 PhD students currently trained by the ORBITAL consortium. This workshop was to be held in person in Kuopio, Finland, but had to transition to an online format due to COVID-19.

- 1) 2019 – present
- 2) European Commission-funded Marie Skłodowska-Curie Innovation Training Network, ORBITAL (Ocular Research By Integrated Training And Learning)
- 3) Director of the Journal Club and Seminar Series
- 4) Developed and organized an online Journal Club and Seminar Series for this T32-equivalent EU-funded training network that meets weekly with alternating sessions of Journal Club presentations (2/month), invited speakers (1/month) and student progress reports (1/month); recruited high-caliber international speakers from academia, pharma, contract research, advocacy groups and business to participate. This program is mandatory for the 15 PhD students currently trained by the ORBITAL consortium.

3. Teaching Awards

- Graduate Faculty of the Year 2019
Loyola University Chicago, Health Sciences Campus,
Integrated Program in Biomedical Sciences
- Nominee, Graduate Faculty of the Year 2018
Loyola University Chicago, Health Sciences Campus,
Integrated Program in Biomedical Sciences
- Excellence in Mentoring Award 2013
University of Missouri – Kansas City, School of Medicine

4. Description of major curriculum offerings, teaching cases or innovative educational programs developed

- **Graduate Certificate in Pharmacovigilance program** – As member of the Development Committee in the Department of Molecular Pharmacology and Neuroscience, I contributed to the Development of the Graduate Certificate in Pharmacovigilance program. Co-responsible for creation of syllabus, approval process with departmental and institutional stakeholders and compliance with the Higher Learning Commission guidelines. As member of the Steering Committee of the Graduate Certificate in Pharmacovigilance program responsible for ensuring standards of education and teaching in PHAR407, PHAR415 and PHAR420.
- **PHAR415** – As Co-Course Director developed this “Current Topics in Pharmacology and Epidemiology of Disease” course from scratch. Together with Course Director, I was responsible for identifying faculty contributors to the course and coordinating scientific content. The course incorporates the latest findings from Pharmacology, Epidemiology and Statistics and is a mandatory component of the Graduate Certificate in Pharmacovigilance program.
- **ORBITAL** – As subaward-PI on the European Commission-funded Marie Skłodowska-Curie Innovation Training Network, ORBITAL (Ocular Research By Integrated Training And Learning), I was responsible for developing an interactive weekly educational program for the 15 PhD students in the consortium. Prior to COVID-19, organization of a videoconference-based training activity was highly innovative and novel, even for European consortiums. In order to develop translatable communication and analytical skills, I devised a course that blends journal clubs, invited seminars and *Research in Progress* presentations by the graduate students.
- **PHAR407** – As Co-Course Director for PHAR407 “Fundamentals of Drug Discovery and Development” contributed to redesigning the course from 2 credit hours to 3 credit hours and restructured the syllabus to represent the continuum of drug discovery and development. As Co-Course Director I was directly responsible for recruiting external lecturers/faculty with the appropriate expertise to contribute to the course. In order to ensure the quality of presentation, reviewed and edited all Powerpoint presentations and teaching materials ahead of the lecture and audited every class together with Course Director to provide feedback to contributing faculty/speakers. Built and designed a Sakai site. is a mandatory component of the Graduate Certificate in Pharmacovigilance program.

D. Report of Clinical Activities – N/A

Bibliography

1. Original Articles

1. Pulido I, Ollosi S, Aparisi S, Becker JH, Aliena-Valero A, Benet M, Rodríguez ML, López A, Tamayo-Torres E, Chuliá-Peris L, García-Cañaveras JC, Soucheray M, Dalheim AV, Salom JB, Qiu W, Kaja S, Fernández-Coronado JA, Alandes S, Alcácer J, Al-Shahrour F, Borgia JA, Juan O, Nishimura MI, Lahoz A, Carretero J, and Shimamura T, Endothelin-1-Mediated Drug Resistance in EGFR-Mutant Non-Small Cell Lung Carcinoma. *Cancer Res.* 2020; 80: 4224-4232. 10.1158/0008-5472.Can-20-0141, IF: 9.13, PMID: 32747363
2. Ghosh AK, Rao VR, Wisniewski VJ, Zigrossi AD, Floss J, Koulen P, Stubbs EB, Jr., and Kaja S, Differential Activation of Glioprotective Intracellular Signaling Pathways in Primary Optic Nerve Head Astrocytes after Treatment with Different Classes of Antioxidants. *Antioxidants (Basel).* 2020; 9: 10.3390/antiox9040324, IF: 5.014, PMID: 32316287
3. Rao VR, Lutz JD, Kaja S, Foecking EM, Lukács E, and Stubbs EB, Jr., Mitochondrial-Targeted Antioxidants Attenuate TGF- β 2 Signaling in Human Trabecular Meshwork Cells. *Invest Ophthalmol Vis Sci.* 2019; 60: 3613-3624. 10.1167/iovs.19-27542, IF: 3.812, PMID: 31433458
5. Kouzoukas DE, Schreiber JA, Tajuddin NF, Kaja S, Neafsey EJ, Kim HY, and Collins MA, PARP inhibition in vivo blocks alcohol-induced brain neurodegeneration and neuroinflammatory cytosolic phospholipase A2 elevations. *Neurochem Int.* 2019; 129: 104497. 10.1016/j.neuint.2019.104497, IF: 3.994, PMID: 31251945
4. Žiniauskaitė A, Ragauskas S, Ghosh AK, Thapa R, Roessler AE, Koulen P, Kalesnykas G, Hakkarainen JJ, and Kaja S, Manganese(III) tetrakis(1-methyl-4-pyridyl) porphyrin, a superoxide dismutase mimetic, reduces disease severity in in vitro and in vivo models for dry-eye disease. *Ocul Surf.* 2019; 17: 257-264. 10.1016/j.jtos.2019.02.006, IF: 12.336, PMID: 30807830
5. Breuer EK, Fukushima-Lopes D, Dalheim A, Burnette M, Zartman J, Kaja S, Wells C, Campo L, Curtis KJ, Romero-Moreno R, Littlepage LE, Niebur GL, Hoskins K, Nishimura MI, and Gentile S, Potassium channel activity controls breast cancer metastasis by affecting β -catenin signaling. *Cell Death Dis.* 2019; 10: 180. 10.1038/s41419-019-1429-0, IF: 6.304, PMID: 30792401
6. Žiniauskaitė A, Ragauskas S, Hakkarainen JJ, Rich CC, Baumgartner R, Kalesnykas G, Albers DS, and Kaja S, Efficacy of Trabodenson in a Mouse Keratoconjunctivitis Sicca (KCS) Model for Dry-Eye Syndrome. *Invest Ophthalmol Vis Sci.* 2018; 59: 3088-3093. 10.1167/iovs.18-24432, IF: 3.812, PMID: 30025146
7. Fukushima-Lopes DF, Hegel AD, Rao V, Wyatt D, Baker A, Breuer EK, Osipo C, Zartman JJ, Burnette M, Kaja S, Kouzoukas D, Burris S, Jones WK, and Gentile S, Preclinical study of a Kv11.1 potassium channel activator as antineoplastic approach for breast cancer. *Oncotarget.* 2018; 9: 3321-3337. 10.18632/oncotarget.22925, IF: 1.513, PMID: 29423049
8. Ragauskas S, Kielczewski E, Vance J, Kaja S, and Kalesnykas G, In Vivo Multimodal Imaging and Analysis of Mouse Laser-Induced Choroidal Neovascularization Model. *J Vis Exp.* 2018; 10.3791/56173, IF: 1.14, PMID: 29443029
9. Sandoval A, Duran P, Gandini MA, Andrade A, Almanza A, Kaja S, and Felix R, Regulation of L-type Ca(V)1.3 channel activity and insulin secretion by the cGMP-PKG signaling pathway. *Cell Calcium.* 2017; 66: 1-9. 10.1016/j.ceca.2017.05.008, IF: 4.874, PMID: 28807144
10. Kaja S, Payne AJ, Naumchuk Y, and Koulen P, Quantification of Lactate Dehydrogenase for Cell Viability Testing Using Cell Lines and Primary Cultured Astrocytes. *Curr Protoc Toxicol.* 2017; 72: 2.26.21-22.26.10. 10.1002/cptx.21, IF: 1.30, PMID: 28463416
11. Maciulaitiene R, Pakuliene G, Kaja S, Pauza DH, Kalesnykas G, and Januleviciene I, Glioprotection of Retinal Astrocytes After Intravitreal Administration of Memantine in the Mouse Optic Nerve Crush Model. *Med Sci Monit.* 2017; 23: 1173-1179. 10.12659/msm.899699, IF: 1.918, PMID: 28265105
12. Huang J, Romero-Suarez S, Lara N, Mo C, Kaja S, Brotto L, Dallas SL, Johnson ML, Jähn K, Bonewald LF, and Brotto M, Crosstalk between MLO-Y4 osteocytes and C2C12 muscle cells is mediated by the Wnt/ β -catenin pathway. *JBMR Plus.* 2017; 1: 86-100. 10.1002/jbm4.10015, IF: 5.854, PMID: 29104955

13. Means JC, Gerdes BC, Kaja S, Sumien N, Payne AJ, Stark DA, Borden PK, Price JL, and Koulen P, Caspase-3-Dependent Proteolytic Cleavage of Tau Causes Neurofibrillary Tangles and Results in Cognitive Impairment During Normal Aging. *Neurochem Res.* 2016; 41: 2278-2288. 10.1007/s11064-016-1942-9, IF: 3.994, PMID: 27220334
14. Richter F, Koulen P, and Kaja S, N-Palmitoylethanolamine Prevents the Run-down of Amplitudes in Cortical Spreading Depression Possibly Implicating Proinflammatory Cytokine Release. *Sci Rep.* 2016; 6: 23481. 10.1038/srep23481, IF: 3.998, PMID: 27004851
15. Hakkarainen JJ, Reinisalo M, Ragauskas S, Seppänen A, Kaja S, and Kalesnykas G, Acute cytotoxic effects of marketed ophthalmic formulations on human corneal epithelial cells. *Int J Pharm.* 2016; 511: 73-78. 10.1016/j.ijpharm.2016.06.135, IF: 4.845, PMID: 27374205
16. Rao VR, Perez-Neut M, Kaja S, and Gentile S, Voltage-gated ion channels in cancer cell proliferation. *Cancers (Basel).* 2015; 7: 849-875. 10.3390/cancers7020813, IF: 6.126, PMID: 26010603
17. Kaja S, Payne AJ, Singh T, Ghuman JK, Sieck EG, and Koulen P, An optimized lactate dehydrogenase release assay for screening of drug candidates in neuroscience. *J Pharmacol Toxicol Methods.* 2015; 73: 1-6. 10.1016/j.vascn.2015.02.001, IF: 2.252, PMID: 25681780
18. Kaja S, Payne AJ, Naumchuk Y, Levy D, Zaidi DH, Altman AM, Nawazish S, Ghuman JK, Gerdes BC, Moore MA, and Koulen P, Plate reader-based cell viability assays for glioprotection using primary rat optic nerve head astrocytes. *Exp Eye Res.* 2015; 138: 159-166. 10.1016/j.exer.2015.05.023, IF: 3.011, PMID: 26048476
19. Kaja S, Payne AJ, Nielsen E, Thompson CL, van den Maagdenberg AM, Koulen P, and Snutch TP, Differential cerebellar GABAA receptor expression in mice with mutations in CaV2.1 (P/Q-type) calcium channels. *Neuroscience.* 2015; 304: 198-208. 10.1016/j.neuroscience.2015.07.044, IF: 3.244, PMID: 26208839
20. Kaja S, Payne AJ, Patel KR, Naumchuk Y, and Koulen P, Differential subcellular Ca²⁺ signaling in a highly specialized subpopulation of astrocytes. *Exp Neurol.* 2015; 265: 59-68. 10.1016/j.expneurol.2014.12.014, IF: 4.691, PMID: 25542978
21. Payne AJ, Kaja S, and Koulen P, Regulation of ryanodine receptor-mediated calcium signaling by presenilins. *Receptors Clin Investig.* 2015; 2: e449. 10.14800/rci.449, IF: N/A, PMID: 25646163
22. Kaja S, Shah AA, Haji SA, Patel KB, Naumchuk Y, Zabaneh A, Gerdes BC, Kunjukunju N, Sabates NR, Cassell MA, Lord RK, Pikey KP, Poulouse A, and Koulen P, Nampt/PBEF/visfatin serum levels: a new biomarker for retinal blood vessel occlusions. *Clin Ophthalmol.* 2015; 9: 611-618. 10.2147/ophth.S80784, IF: 2.04, PMID: 25897200
23. Kaja S, Sumien N, Shah VV, Puthawala I, Maynard AN, Khullar N, Payne AJ, Forster MJ, and Koulen P, Loss of Spatial Memory, Learning, and Motor Function During Normal Aging Is Accompanied by Changes in Brain Presenilin 1 and 2 Expression Levels. *Mol Neurobiol.* 2015; 52: 545-554. 10.1007/s12035-014-8877-4, IF: 4.500, PMID: 25204494
24. Payne AJ, Kaja S, Naumchuk Y, Kunjukunju N, and Koulen P, Antioxidant drug therapy approaches for neuroprotection in chronic diseases of the retina. *Int J Mol Sci.* 2014; 15: 1865-1886. 10.3390/ijms15021865, IF: 4.556, PMID: 24473138
25. Nielsen EO and Kaja S, GABA(A) Receptor Expression in the Forebrain of Ataxic Rolling Nagoya Mice. *Biol Med (Aligarh).* 2014; 6: 10.4172/1234-3425.1000198, IF: 0.54, PMID: 25309056
26. Kaja S, Naumchuk Y, Grillo SL, Borden PK, and Koulen P, Differential up-regulation of Vesl-1/Homer 1 protein isoforms associated with decline in visual performance in a preclinical glaucoma model. *Vision Res.* 2014; 94: 16-23. 10.1016/j.visres.2013.10.018, IF: 2.610, PMID: 24219919
27. Kaja S, Sumien N, Borden PK, Khullar N, Iqbal M, Collins JL, Forster MJ, and Koulen P, Homer-1a immediate early gene expression correlates with better cognitive performance in aging. *Age (Dordr).* 2013; 35: 1799-1808. 10.1007/s11357-012-9479-6, IF: 4.36, PMID: 23054826
28. Payne AJ, Gerdes BC, Kaja S, and Koulen P, Insert sequence length determines transfection efficiency and gene expression levels in bicistronic mammalian expression vectors. *Int J Biochem Mol Biol.* 2013; 4: 201-208. IF: 0.435, PMID: 24380024
29. Payne AJ, Gerdes BC, Naumchuk Y, McCalley AE, Kaja S, and Koulen P, Presenilins regulate the cellular activity of ryanodine receptors differentially through isotype-specific N-terminal

- cysteines. *Exp Neurol.* 2013; 250: 143-150. 10.1016/j.expneurol.2013.09.001, IF: 4.562, PMID: 24029002
30. Kaja S, Goad DL, Ali F, Abraham A, Rebenitsch RL, Teymoorian S, Krishna R, and Koulen P, Evaluation of tensile strength of tissue adhesives and sutures for clear corneal incisions using porcine and bovine eyes, with a novel standardized testing platform. *Clin Ophthalmol.* 2012; 6: 305-309. 10.2147/ophth.S29859, IF: 2.04, PMID: 22399842
 31. Chhablani J, Kaja S, and Shah VA, Smartphones in ophthalmology. *Indian J Ophthalmol.* 2012; 60: 127-131. 10.4103/0301-4738.94054, IF: 1.25, PMID: 22446908
 32. Romero-Suarez S, Mo C, Touchberry C, Lara N, Baker K, Craig R, Brotto L, Andresen J, Wacker M, Kaja S, Abreu E, Dillmann W, Mestrl R, Brotto M, and Nosek T, Hyperthermia: from diagnostic and treatments to new discoveries. *Recent Pat Biotechnol.* 2012; 6: 172-183. 10.2174/1872208311206030172, IF: 0.245, PMID: 23092438
 33. Burroughs SL, Duncan RS, Rayudu P, Kandula P, Payne AJ, Clark JL, Koulen P, and Kaja S, Plate reader-based assays for measuring cell viability, neuroprotection and calcium in primary neuronal cultures. *J Neurosci Methods.* 2012; 203: 141-145. 10.1016/j.jneumeth.2011.09.007, IF: 2.214, PMID: 21968036
 34. Kaja S, Hilgenberg JD, Collins JL, Shah AA, Wawro D, Zimmerman S, Magnusson R, and Koulen P, Detection of novel biomarkers for ovarian cancer with an optical nanotechnology detection system enabling label-free diagnostics. *J Biomed Opt.* 2012; 17: 081412-081411. 10.1117/1.Jbo.17.8.081412, IF: 2.785, PMID: 23224173
 35. Kaja S, Mafe OA, Parikh RA, Kandula P, Reddy CA, Gregg EV, Xin H, Mitchell P, Grillo MA, and Koulen P, Distribution and function of polycystin-2 in mouse retinal ganglion cells. *Neuroscience.* 2012; 202: 99-107. 10.1016/j.neuroscience.2011.11.047, IF: 3.244, PMID: 22155264
 36. Kaja S, Hilgenberg JD, Rybalchenko V, Medina-Ortiz WE, Gregg EV, and Koulen P, Polycystin-2 expression and function in adult mouse lacrimal acinar cells. *Invest Ophthalmol Vis Sci.* 2011; 52: 5605-5611. 10.1167/iovs.10-7114, IF: 3.812, PMID: 21508103
 37. Kaja S, Hilgenberg JD, Everett E, Olitsky SE, Gossage J, and Koulen P, Effects of dilution and prolonged storage with preservative in a polyethylene container on Bevacizumab (Avastin™) for topical delivery as a nasal spray in anti-hereditary hemorrhagic telangiectasia and related therapies. *Hum Antibodies.* 2011; 20: 95-101. 10.3233/hab-2011-0244, IF: 0.88, PMID: 22129679
 38. Kaja S, Duncan RS, Longoria S, Hilgenberg JD, Payne AJ, Desai NM, Parikh RA, Burroughs SL, Gregg EV, Goad DL, and Koulen P, Novel mechanism of increased Ca²⁺ release following oxidative stress in neuronal cells involves type 2 inositol-1,4,5-trisphosphate receptors. *Neuroscience.* 2011; 175: 281-291. 10.1016/j.neuroscience.2010.11.010, IF: 3.244, PMID: 21075175
 39. Garg P, Duncan RS, Kaja S, Zabaneh A, Chapman KD, and Koulen P, Lauroylethanolamide and linoleylethanolamide improve functional outcome in a rodent model for stroke. *Neurosci Lett.* 2011; 492: 134-138. 10.1016/j.neulet.2011.01.073, IF: 2.274, PMID: 21296126
 40. Burroughs SL, Kaja S, and Koulen P, Quantification of deficits in spatial visual function of mouse models for glaucoma. *Invest Ophthalmol Vis Sci.* 2011; 52: 3654-3659. 10.1167/iovs.10-7106, IF: 3.812, PMID: 21330670
 41. Garg P, Duncan RS, Kaja S, and Koulen P, Intracellular mechanisms of N-acylethanolamine-mediated neuroprotection in a rat model of stroke. *Neuroscience.* 2010; 166: 252-262. 10.1016/j.neuroscience.2009.11.069, IF: 3.244, PMID: 19963043
 42. van den Maagdenberg AM, Pizzorusso T, Kaja S, Terpolilli N, Shapovalova M, Hoebeek FE, Barrett CF, Gherardini L, van de Ven RC, Todorov B, Broos LA, Tottene A, Gao Z, Fodor M, De Zeeuw CI, Frants RR, Plesnila N, Plomp JJ, Pietrobon D, and Ferrari MD, High cortical spreading depression susceptibility and migraine-associated symptoms in Ca(v)2.1 S218L mice. *Ann Neurol.* 2010; 67: 85-98. 10.1002/ana.21815, IF: 9.037, PMID: 20186955
 43. Kaja S, Van de Ven RC, Broos LA, Frants RR, Ferrari MD, Van den Maagdenberg AM, and Plomp JJ, Severe and progressive neurotransmitter release aberrations in familial hemiplegic migraine type 1 Cacna1a S218L knock-in mice. *J Neurophysiol.* 2010; 104: 1445-1455. 10.1152/jn.00012.2010, IF: 2.225, PMID: 20631222

44. Kaja S, Van De Ven RC, Frants RR, Ferrari MD, Van Den Maagdenberg AM, and Plomp JJ, Reduced ACh release at neuromuscular synapses of heterozygous leaner Ca(v)2.1-mutant mice. *Synapse*. 2008; 62: 337-344. 10.1002/syn.20490, IF: 2.318, PMID: 18293354
45. Kaja S, van de Ven RC, Broos LA, Frants RR, Ferrari MD, van den Maagdenberg AM, and Plomp JJ, Characterization of acetylcholine release and the compensatory contribution of non-Ca(v)2.1 channels at motor nerve terminals of leaner Ca(v)2.1-mutant mice. *Neuroscience*. 2007; 144: 1278-1287. 10.1016/j.neuroscience.2006.11.006, IF: 3.244, PMID: 17161543
46. Kaja S, van de Ven RC, van Dijk JG, Verschuuren JJ, Arahata K, Frants RR, Ferrari MD, van den Maagdenberg AM, and Plomp JJ, Severely impaired neuromuscular synaptic transmission causes muscle weakness in the Cacna1a-mutant mouse rolling Nagoya. *Eur J Neurosci*. 2007; 25: 2009-2020. 10.1111/j.1460-9568.2007.05438.x, IF: 3.115, PMID: 17439489
47. Kaja S, Hann V, Payne HL, and Thompson CL, Aberrant cerebellar granule cell-specific GABAA receptor expression in the epileptic and ataxic mouse mutant, Tottering. *Neuroscience*. 2007; 148: 115-125. 10.1016/j.neuroscience.2007.03.055, IF: 3.244, PMID: 17614209
48. Kaja S, Todorov B, van de Ven RC, Ferrari MD, Frants RR, van den Maagdenberg AM, and Plomp JJ, Redundancy of Cav2.1 channel accessory subunits in transmitter release at the mouse neuromuscular junction. *Brain Res*. 2007; 1143: 92-101. 10.1016/j.brainres.2007.01.063, IF: 3.370, PMID: 17320843
49. van de Ven RC, Kaja S, Plomp JJ, Frants RR, van den Maagdenberg AM, and Ferrari MD, Genetic models of migraine. *Arch Neurol*. 2007; 64: 643-646. 10.1001/archneur.64.5.643, IF: 13.608, PMID: 17502463
50. Todorov B, van de Ven RC, Kaja S, Broos LA, Verbeek SJ, Plomp JJ, Ferrari MD, Frants RR, and van den Maagdenberg AM, Conditional inactivation of the Cacna1a gene in transgenic mice. *Genesis*. 2006; 44: 589-594. 10.1002/dvg.20255, IF: 1.800, PMID: 17146767
51. Kaja S, Van de Ven RC, Ferrari MD, Frants RR, Van den Maagdenberg AM, and Plomp JJ, Compensatory contribution of Cav2.3 channels to acetylcholine release at the neuromuscular junction of tottering mice. *J Neurophysiol*. 2006; 95: 2698-2704. 10.1152/jn.01221.2005, IF: 2.225, PMID: 16381801
52. Kaja S, van de Ven RC, Broos LA, Veldman H, van Dijk JG, Verschuuren JJ, Frants RR, Ferrari MD, van den Maagdenberg AM, and Plomp JJ, Gene dosage-dependent transmitter release changes at neuromuscular synapses of CACNA1A R192Q knockin mice are non-progressive and do not lead to morphological changes or muscle weakness. *Neuroscience*. 2005; 135: 81-95. 10.1016/j.neuroscience.2005.04.069, IF: 3.244, PMID: 16111830
53. van den Maagdenberg AM, Pietrobon D, Pizzorusso T, Kaja S, Broos LA, Cesetti T, van de Ven RC, Tottene A, van der Kaa J, Plomp JJ, Frants RR, and Ferrari MD, A Cacna1a knockin migraine mouse model with increased susceptibility to cortical spreading depression. *Neuron*. 2004; 41: 701-710. 10.1016/s0896-6273(04)00085-6, IF: 14.415, PMID: 15003170
54. Kaja S, Yang SH, Wei J, Fujitani K, Liu R, Brun-Zinkernagel AM, Simpkins JW, Inokuchi K, and Koulen P, Estrogen protects the inner retina from apoptosis and ischemia-induced loss of Ves1-1L/Homer 1c immunoreactive synaptic connections. *Invest Ophthalmol Vis Sci*. 2003; 44: 3155-3162. 10.1167/iovs.02-1204, IF: 3.812, PMID: 12824266

Peer reviewed publications in languages other than English:

1. Ю.А. Наумчук, В.Б. Максименко, **С. Кая**. ОПТИМІЗАЦІЯ ТЕСТІВ ЖИТТЄЗДАТНОСТІ КЛІТИН ДЛЯ СКРИНІНГУ ГЛІОПРОТЕКТОРНИХ СПОЛУК У КУЛЬТУРІ ПЕРВИННИХ АСТРОЦИТІВ ГОЛОВКИ ЗОРОВОГО НЕРВУ ЩУРА. УДК 616-018:54. DOI: 10.20535/1810-0546.2017.6.119387

2. Reviews, Chapters, and Editorials

Reviews

1. McCalley AE, Kaja S, Payne AJ, and Koulen P, Resveratrol and calcium signaling: molecular mechanisms and clinical relevance. *Molecules*. 2014; 19: 7327-7340. 10.3390/molecules19067327, IF: 3.267

2. Duncan RS, Goad DL, Grillo MA, Kaja S, Payne AJ, and Koulen P, Control of intracellular calcium signaling as a neuroprotective strategy. *Molecules*. 2010; 15: 1168-1195. 10.3390/molecules15031168, IF: 3.267
3. Plomp JJ, van den Maagdenberg AM, and Kaja S, The ataxic Cacna1a-mutant mouse rolling nagoya: an overview of neuromorphological and electrophysiological findings. *Cerebellum*. 2009; 8: 222-230. 10.1007/s12311-009-0117-5, IF: 3.378
4. van de Ven RC, Kaja S, Plomp JJ, Frants RR, van den Maagdenberg AM, and Ferrari MD, Genetic models of migraine. *Arch Neurol*. 2007; 64: 643-646. 10.1001/archneur.64.5.643, IF: 13.608

Book chapters

1. Haar L and Kaja S. Technological and Ethical Challenges of Online Education: Adapting medical education to digital platforms. In: *Optimizing Medical Education With Instructional Technology*. IGI Global. 2019. DOI: 10.4018/978-1-5225-6289-4.ch011
2. Kaja S, Payne AJ, Burroughs SL, Koulen P. Homer. *Encyclopedia of Signaling Molecules*, Choi, Sangdun (Ed.), 2nd Edition, 2017. ISBN 978-1-4939-6799-5.
3. Rao VR, Kaja S, Gentile S. Ion Channels in Aging and Aging-Related Diseases. *Molecular Mechanisms of the Aging Process and Rejuvenation*, Shiomi, Naofumi (Ed.), 2016. ISBN 978-953-51-2568-6.
4. Naumchuk Y, Shah V, Kaja S. Mobile Technology in Tele-education. In: *Teleophthalmology in Preventive Medicine*, Springer, Berlin Heidelberg, Georg Michelson (Ed.) 2015, pp 105-113. ISBN 978-3-662-44974-5
5. Kaja S, Payne AJ, Burroughs SL, Koulen P. Homer. *Encyclopedia of Signaling Molecules*, Choi, Sangdun (Ed.), 1st Edition, 2013. ISBN 978-1-4419-0460-7.

Editorials

1. Kalesnykas G, Rawal AS and Kaja S. The need for relevant functional endpoints in ophthalmic drug discovery. *Austin Journal of Clinical Ophthalmology* 2014, 1:2.
2. Kaja S and Payne AJ. Novel Treatment Strategies for Neurological and Neurodegenerative Diseases. *Journal of Biology and Medicine* 2014, 1:S1.
3. Payne AJ, Kaja S, Sabates NR, and Koulen P, A case for neuroprotection in ophthalmology: developments in translational research. *Mo Med*. 2013; 110: 429-436. IF: N/A

3. Clinical Communications

1. Rosen SM, Kaja S, and De Alba F, Association of Transient Colorblindness With Sildenafil and Tadalafil. *JAMA Ophthalmol*. 2019; 137: 117-118. 10.1001/jamaophthalmol.2018.4716, IF: 6.198

4. Theses

1. Kaja S. Synaptic effects of mutations in neuronal CaV2.1 calcium channels. 2007 Doctoral thesis; Leiden University; ISBN 9-78097819050-7.
2. Kaja S. Characterising gamma-aminobutyric acid-A receptor expression in the cerebellum of Tottering mutant mice. 2002 Bachelor thesis; Durham University.

5. Patents

1. Patent Application "LXR Agonist in Topical Ophthalmic Formulation for Treatment of Dry-Eye Disorder", Inventors: Kaja S, Ghosh AK, Jones WK, Filing Date: 12 Dec. 2019, Serial No. 16/711,646

6. Abstracts (only (only those containing data not yet published in complete form))

1. Himes C, Stubbs EB, Fulghum T, Bairstaw S, Kaja S, Fareed J. Subconjunctival Chemotherapeutic Delivery by Fibrin Sealant in the Treatment of Retinoblastoma. *Invest. Ophthalmol. Vis. Sci*. 2020; 61(7):2815.
<https://arvojournals.org/article.aspx?articleid=2767730>
2. Vähätupa M, Ragauskas S, Ziniauskaite, Knuutila A, Sihvo HK, Jääskeläinen M, Kaja S, Kalesnykas G, Cerrada-Gimenez M. Automated quantification of CNV volume using deep learning AI algorithm. *Invest. Ophthalmol. Vis. Sci*. 2020; 61(7):4194.
<https://arvojournals.org/article.aspx?articleid=2768424>
3. Cesna R, Paulauskas T; Mickevicius K, Neverauskas D, Lelyte I, Kaja S, Kalesnykas G, Ragauskas S. Comparative efficacy of bevacizumab and aflibercept in the rabbit DL-AAA

- model of chronic retinal neovascularization. *Invest. Ophthalmol. Vis. Sci.* 2020; 61(7):5391. <https://arvojournals.org/article.aspx?articleid=2768996>
4. Neverauskas D, Mickevičius K, Kaja S, Kalesnykas G, Ragauskas S. Characterization of VEGF-induced retinal neovascularization in Dutch Belted rabbits using in vivo imaging. *Invest. Ophthalmol. Vis. Sci.* 2020; 61(7):5399. <https://arvojournals.org/article.aspx?articleid=2769001>
 5. Kaja S, Stubbs EB, Mitchell CH, Ghosh AK. Mechanical strain causes cytoskeletal remodeling and cellular elastinopathy in primary optic nerve head astrocytes. *Invest. Ophthalmol. Vis. Sci.* 2020; 61(7):992. <https://arvojournals.org/article.aspx?articleid=2766829>
 6. Santa Maria J, Cabe M, Iqbal O, Kaja S. Aspirin and its metabolite, hippuric acid, increase VEGF Expression in human retinal pigment epithelium cells. *Invest. Ophthalmol. Vis. Sci.* 2020; 61(7):2289. <https://arvojournals.org/article.aspx?articleid=2767456>
 7. Iqbal O, Kolli A, Bouchard C, Ripa M, Dharan A, Kaja S, Campbell E. Influence of serum from patients with Systemic Autoimmune Disease on IL-8 Expression in Human Corneal Epithelial Cells in Vitro. *Invest. Ophthalmol. Vis. Sci.* 2019; 60(9):4739. <https://iovs.arvojournals.org/article.aspx?articleid=2744215>
 8. Ragauskas S, Ziniauskaite A, Kaja S, Kalesnykas G. Neuroprotection of retinal ganglion cells via NMDA-dependent mechanism in the mouse non-arteritic anterior ischemic optic neuropathy (NAION) model. *Invest. Ophthalmol. Vis. Sci.* 2018; 59(9):3204. <https://iovs.arvojournals.org/article.aspx?articleid=2691129>
 9. Arumugham R, Somasekhar G, Upadhyay A, Kalesnykas G, Kaja S, Jain S. Pre-clinical efficacy of OCU300 nanoemulsion for the treatment of ocular graft versus host disease (oGVHD). *Invest. Ophthalmol. Vis. Sci.* 2018; 59(9):3287. <https://iovs.arvojournals.org/article.aspx?articleid=2691184>
 10. Janicot M, Kalesnykas G, Leo E, Fettes P, Kaja S, Wosikowski K. Combining ISTH0036, an antisense oligonucleotide targeting Transforming Growth Factor beta 2 (TGF-β2) mRNA, with aflibercept as novel treatment strategy for neovascular retinal diseases. *Invest. Ophthalmol. Vis. Sci.* 2018; 59(9):236. <https://iovs.arvojournals.org/article.aspx?articleid=2688919>

7. Preprints

1. Ghosh, A.K.; Thapa, R.; Hariani, H.N.; Volyanyuk, M.; Orloff, K.A.; Ankireddy, S.; Lai, K.; Ziniauskaite, A.; Stubbs Jr, E.B.; Kalesnykas, G.; Hakkarainen, J.J.; Langert, K.A.; Kaja, S. Antioxidant Effects of the Prenylated Flavonoid, Xanthohumol, on Corneal Epithelial Cells in Experimental Dry Eye Disease. Preprints 2021, 2021040222 (doi: 10.20944/preprints202104.0222.v1).